BARG News

Official Newsletter of the Ballarat Amateur Radio Group Inc. # 6953T
ABN 44 247 200 143
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President: John Kennedy VK3AIG
Secretary: Doug Ellery VK3FDRE
Treasurer: Roger De Valle VK3ADE

NEXT MEETING - SATURDAY JUNE 1, 2013
At 2.00 pm

Contacting us
You can write to the club at the address below, or e-mail the secretary.

The Secretary : B.A.R.G. Inc.
Box 1261
Mail Centre
Ballarat. Vic. 3354.

We're on the web
www.barg.org.au

Or E-Mail: vk3bml@barg.org.au

BARG INC. LIFE MEMBERS

Maurie Batt *	
Gordon Cornell	**VK3FGC**
Norm D'Angri	**VK3LBA**
Harry Hekkema	**VK3KGL**
Kevin Hughes	**VK3WN**
Ian McDonald	**VK3AXH**
Phil Seddon	**VK3AQM**
Charlie Stewart	**VK3DCS**
Bob Terrill	**VK3BNC**
Stan Widgery *	
Jim Wright *	

CLUB INFORMATION

REPEATERS and BEACON

VK3RWA*	(2 m Voice Repeater) (Uses CTCSS of 91.5 Hz to access)	147.100 MHz	Mt Ben Nevis
VK3RPC	(2 m Packet Repeater)	144.750 MHz	Mt Warrenheip
VK3RBU	(70 cm Voice Repeater)	438.475 MHz	Mt Hollowback
VK3RMB	(70 cm Beacon)	432.535 MHz	Mt Buninyong
VK3RBU-1	(2 m APRS Repeater)	145.175 MHz	Mt Hollowback
VK3RBT	(2 m Voice Repeater) (Uses CTCSS of 91.5 Hz to access)	146.650 MHz	Green Hill

*** IRLP** Node 6310 using VK3RWA

CLUB e-mail vk3bml@barg.org.au.

CLUB NETS VK3BML 3.608+/- QRM Thursday Nights at 8 pm E.S.T (Summer & Winter)
146.650 MHz - Every Tuesday Night at 8 pm. (VK3RBT Repeater)

WIA Broadcast Sunday 11.00 am via VK3RWA (IRLP Node 6310

NEWS ITEMS Send to Harry VK3KGL

Or mail to Box 1261 Mail Centre BALLARAT 3354 or e-mail member.vk3kgl@barg.org.au

Broadcast Times and Dates on VK3RWA Repeater

Every Sunday at 11.00 am, WIA National News.
Every Monday night at 9.30 pm, ARRL News
Every Tuesday night at 9.30 pm, WIA National News Repeat

QST Report with Craig, VK3KG

Content review of current QST in library

QST Review

April 2013

Celebrating 75 years of W1AW.

P4/5 Index page
P9 Editorial talks of Technicians on 10M. Then and now

P24 Letters from members.
P30 Remote Control of Accessories via the Internet.
P33 The 2Metre Q-Pole. Is this related to the J Pole.?

P34 The Garden Beam. No tower needed.
P37 An MCW Keyer for V/UHF FM. Send code on 2M
with this very simple project.
P39 An Audio Tone SWR meter for Visually impaired.
Add onto conventional SWR meter.
42 Whats in QRX for Mar/Apr this year.
P43 Overvoltage Protection for AC Generators. Revisted.
P47 Done in One-Temperature Alarm. Simple and easy to make and use.
P48 REVIEW: Yaesu FTDX3000 HF & 6M Transceiver.
P54 The Doctor. Responds to a wide range of Technical questions.
P56 Short Takes. Palm Radio Mini paddle for cw buffs.
P57 Hands on Radio. Ex #123 Battery Characteristics Pt 2.
Also discusses using data logging facility of some DMM.
P59 Eclectec Technology looks at HF Digital Voice with *Free DV*
A new CODEC by VK5DGR. http;//freedv.org/tiki-index.php
P60 Microwaves. Construction Practices.
P62 Hints & Kinks Copper coil pads, & Tower power.
P65 W1AW in its 75th year by photographs.
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P73 Field day by motor bike and Trailer.
P74 Managing your Modulation.
P79 Happenings: FCC Adopts sweeping changes to Experimental Radio
Service. Will it affect Amateur radio.?
P82 Public Service: Global Planning for Disasters.
P90 How's DX. V84SMD Brunei 2012
P92 World above 50Mhz. More January magic. In the USA.
P96 Vintage Radio. The Heathkit SB-240 2kW Amplifier. Bet you never heard of this one before from Heathkit. ?
P101 The Learning never stops
P102 QST index from 75, 50 and 25 years ago

73, CRAIG, VK3KG

BA'S AUDIO WORKSHOP PTY. LTD. ABN 59 007 427 778
trading as
BALLARAT
AUTO SOUND SPECIALIST
and
Radio Communications Systems Specialists
Supply and Service
8 EASTWOOD ST., BALLARAT 3350
Tel. 5333 4465 Fax. 5331 5851

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SupaSwift
Ariens STIGA
ECHO
CHIPPER CHOPPER
Engineered Products Group
KOHLER engines

COFFEE at the CLUB

(A Cuppa Tea is also available)

Join us for a Cuppa and a yarn on the 2nd and 4th Thursday of each month (except January & December) at the Clubrooms. We start at 10.30am and finish at about 11.30am, in time to get home for lunch.

COME ALONG AND JOIN US IN A NIBBLE AND A NATTER. (FRIENDS ARE WELCOME.)

B.A.R.G Items for Loan.

Antenna Analyser MFJ269 HF-VHF-UHF
Antenna Analyser MFJ249 HF/VHF
UHF Antenna Analsyer
Antenna Analyser VHF. Autek.
Receiver Drake SSR-1.
Receiver FRG-7.
Transceiver TS-530.
Oscilloscope BWD 509.
Grid Dip Oscillator.
Safety Belt.
Antenna Gin Pole.

Musings with attachment.

Just cleaning up some old files in the shack and found this old data sheet for the WODEN modulator transformer types UM1, UM2, UM3 and UM4 types. Back in my "earlier days" when amateurs built ALL their station equipment [both transmitters and receivers along with test equipment] these transformers were very popular as the Modulation transformer for both HF and VHF bands.

I used a UM3 in my first 2Metre AM transmitter that ran an 832 twin tetrode valve and was capable of 20Watts on 144Mhz. The modulator had a pair of 6L6GT valves driven by a 6SN7 dual triode phase splitter and another triode microphone preamp driver.

The primary plate to plate impedance from the modulator was 10,000 ohms and the RF load was selected at the 4k3 tap. The UM3 and UM4 were the most commonly used back in the 1960's as they were rated for 250 or 400ma current max. Many amateurs on 2M were using the 832 or the QQEO6/40 valve and had 100Watts of signal power available. Another valve in use was the QQEO3/20 but this was lower power than the 6/40. There were many 832's around then as disposals type SCR522 had a pair of them if you were salvaging. From memory the other valves in the RF line up were a 6AG7 octal as a xtal oscillator [8Mhz] and tripler followed by two stages of a 5763 valve which were tripling and then doubling to 144Mhz which fed the 832PA stage.

At some point in time I tried modulating the 832 using an old method called the Heising method which didn't use a transformer but a choke arrangement.

This was the way earlier amateurs produced Amplitude modulation but from memory wasn't capable of full 100% modulation depth so I returned to using the UM3.

It was possible to overdrive the RF carrier with too much audio signal and this of course produced overmodulation, distortion and frequency spread which was very quickly told to you when the band became active with other stations. Back then all stations were frequency locked to a crystal spot on the band and tuning around was required to see who was present as well as giving a long CQ call on your own frequency.

This allowed others to sweep the band for activity and they would then tune their receiver to your xtal frequency and call you back on their frequency. Later the "pulling" of the crystal frequency gave some flexibility to allow netting on or very near to the other station. Homemade VFO's appeared also but frequency drift was always a concern as the fundamental frequency needed to be very stable before the multiplication chain commenced. My first crystal frequency put me on 144.832Mhz which made contacts difficult because the main tuning range then was the first 500Khz from 144.00 to 144.500 Mhz. Later crystals put me on 144.342 and the very hot frequency of 144.138. The later frequency was literally a calling frequency as the disposals outlets had an oversupply of DC11 type crystals that were very cheap. It was also possible to regrind or etch the crystal itself onto another frequency and cover other spots on the band. Once VFO's became more stable then the channelised occupation on 2M became less severe. When FM car phones became available on the disposals market a lot of activity started to disappear from the bottom end of 2M .

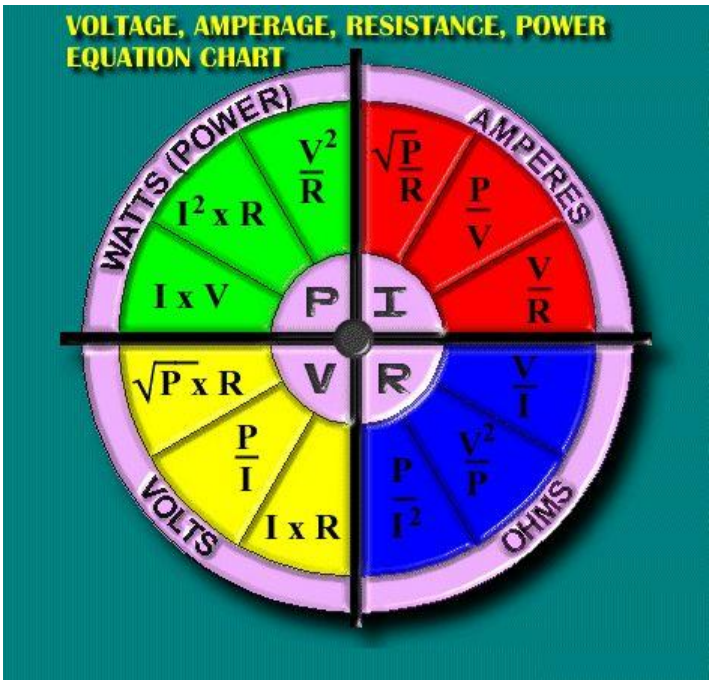
In Melbourne we had three simplex channels called channels A, B & C and they were 145.854?, 146.000 and 146.146Mhz. The first Repeater was a private one started by two amateurs and it was called Z1.

This led to the start of a public one called Melb repeater VK3RML

Around this time the importation of commercial SSB HF transceivers by Yaesu, Kenwood and Icom started and by rebuilding the 2M transmitters as transvertors and using the HF rigs as tunable drive oscillators we could have a SSB signal on 2M. The other advantage was that the receiving convertor on 2M could then be down converted into the HF receiver by using it as a tunable IF thus bringing a new level to the way we could produced signals. The large suppliers also brought out radios that had the complete transmitter and receiver inbuilt. Such radios were the FT221 [2M] and FT621 [6M] as an example. I followed the trend after a while and after using a homebrew valve transvertor and a second hand Yaesu FT101 transceiver for a short time succumbed and bought a all in one FT221 transceiver which ran a small 10Watts output. This later used a high power QQEO6/40 valve linear for a year or two until time constraints I had to sell the gear. When I re emerged onto the 2M band a year or two later it had completely changed to the "black box technology" and I also went down that path like most others however that's another story. This short trip back into history was prompted by my finding the connections for the WODEN modulation transformer that I thought may be better shared with others in case one day some one comes up and asks "Can any one supply details of ….."

It may happen as I have seen these trannys come out during White Elephant sales.

The enclosed image is very handy to hang up in the shack if the memory is a bit rusty in remembering the twelve separate formulaes that can be used when dealing with Ohms' Law



Craig VK3KG

Why a field day site near a wind farm might not be a good idea.

The question was asked at a committee meeting some time back when a visit to the Waubra wind farm was suggested as a possible technical outing. The technical questions bandied about boiled down to 'how does it work'. "A very variable generator output connecting to a fixed frequency supply."

The usual way of connecting a generator to the mains is to synchronize it and try and drive it harder than the spinning online speed. That s fine, within limits, for a steam turbine, diesel or petrol engine but with a variable output source like a wind generator just synchronizing would be hard enough let alone maintaining some power into the grid. The only control available is the pitch of the propeller blade to control speed and power extracted from the wind. Some wind farms have used this technique.

With the continuing development of power electronics other schemes have been devised. Some of you may be familiar with solid state variable speed 3 phase synchronous AC motor drives. Essentially this is a frequency converter on the output with the mains being converted to DC then converted back to the variable frequency/voltage AC to drive the motor. Variations of this include "inverter technology" used in newer air conditioners to give control of inwards mains Power Factor and speed of the compressor. See figure 1

The only difference for the wind generator is the variable frequency is on the input converted to DC and then that is converted to AC at 50Hz and fed to the grid.

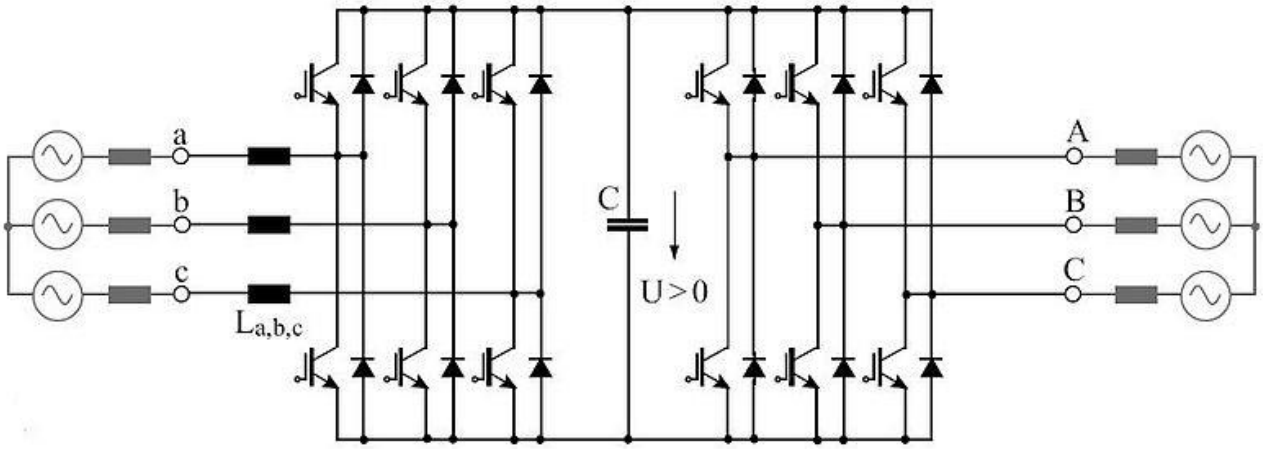


Figure 1 3 Phase AC - DC - AC converter (lifted from Wikipedia)

Notes on Figure 1.

- Pulse Width Modulation is used on input and output to generate the DC and AC.
- The Capacitor is large (has to store the energy, how big are those generators MWatts?)
- U = V for volts

Another method shown in Figure 2 is a "hybrid converter" and involves no intermediate (DC) conversions. It relies on the situation that at any point in time the input phases can be switched to the ouputs to approximate the desired waveform to give the right magnitude and frequency of the output.

Notes on Figure 2.
Pulse Width modulation is used to switch the matrix.
Control Electronics is much more complicated.

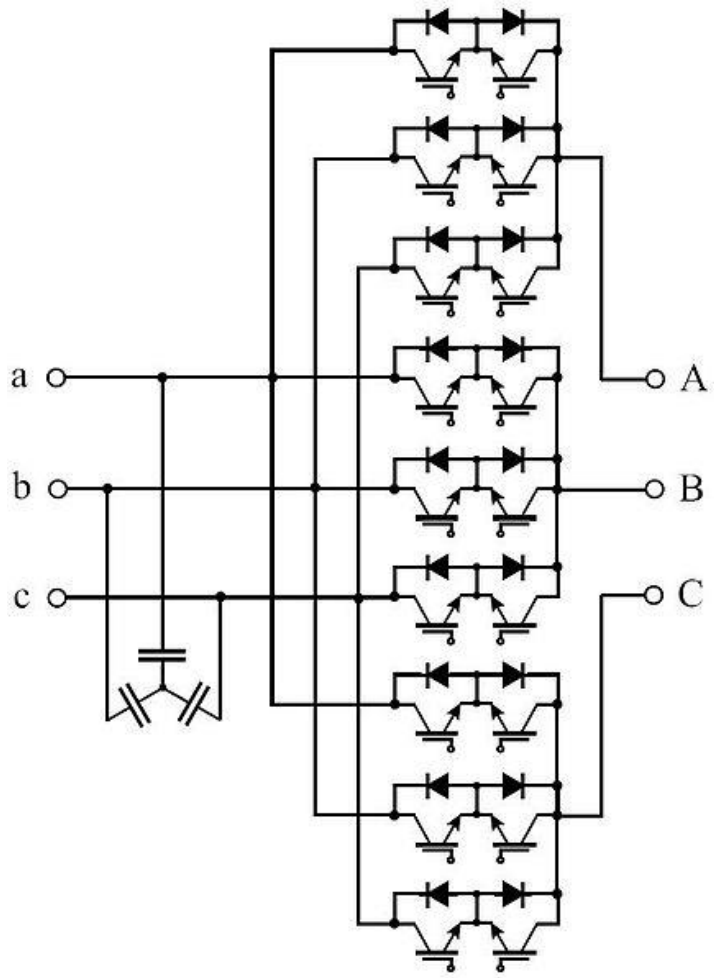


Figure 2 Hybrid Converter AC – AC (lifted from Wikipedia)

Conclusion.

Given that Pulse Width Modulation is used at high power levels for the two examples even with very good RF filtering I would pick a windless day to use Waubra as a field day site.

David Martin VK3KQT.

PS I don't really know what system Waubra uses, maybe you can ask on the visit.

Congratulations to Jordan Wallis who recently upgraded to an Advanced Licence. Listen out for Jordan using VK3CLI.

Well done Jordan.

Craig, VK3KG

Some photo's of our auction this month…

Last count about 36 were present, plus all the ladies in the kitchen…..

Auction went very well, with 98% of 'gear' sold.

The lunch was very well received, with plenty of food……..

Some of the gear for sale

John and Roger ready to do the 'penning'

Waiting for Bob to start proceedings

Last minute check on article…

Ladies getting lunch ready

WOW !!! That was value for money

Ladies enjoying a break…..

Did the club make some $???

BARG 'ESTA' VISIT

On Tuesday 7th May 2013 about 25 members from the club visited ESTA at 15 Enterprise drive Mt Helen Some may wonder what ESTA is, well it's the Emergency Services Telecommunications Authority and they are responsible for ALL communication between the public and the Emergency services of Police, Ambulance, Fire and SES.

ESTA is operated for 24 hours, 7 days a week with a staff of over 600 people and serves some five million Victorians.

The Authority was set up in 1969 as there was no single call center for emergencies in the whole of Australia.

Our guide on the night was Michelle who was the senior Call taker Supervisor on duty and was an original member from when only the CFA fire calls were taken there. Now the three services there are Police , Fire[CFA] and Ambulance. The MFB and the SES are controlled from the Melbourne site only while Mt Helen covers the whole state for other bodies. They also have a similar setup at Tally Ho in Melbourne which can duplicate itself if Ballarat should suffer a disaster. On the night I judged there to be about thirty people on duty within the center. They work a twelve hour shift and operate in a very large "open office" arrangement although the rooms layout shows that the CFA, the Ambulance and the Police are quite separate with positioning of their operating consoles.

The operators all take their breaks away from the desk BUT cannot leave the center while rostered on duty. A large bright and fully serviced kitchen and staff room allows operators to have a good area to stand down in and there is a gymnasium and a quiet room available also.

We were able to inspect the actual communications room out the back. This consisted of equipment racks full with modems and wired with a myriad of cables with RJ45 connectors.

In the rear of the room was an enclosure that housed the only RF part of the system there. You could tell it looked like radio equipment but that was as far as could be seen. The majority of all signals into and out of the centre was by cable access.

As it was a quiet evening we saw no sign af any activity until a call came in via the triple zero line. The operator immediately asked the caller "Do you want Police, Fire or Ambulance"? and when told fire she opens a screen that allows the taking of additional information about the event, This involved a tree fire in the Redcliffs area up North and once this was recorded the operators screen data is transferred to a CFA operator who then pages the nearest brigades to turn out.

The CFA has a pre determined plan that they may call out more than one brigade depending on the location, size and complexity of the report.

Once on scene the first unit makes a quick assessment and reports back to Vicfire by radio. Depending on the situation it can be decided by the person at the incident to call for more support from the radio operator directly. The service can then call out a host of other forms of assistance such as more tankers, an aerial bomber [the Skycrane helicopter], a dozer of various size, ambulance and/or police support. They may also request local council support in the form of a ranger or engineer to attend for roaming livestock, fallen trees or power lines.

If the incident looks like running over longer time they also call out many of the support agencies such as Dept of Health, Red Cross, Salvation Army, catering groups, animal welfare, Work cover authority, water boards, transport divisions, the Coroners department and others that are required.

The operators have two computer screens that allow firstly the called in data to be sorted and the other screen has a CAD screen with a map which is probably the best updated map available on a day to day basis. This allows the operator to zoom into the location of the incident and they are capable of reading off the map down to about a 5 metre accuracy. With the use of GPS now in emergency vehicles the operator can receive constant update data to the location of any appliance that is in the area or on its way. They are able to accept map data in the form of Lat/Long, Grid References or by distances from a nearby fixed reference object.

We were not able to look at the Police operations in detail due to privacy considerations but there were a number of people working in that section and may have been a slow night but there would also be a range of enquiries from mobiles for perhaps registration checks at road side checks covering the whole state.

The ambulance area has a two fold task. Firstly they manage all country emergency calls or a medical emergency that is a high priority and secondly they coordinate the transfer of patients from hospital to homes or other hospitals.

Some statistics for ESTA from its web site www.ESTA.gov.vic.au shows the number of different calls that were made in the year 2011/2012: There were 2,203,506 calls into the service of which 1,690,775 were actual dispatched responses.

The number of triple zero calls (000) needing assistance from within Victoria were 1,531,557. This covers Police, fire and Ambulances.

Non emergency ambulance patient transfers were 60,207. Number of assisted births for impatient babies was 1,095,691 Means the others made hospital in time.

Remember if you require some emergency support then telephone "Triple Zero" and respond to the operators questions. Maintain a calm voice and speak with an allowance for the rhythm, your volume and the pitch of the voice.

CRAIG, VK3KG

I HEARD IT THROUGH THE

We may be connected to the NBN network soon ???
We got a new WEBMASTER and WEB PAGE… Well done Darren…

PLEASE NOTE…..

NO MEETING IN MAY !!!!!!
INSTEAD THE NEXT DAY SATURDAY JUNE 1ST…. DAY MEETING
BBQ SAUSAGE SIZLE BEFORE MEETING…

SOTA Report

Congrats to Allen VK3HRA for attaining 1000points as a Sota chaser-award is called a Shack-sloth.
Impressive as Allen does frequent and regular activating and even had time to submit a great article in June issue AR magazine on Sota.
Listen for Sota stations weekends mostly around change of GMT day (10am local) plus or minus 7.090mhz.
Look on http://www.sotawatch.org/ for spotting of stations worldwide.
Sota mapping info http://sotamaps.wsstvc.org/
A very handy Android app for Sota spotting is
http://www.microsofttranslator.com/bv.aspx?from=de&to=en&a=http://www.dl1dlf.de/rucksack_radio_tool click on the USA flag for English translation this app works well even on the Uno cheapie Android phone.
Set it running and have voice set as an option and it will announce any Sota spots to alert you away from the computer real handy.

Ernie VK3DET.

SILICON CHIP CONTENTS APRIL and MAY 2013 ISSUES.

The NEW Silicon Chip Website.
How to get Digital TV on your laptop.
A Rugged 10A Battery Charger from Bits & Pieces.
Get Software Defined Radio for $25
The Raspberry Pi Single Board Computer
Do Not Disturb Telephone Timer
Simple DMM Auto Power-Off
Voltage & Current Meters For The New Battery Charger

Lots of reviews
Hints
Vintage Radio
Mailbag
Etc. etc.
Both Issues in library now.

DON'T FORGET TO PUT YOUR NAME ETC. IN LOAN BOOK !!

WANTED
Computer Keyboard with USB connector for Clubroom.
Email: member.vk3kgl@barg.org.au

FOR SALE

All alloy 18 m Tilt Over Tower
Has hand winch and cable, plus mountings for rotator.
Made by ATN Towers of Birchip.
Self supporting tower for Omni antenna.
Needs guys for beams.
$1400 Ono...
Nice and light to move....

Rotator and cables.

Kawasaki Rc5-1. Creative Design Corporation.

This unit maybe 30 years old but its brand new.
NEVER been used. $450.00 ONO

Winch etc for tower.

All items contact Bob Pitcher - VK3NBV

VK3NBV. 03 53360998

Mob. 0418 501 324

A few words from the auctioneer……..

Hi there Guys.
Well it was a very successful day yesterday and thanks for all your support and it was good to see all the visitors.
I have a question, there was a Realistic Receiver DX-200 and some other gear left for the auction which was not sold as there appeared to be no owner!
Can anyone help please? I wish to get selling instructions as there is interest it this item so if you can contact me I'll announce the auction details (if its available) for our next meeting which is on "SATURDAY NEXT 1st June after a BBQ lunch .
Thank you all,
Bob, VK3BNC

WANTED TO BUY

Kenwood HF hybrid transceiver

TS 520/530/820/or 830 or accessories.

Contact Ernie VK3DET

vk3det1@bigpond.com or Phone: 53420383

And last……From our new webmaster……

As you maybe aware the new website has been implemented, and was done last week with a lot of help and thanks to Roger.
The website now has an email address for people to contact the webmaster, so that articles and documents etc, can be sent to the email address for the website to be updated.
Website email for the webmaster is: thewebmaster@barg.org.au

So if you would like to put something into the newsletter about the new website and email, it would be great.

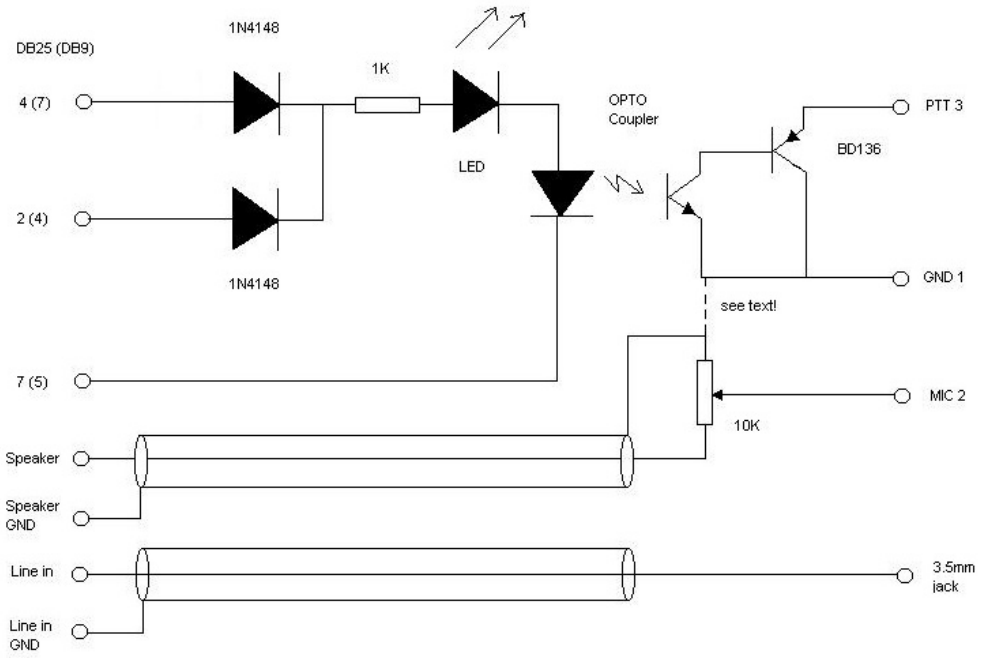
Regards Darren, vk3faoe

Introduction To WSPR (Weak Signal Propagation Reporter)

At the BARG general meeting to be held this coming Saturday there will be a short presentation about the use of a computer and simple interface to check out if a particular band is open and if so to where.

This circuit is very simple and will allow you to become a player in this interesting mode. In addition the simple interface can also be used for other activities such as other WSJT modes, Easy Pal TV, Slow Scan TV, RTTY and a host of other modes such as those listed in Mix W

Computer to Radio Interface



See you at the meeting de VK3AXH

FOR SALE

"For Sale - Best Offer " Yaesu FT7 HF transceiver (problem on 40 metres).
Will bring to the meeting.

Regards, Ian Mc