

ANODE

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Editor's Notes

[These notes were mainly written by our new chairman, OM Dave as a stopgap measure whilst I was busy with work. John]

Upcoming Events

HF Open day at the club-house 14:00 on the 20th July.

Boot Sale (moved to) 12:00 on the 31st August 2002.

Dave's comments

This months ANODE just had to suffer under salt mine, and believe it or not, amateur radio activities! OM John's salt mine took him out of town and kept him very busy. He promised that the next Anode will be a bumper issue. (He just loves producing them one after another!)

The month of April with all of its public holidays also featured the SARL AGM and all that goes

with that. From the West Rand Club side we hosted the SARL delegates and club members on the Friday before the AGM. On the day of the AGM we also had one of our usual bumper boot sales. This was one of the better boot sales that we have had to date. I know, every time we have one, I for one label it as the best boot sale of the century. Around the end of July 2002 we are

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DIPLEXER - 2m / 70cm

by HB9ABX

The names Duplexer and Diplexer are very similar and frequently confused.

The Duplexer is a device which separates 2 frequencies within the same band, while the Diplexer is a device which separates 2 different bands.

The Duplexer requires much more selective circuits while the Diplexer normally requires only low pass and high pass circuits.

This DIPLEXER separates 2m from 70cm on the same coax cable. It allows to use 2 antennas over the same cable and permits transmission on one band and simultaneous reception on the other band, when connected on the side of the antennas. Or use 2 pieces of equipment (one VHF and one UHF) when used on the side of the transceiver.

The following data have been measured on 50 Ohm input and 50 Ohm output:

Separation of the two

bands is very high (over 70 db)

Insertion loss is negligible (less than 0.2 db)

Its easily built into a metallic box measuring 8cm x 4cm x 2cm or similar (E.g. TEKO 372)

List of components:

L1 = 1 turn 6mm diameter, 1mm silver wire

L2 = same as L1

(orientation 90 deg in respect to L1)

L3 = 3 turns 6mm diameter, 1mm silver wire

(Continued on page 2)

Special points of interest:

- New contact details on back page
- Resistor Colour Code chart on Page 9

DIPLEXER - 2m / 70cm

(Continued from page 1)

L4 = 4 turns 6mm diameter,

1 mm silver wire

L5 = same as L3

C1 = foil trimmer capacitor

15pf (3-15pf)

C2 = same as C1

C3 = same as C1

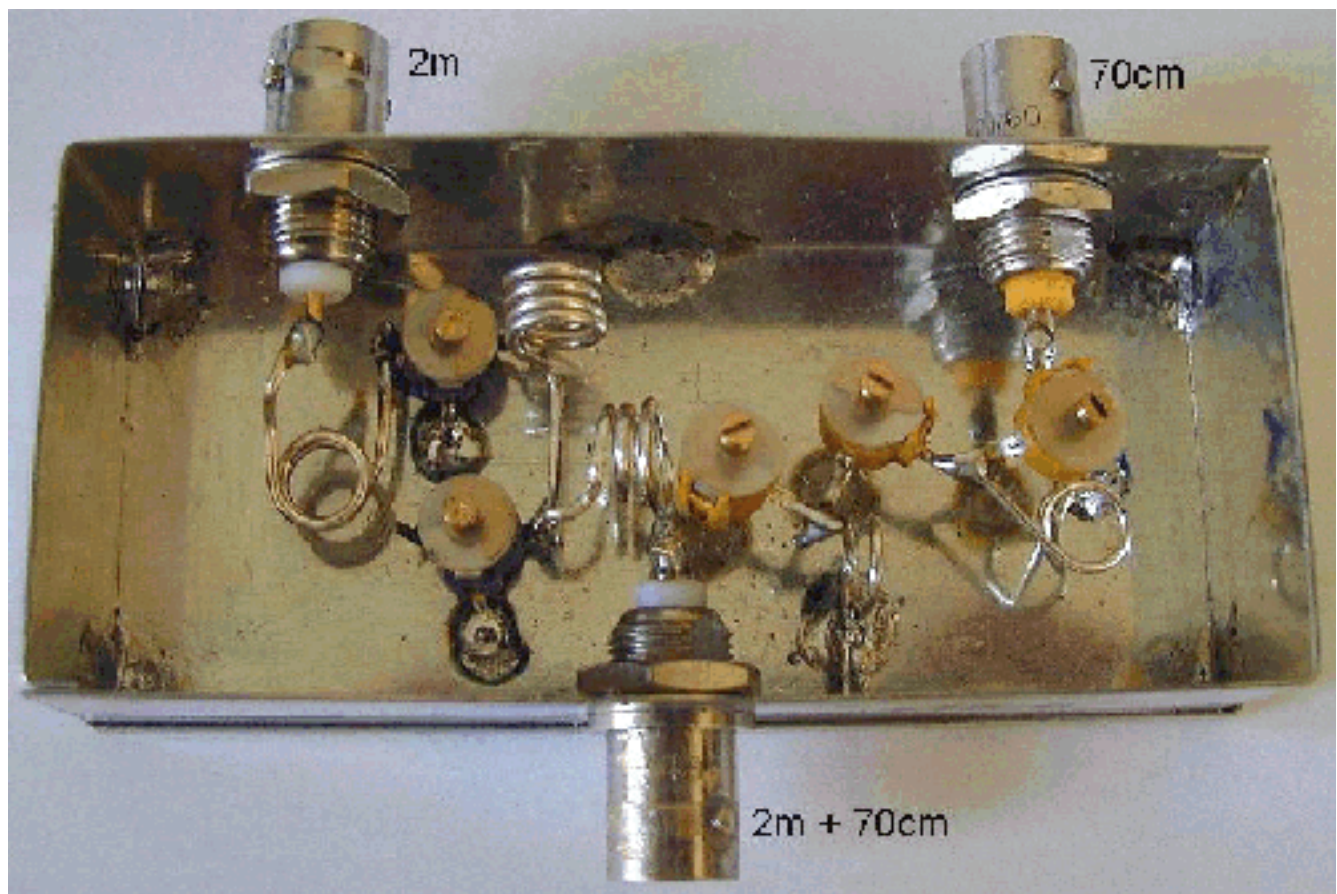
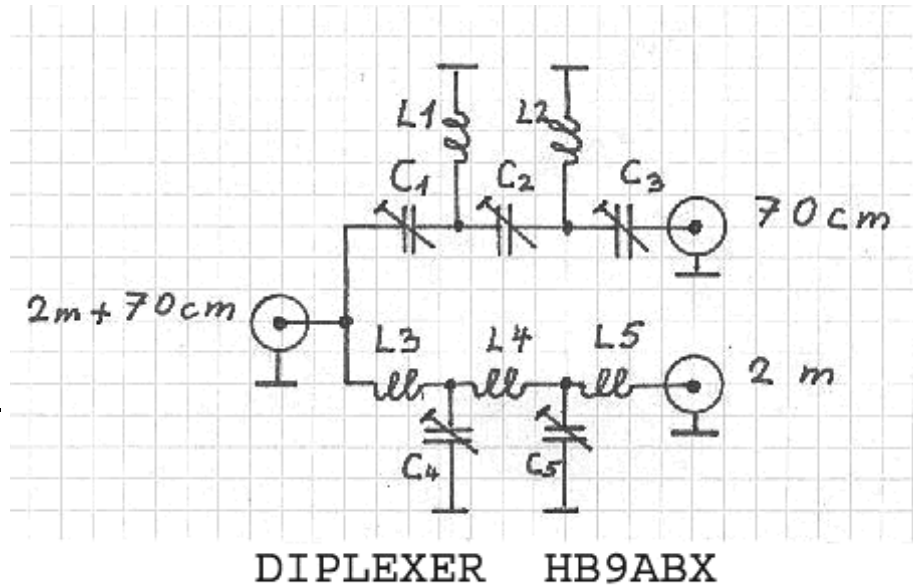
C4 = foil trimmer capacitor

40pf (4-40pf)

C5 = same as C4

3 HF chassis plugs 50 Ohm (e.g. BNC)

1 metal box e.g. TEKO 372



Editors Comments

(Continued from page 1)

planning the next boot sale of the century. Please tell your friends and mark your calendar.

All this excitement meant that there was a lot of hard labour needed to get the clubhouse and grounds respectable. The grass (veldt) was as thick as a jungle after the good summer rains. This on its own needed two Saturdays to cut. A number of members did themselves and the club proud and did work that they haven't done at home in years. With winter upon us this grooming of the grounds (both inside and outside) should enable us to keep it in check with little regular attention.

This brings me to a point regarding participation in club events. OM Bill wants to cry when he asks for help with anything ranging from washing the

glasses all the way to participating in say the next HF contest. The silence when he just mention that we need help is deafening! With this in mind we are planning to have another monthly meeting.

This meeting will be on the 3rd Saturday of the month. The first meeting will be on Saturday 18th May 2002. For now we will call it HF OPEN DAY and that just about describe what we have in mind for the day. The main idea with this is to have fun and at the same time get members into a position where they can and will participate more in club activities. This will also be a great way to get our equipment into a ready status for any contest etc. The start time will be around 14:00 just to allow all the weekend shopping to be completed so that you can bring you spouse, or friends along for a relaxed afternoon

at the club. Of course there will be a fire should you want to bring a piece of work along.

On the equipment side we managed to get hold of a LPDA on loan and this will shortly be installed. In a later Anode I will give some figures on this antenna for the technically minded amateurs. To say the least this one is BIG!

John's notes

Thank you Dave for the input. This month has seen a new committee elected. Congratulations on becoming the new Chairman and congrats to all the other committee as well. I am looking forward to producing the Anode for the rest of the year. See you at the club-house, Cheers. JB

SARL Membership Subscription Rates

The following rates apply as from 1st July 2002. Subscriptions are due on or before 1st July. Ordinary members and most other categories pay R220. Senior members (retired over 65) R180. The spouse of a member R55. Associate member R500. Sponsor R2200.

FOR THOSE THAT WE SELDOM SEE AT THE CLUBHOUSE

Some (hopefully useful) information that will get them to visit the clubhouse on a regular basis.

Technical Meetings

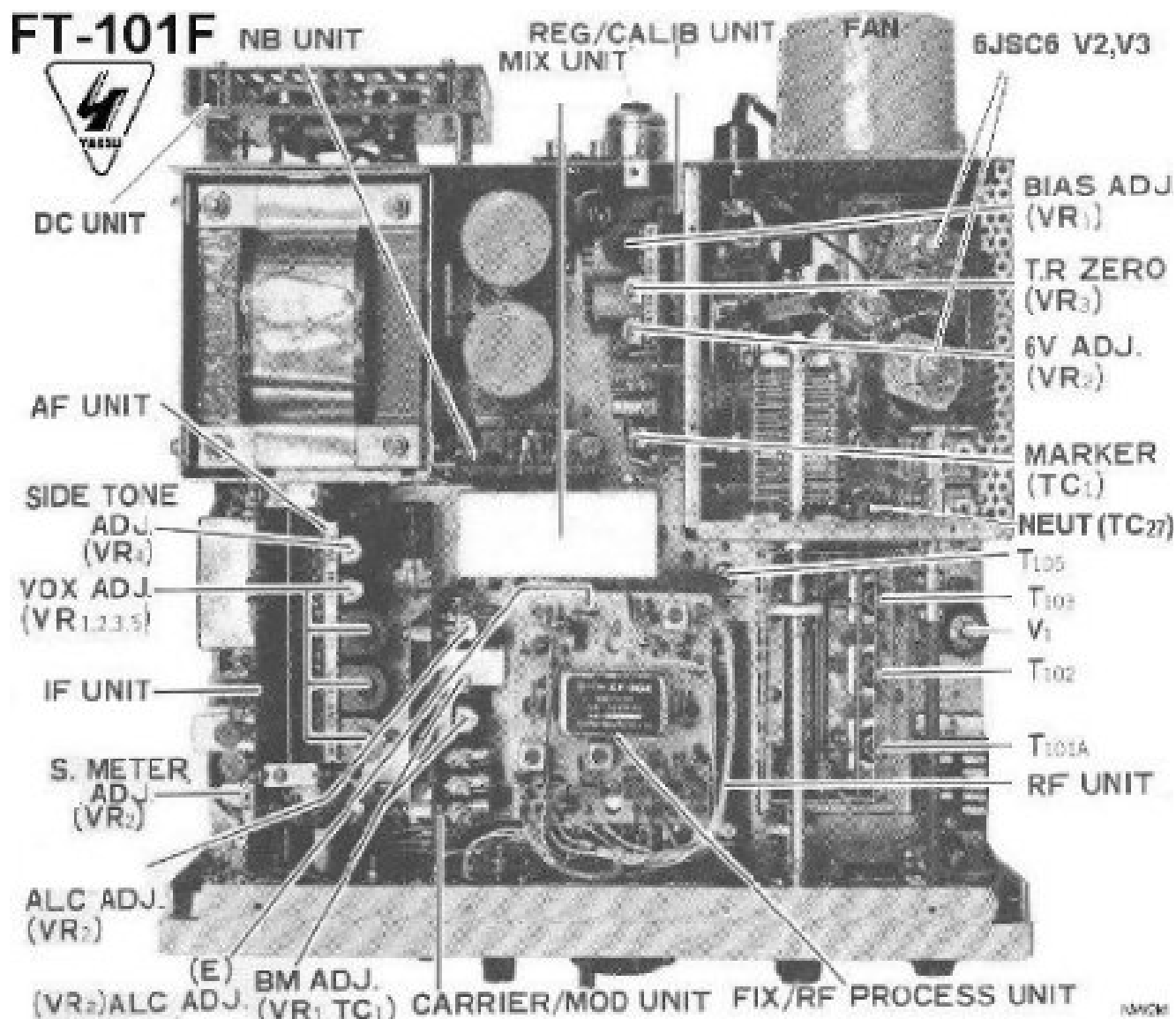
The technical, or better known as "The Bring And Fix" Meeting is held at the Club House starting at, 19:30, on the first Monday of every month. This meeting is aimed at those of you who would like to learn about

anything from TVT's to PIC's or to discuss any technical aspect of Amateur Radio (but not limited to). All are welcome even if you would simply like to come along and socialise. Or bring your trusty FT-101F along to show everyone the latest mods to it.

(See the picture on the right for those that don't know a naked FT101Fed).

General Club Meeting

The Club holds its general meeting on the Second Monday of each Month, starting at 19:30. The meeting is hosted by BILL VAN ZYL - ZS6REV, the Club Chairman. Come along and "get involved", after all, the club will not function very well without its members. All are most welcome and we will endeavour to make these meetings most enjoyable to all.

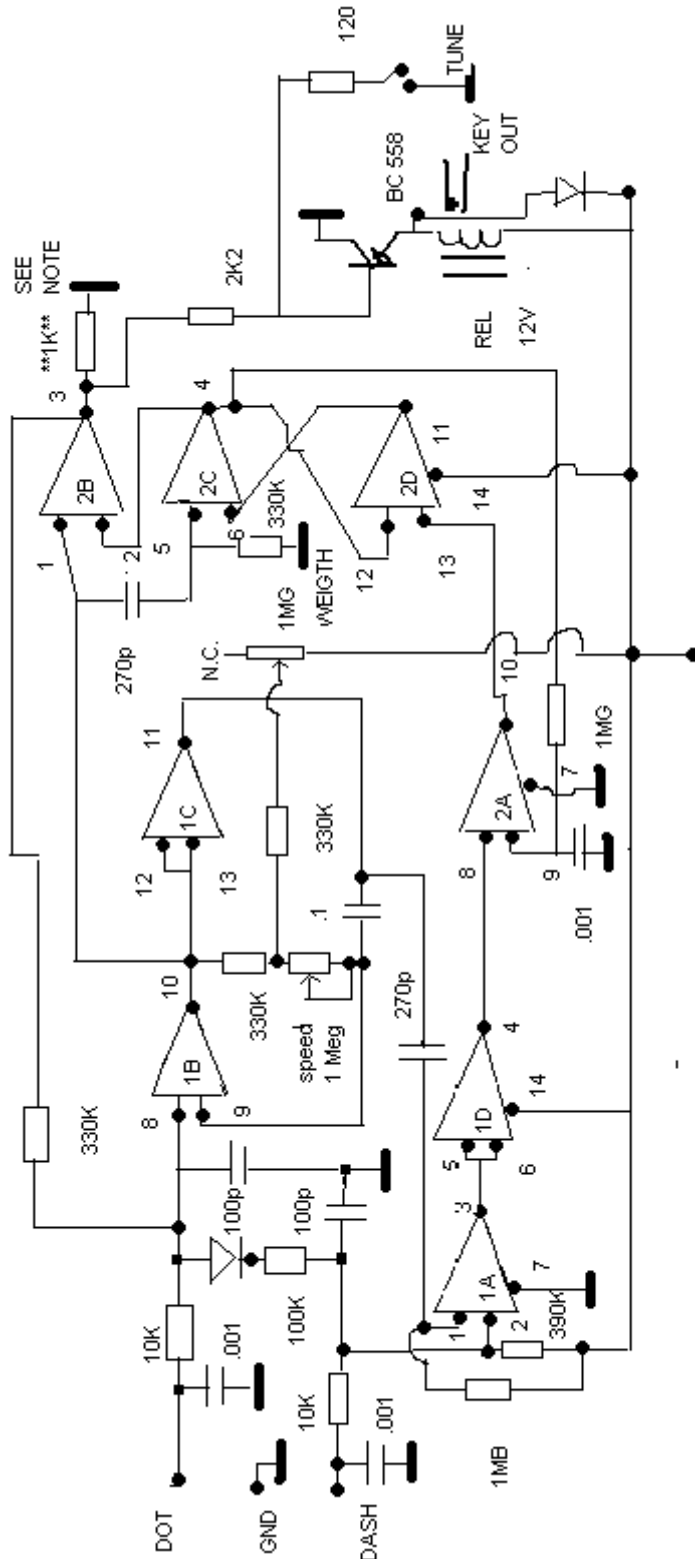


Simple Electronic Keyer

[downloaded from packet radio]

The schematic on the right should not be a problem for most constructors to work out a layout and construct. This is one of a number of useful simple circuit ideas that pop up on packet from time to time. There was no written instructions with it, but all that is needed is on the schematic.

The integrated circuit is a CMOS device and is sensitive to damage by static electricity. Please take care with this device while it is not in circuit. Once soldered in place they are more robust. The transistor used may be difficult to source locally, but it just drives the relay so most similar substitutes will work just fine. Experiment and Enjoy.



IC 1 E IC2 = CD 4001
 FEATURES: SIMPLE - CHEAP - SURE - RF PROOF - NICE KEYING - PORTABLE - HOME BREW - LOW DC DRAIN = SOMETHING
 MORE? ORIGINAL MODS: CX4CO PAUL CX7BBB TONY CX9BT MAN

NOTE: IN MYKEY USE A TR BC 680 AND CHANGE THE **1K** RESISTOR TO 4K7 CX9AU DAN

VHF'ers SET NEW DX RECORDS OF OVER 20,000 kms.

This headline could be well be believed by listening to the East Rand Club repeater on 145.675. On any given day of the week local ZS's and ZR's can be heard communicating with Canada, Australia, New Zealand, England and America with all the clarity that VHF FM can provide. This is due to the introduction of IRLP or the Internet Radio Linking Protocol. This is a method whereby two or more repeating stations are linked by the Internet. Access to the nodes, as they are called, is by a sequence of repeater tones which then accesses a computer and radio connected to the Internet by a continuous ISDN or high speed telephone connection. The signal is passed down the telephone

lines to the appropriate repeater at the other end and a connection is established. Further communication is by voice over the radios and a fairly normal QSO takes place under radio protocol, bearing in mind that the voice "data" is carried in packets down the line and is subject to distance lag and packet fragmentation. Generally speaking the contacts are of a very high quality considering the distances involved and the fact that all of our telephone connections are via cable. All that a potential user requires is tone controlled access to the local repeater and a list of the codes for the various international nodes and knowledge of the extended radio protocol that the system requires. I have

heard users so excited about their contacts using this new method that there have been requests to QSL, via the bureau nogal! Next thing we'll be QSL'ing our cell phone contacts. There are questions that are being asked about the system, such as, is it legal for ZR's to make over border contacts? But I will leave these questions to be answered by the experts,

I would like to bring attention to another similar method of Internet Linking, which to my mind is much simpler. This is the I Link system devised by Graeme Barnes M0CSH in England. With this system a licensed radio operator, using simple soft-

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Making Waves

To most people the word 'analogue' is synonymous with yesterday's technology, and few areas suggest analogue technology so much as radio communication. At one end of the technological spectrum we have silicon chips, PCs, DVDs and games consoles, and at the other we have valves, short-wave radios and Morse code. In reality, though, it's rather naive to relegate radio to the second division of technology. After all, it is behind the scenes of mobile phones, wireless networking, digital TV, Bluetooth and so much of the paraphernalia of the modern age.

Using a mobile phone or a

pager may not seem like radio - no tuning knobs, no static noise or interference from other stations, and definitely no having to say "over" at the end of each transmission. However, 'real' radio still exists: it's used by the emergency services, the military, air traffic control and shipping to name but a few. It's even used by Joe Public within the constraints set by the regulatory authorities. Even here, however, it would be wrong to assume that it's untouched by the digital technology of the 21st century. Computer technology has impacted the world of radio communication as it's affected just about everything else.

Ham in a pickle

You've probably come across the terms amateur radio and CB, but possibly not PMR 446. Even if you are aware, in general terms, of amateur radio and CB, you probably only have a vague idea of how they differ.

Amateur, or ham, radio goes way back to the early days of radio - many of the techniques that form an integral part of today's communication were developed by amateurs.

Amateur radio is by far the most powerful of the three

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VHF'ers SET NEW DX RECORDS OF OVER 20,000 kms.

(Continued from page 6)

ware and a microphone connected to his computer sound card can access, via the internet Voice over IP protocol, a number of repeaters and other amateurs connected via the internet to the system. The software is not very large but is surprisingly powerful.

Downloaded from
www.aacnet.net

the program is unzipped to a directory. Volume levels are adjusted for mike and speakers and you connect to the internet via your local service provider. Setup first requires that you give a valid call sign and all pertinent information. On your first logon your facts

are cross-referenced to make sure that you are a licensed ham. You will then be given a password and reference number. When you logon again to one of the server stations you will be presented with a list of all the stations connected. There are three basic types, individual hams, conference linked operators and repeaters. Details of the stations are shown immediately in a text box together with any messages. Voice data coming down is also shown as a spectrum and normal QSO's take place using the mouse as a PTT. If connected to a repeater you CQ in the normal manner and listen for a reply. If you wish to turn your station into a conferencing centre, there is

an interface board available to interface your rig to the computer. QSO's can then be made via your station. Every effort is being made to see that existing amateur radio regulations are not broken in any way

Happy VHF DX'ing
de Craig ZR6CRW

Making Waves

(Continued from page 6)

radio services we're looking at here, but it's also the hardest to get into because of the licensing constraints. In addition to paying an annual fee, a licence can be obtained only after passing an examination on the theory of radio and electronics and, for some types of licence, a Morse test too. The licence conditions are stringent because an amateur radio licence allows the operator to use high power and large antennas on a wide range of frequencies, not just fixed channels.

Unlike CB and PMR 446 users, amateur radio operators

are also allowed to build their own equipment. This means that amateur radio can offer worldwide coverage. It also has the potential for causing interference to other services if it's not used correctly, which is why its use is restricted by international agreement.

The licence places constraints on what you can use amateur radio for. You're not allowed to use it in connection with a business - it's intended purely as hobby radio although, as with amateur computing, the intention is that there's an educational element to it. Amateur radio transceivers can cost anything from around £70 for a low power, single-band,

UHF handheld to almost £3,000 for a top - of - the - range transceiver.

Citizen's rest

CB, which stands for Citizens' Band, was first introduced in the USA as a radio service for those who needed to communicate - long distance lorry drivers, for example - but didn't want the hassle of obtaining an amateur radio licence. When CB became available in the rest of the world, there was a change in emphasis. Rather than a utility radio service, it became another form of hobby radio, rather like

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Making Waves

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amateur radio.

However, there are big differences between the two. CB is intended for use by people who are not communications experts so there are no tests to be taken - users simply pay an annual fee to obtain a licence. However, CB operators are allowed to operate only on a single band (27MHz), they must use lower power than amateurs and there are also constraints on the size of the antenna. Accordingly, the range is much reduced. Home construction of equipment is also banned. CB rigs cost from around £70 to £200 depending on their power and whether they're handheld, mobile or base station, although you can often pick up second-hand units for much less.

PMR 446 stands for 'Private Mobile Radio on 446MHz'. It's a comparatively new service in the UK and is also available in much of Europe. The power is much reduced, even in comparison to CB, so the range is extremely limited - 3km is typical in open countryside, and in cities the range is shorter still. Other than placing this sort of constraint on the equipment, there's little in the way of rules and regulations. You don't even have to obtain a licence.

PMR 446 is used for business and leisure. People working on a construction site may keep in contact using these radios, hikers use them for emergency backup in mobile phone black-

spots and children can use them as toys. Small handheld PMR radios start at around £70 a pair.

As well as these three radio services, general coverage receivers and scanners are available for those who are content simply to listen. Some just cover the air bands and are used by those who have an interest in air travel (although strictly speaking it's illegal to listen in to the air bands) but others allow you to listen to radio amateurs, foreign broadcast stations and plenty more.

The bit parade

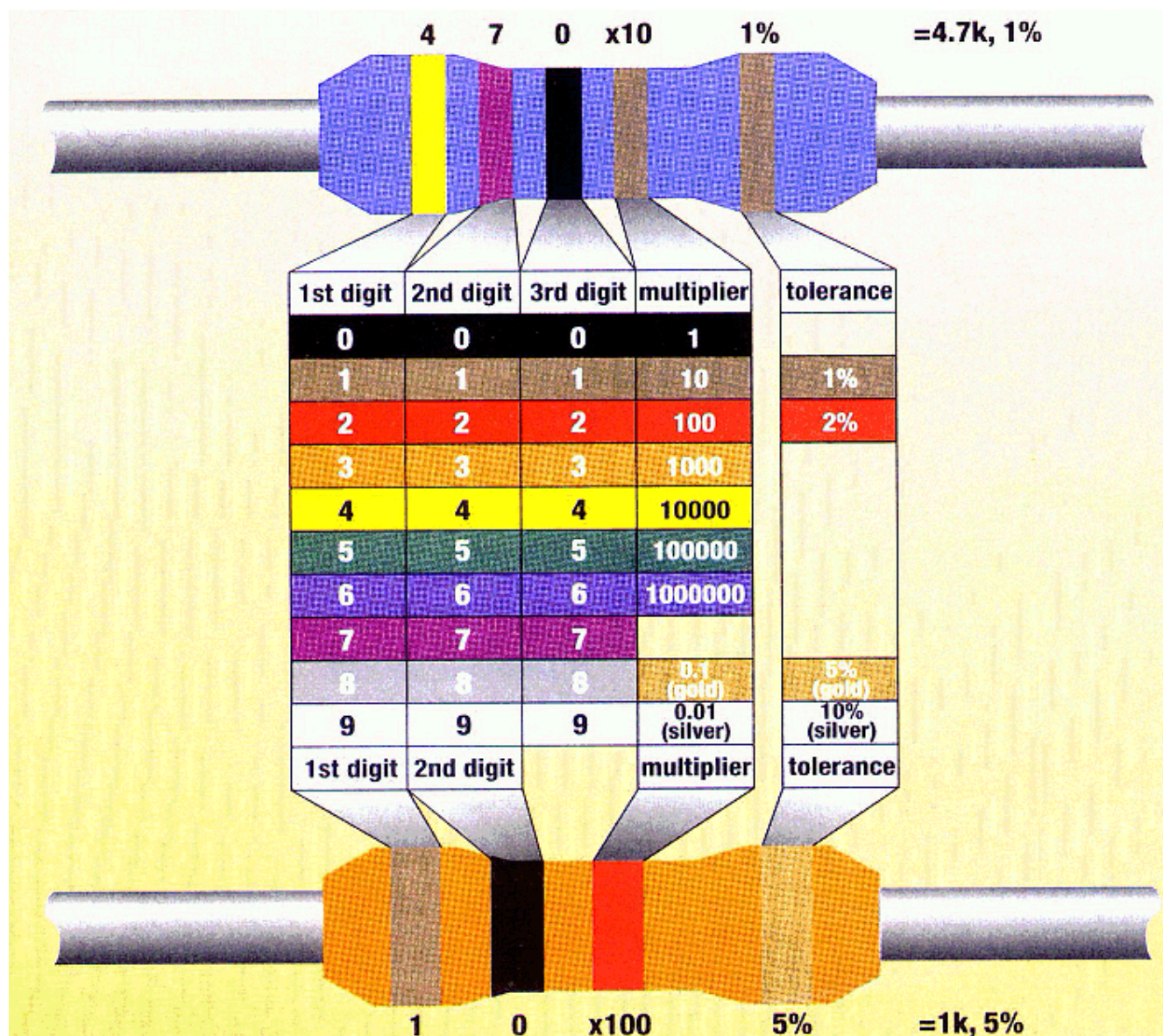
Radio communication equipment, even that intended primarily for speech communication, owes a lot to digital electronics. In the main speech isn't digitised for transmission as it is with the forthcoming digital broadcast radio (DAB) and in GSM mobile phones, although this will undoubtedly come. Even so, virtually all radio transceivers now derive the RF signal digitally using something called a frequency synthesiser instead of the conventional analogue methods, and the more sophisticated amateur transceivers contain many microprocessors or micro controllers. These are used for various tasks ranging from driving the display, through frequency control, to the provision of audio processing to reduce noise and interference.

Digital techniques in radio can

go much further than this. There's talk, for example, of a radio receiver implemented entirely in software. So far this is some way off since the processing power to handle an RF signal isn't yet available. However, there are various half-way solutions. One common approach is to convert the incoming radio signal to a lower, intermediate frequency that can be handled by a PC and perform the remainder of the processing in software. Another alternative is to have what is essentially a hardware receiver but to make it software controllable. Instead of a large box containing tuning knobs, mode switches, volume controls, meters and the like, the radio is just a small black box and the user interface is provided on the PC screen.

[Stolen from Computer Shopper UK March 2002]

Resistor Colour Code Lookup



The West Rand Amateur Radio Club

26.14122 South - 27.91870 East

P.O. Box 562

Roodepoort

1725

Phone: +27 11 726 6892

Email: john.brock@pixie.co.za

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!



Please note this has been just been registered. Our site will be up in the new year.

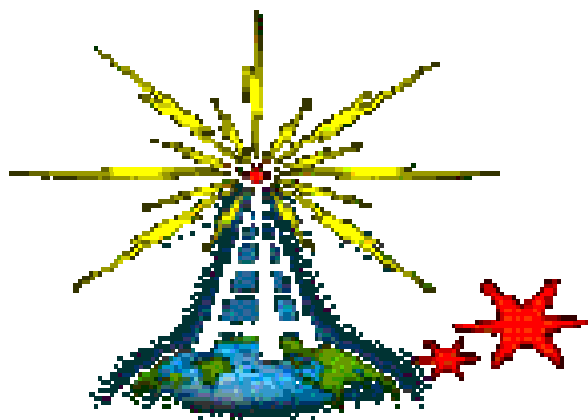
Chairman/Treasurer	Dave	ZR6AOC	475 0566 (H)	Zr6aoc@mweb.co.za
Vice-Chairman/Events	Simon	ZR6SS	084 308 2665	ssnyman@securehome.co.za
Secretary	John	ZS6FJ	672 4359 (A/H)	
Technical	Phillip	ZS6PVT	083 267 3835	
Technical	Greg	ZR6JDD	083 289 2072	gjarrett@webb.co.za
Member	Craig	ZR6CRW	795 1550 (H)	craig.woods@absamail.co.za

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.

In November 2001, we published an Anode Compendium on CD. It has the issues from July 2000 until November this year. This included IE5.5 and the new Adobe reader. It is soon to be updated, check with the vice-chairman for details.



We need your input! Email us articles, comments and suggestions please.
john.brock@pixie.co.za