

# Monthly Newsletter Of The Ballarat Amateur Radio Group Inc. #6953T

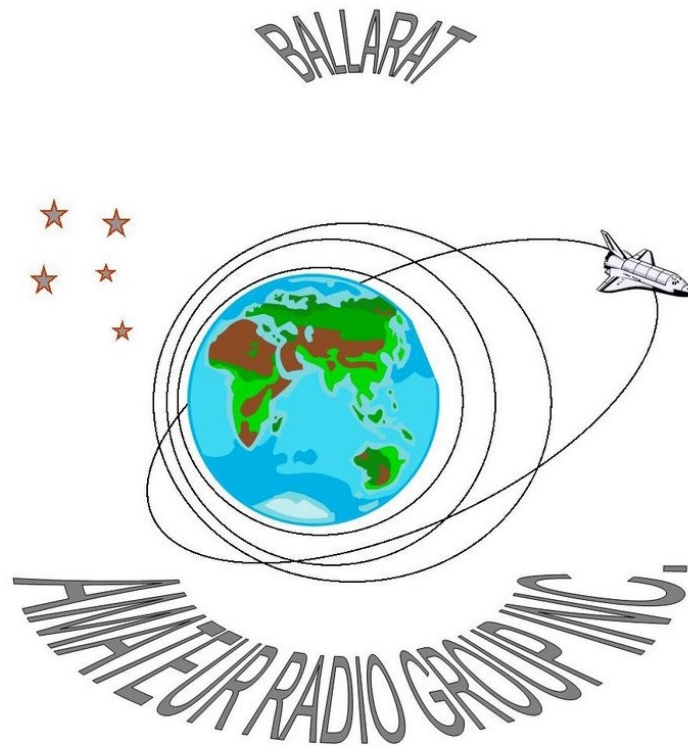
Box 1261, Mail Centre, Ballarat, Victoria, 3356, Australia.

## Next Meeting

**FRIDAY, 28th of February, 2014, at 7.30PM**

### **BARG NETS**


**TUESDAY NIGHT 8.00 PM 146.650 MHz FM VK3RBT**  
**THURSDAY NIGHT 8.00PM 3.608 MHz SSB VK3BML**



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Cnr Carrngham Road & Wiltshire Lane Ballarat VIC 3350 <b>Phone:</b> (03) 5336 1344 <b>Fax:</b> (03) 5336 1027	<b>Damien Hennessy</b> Sales / Spares <b>Mobile:</b> 0417 313 811 <b>Email:</b> damo_611@hotmail.com	
		

## **WHY SENIORS NEED NEWSPAPERS**

I was visiting my daughter last night when I asked if I could borrow a newspaper...

"This is the 21st century," she said. "We don't waste money on newspapers. Here, use my iPad."

I tell you what, That fly never knew what hit him.

### Important Disclaimer

Me sending this to you, does not mean I think you are old (much ....) it is purely acknowledgement that you have a similar sick sense of humour as I do .....

### **B.A.R.G Items for Loan.**

**Antenna Analyser MFJ269 HF-VHF-UHF**

**Antenna Analyser MFJ249 HF/VHF**

**UHF Antenna Analysyer**

**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.**

This morning on the Freeway, I looked over to my right and there was a WOMAN in a brand new VW GOLF !! Doing 110 km/hour.

With her face up next to her rear vision mirror putting on her eyeliner.

I looked away for a couple seconds and when I looked back she was halfway over in my lane, still working on that makeup.

As a man, I don't scare easily... but she scared me so much I dropped my electric shaver, which knocked the meat pie out of my other hand.

In all the confusion of trying to straighten out the car using my knees against the steering wheel, it knocked my mobile phone way from my ear, which fell into the coffee between my legs, which splashed and burned '*Big Jim and the Twins*', Ruined the phone, soaked my trousers, and disconnected an important call.

**BLOODY WOMEN DRIVERS !!!**

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## The ID card

The other day I needed to go to the public hospital but not wanting to sit there for 4 hours, I put on my blue jacket and pinned on a plastic ID card that I had made off the Internet onto the front of my jacket.

When I went into the hospital, I noticed that 3 quarters of the people got up and left. I guess they decided that they weren't that sick after all. Cut at least 3 hours off my waiting time.

Here's the patch. Feel free to use it the next time you're in need of quicker emergency service:



It also works at Centrelink. It saved me 2 hours..

Don't try it at McDonald's though.

The whole staff disappeared and I never got my order!!!!!!

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[www.siliconchip.com.au](http://www.siliconchip.com.au)

## Features

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Experiment with electronic fuel-injection for your 4-stroke lawnmower using this simple Arduino-based system – by Nenad Stojadinovic

### 82 Review: Rigol DS1104Z-S Digital Storage Oscilloscope

Compact, low-cost 4-channel digital scope boasts advanced features that would have cost a fortune not too long ago – by Nicholas Vinen

### 86 The Sydney Mini Maker Faire

We visit the "Mini Maker Faire", an exhibition of various groups and businesses dedicated to people building stuff – by Nicholas Vinen

## Projects To Build

### 20 Bass Extender Mk2 For HiFi Systems

Want more bass from your speakers? The Bass Extender Mk2 can give a big improvement in bass response for very little outlay – by Nicholas Vinen

### 30 PortaPAL-D: A Powerful, Portable PA System, Pt.2

Second article on our new go-anywhere portable PA system shows you how to build the PCBs, mount them on two L-shaped aluminium panels and connect them together – by John Clarke

### 58 Build A LED Party Strobe

Using high-power LED arrays, it's easy to make a safe party strobe which will give a good display yet won't break the bank – by Ross Tester & Nicholas Vinen

### 68 Li'l Pulser Mk2: Fixing The Switch-Off Lurch

A design flaw in our Li'l Pulser Model Train Controller Mk2 means that at switch-off, any locomotive(s) on the track can suddenly lurch forward, even if they were stationary. Here's how to fix the problem – by Nicholas Vinen & Leo Simpson

### 88 "Tiny Tim" 10W/Channel Stereo Amplifier, Pt.3

Final article shows how to assemble the unit into the case, complete the wiring and do the testing – by Nicholas Vinen & Leo Simpson

## Special Columns

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A typical day in my working life – by Dave Thompson

### 46 Salvage It!

Wrecking a dead PC power supply for parts – by Bruce Pierson

### 76 Circuit Notebook

(1) Pseudo-Random Timer For A Bird Scarer; (2) Universal Numeric Display For Controllers Running Maximite Basic; (3) Door Minder Senses Air Pressure And Plays A Tune

### 94 Vintage Radio

Philco Safari: the first transistor portable projection TV set – by Ian Batty

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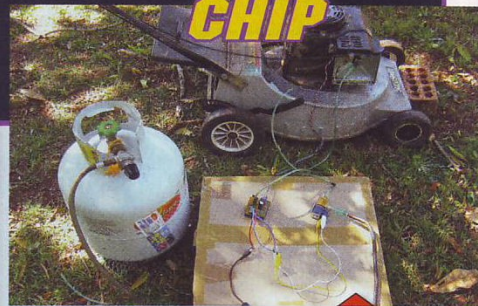
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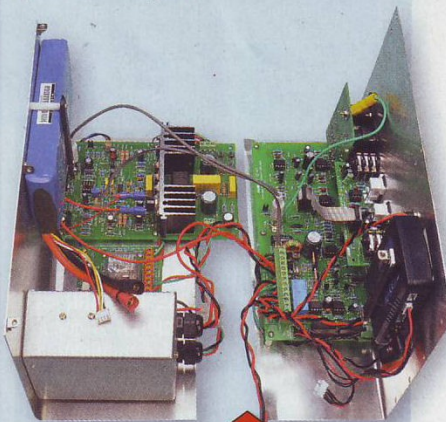
**SILICON  
CHIP**



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Building The PortaPAL-D PA System – Page 30.



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[www.siliconchip.com.au](http://www.siliconchip.com.au)

**SILICON  
CHIP**

## Features

### 11 PICAXE in Space – Controlling A Miniature Satellite

Launched last November, \$50SAT is not much bigger than a cigarette packet and uses a PICAXE micro to control a radio motherboard – by Clive Seager

### 36 Rubidium Frequency Standards: How They've Shrunk

Now available on eBay for less than \$150, rubidium-vapour frequency standards (also known as 'atomic clocks') have shrunk considerably in size and cost since they were first developed in the early 1960s – by Jim Rowe

### 74 Thinking Inside The Box . . . Or Cases On The Cheap

Looking for a cheap project case? Here's a really neat idea – by Stan Swan

### 78 Review: Triarchy USB Mini Spectrum Analyser

Yet another low-cost dongle: this time it's a spectrum analyser and it offers impressive performance from 1MHz right up to 5.35GHz – by Jim Rowe

### 89 High-Bay LED Lighting For Warehouses

Mercury discharge lamps are the standard for factories and warehouses but now high-intensity LED lamps are a more efficient alternative – by Ross Tester

## Projects To Build

### 14 230V/10A Speed Controller For Universal Motors, Pt.1

This microprocessor-controlled design provides very smooth operation from low speed right up to maximum speed and has comprehensive overload protection – by John Clarke

### 28 Stereo Echo & Reverberation Unit

Need echo and reverb effects for audio recording, PA and band applications? This easy-to-build module will do it for you, with high performance and low noise/distortion – by Nicholas Vinen

### 42 Build A Start-Of-The-Art Mini Entertainment Unit

Transform a car radio and loudspeakers into a comprehensive entertainment unit which has AM/FM stereo reception and can play music from CDs, flash drive, MP3 player, iPhone, iPod, Android phone etc – by Leo Simpson

### 84 PortaPAL-D: A Powerful, Portable PA System, Pt.3

It's now time to put together the cabinet which houses the electronics module and the two speakers to make lots of beautiful music – by John Clarke

## Special Columns

### 57 Serviceman's Log

Fixing smartphones & tablets can be tricky – by Dave Thompson

### 66 Circuit Notebook

(1) Audio Decibel Meter Uses Logarithmic Converter; (2) Making A Cheap USB-Powered PCB Drill; (3) Minimum Speed Adjustment For Induction Motor Speed Controller; (4) PICAXE-Based Garage Door Controller

### 82 Salvage It!

Harvesting a dead PC motherboard for parts – by Bruce Pierson

### 92 Vintage Radio

A 1925 Freed-Eisemann Neutrodyne Radio – by Kevin Poulter & Stan Snyders

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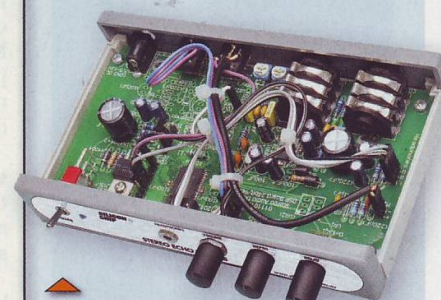
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Build This State-Of-The-Art Mini Entertainment Unit – Page 42.



PortaPAL-D PA System: Building The Cabinet – Page 84.

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## REVIEW WITH CRAIG, VK3KG

### REVIEW of the JANUARY Edition of QST for 2014.

- P9 Editorial discussing how Hiram P Maxim began his radio career with Clarence Tuska. From here the ARRL commenced.
- P24 Letters.
- P30 Microwave wave Oven. Are you interested in building your own HP HF Amplifier? Consider the transformers from discarded Microwave Ovens.
- P35 Use your Screwdriver antenna on a Tripod stand.
- P38 Use a Digital TV Dongle to have your own Virtual Radar.
- P43 Portable Antenna rotator system for a small tripod.
- P46 Modern keyed VFO for Vintage Transmitters.
- P51 Review Yaesu FTDX1200Hf and 6 Metre transceiver..
- P58 Use a Signal Sampler to monitor Transmitted Signals.
- P60 The Doc looks at: Forecasts are Best Guess – Heres Why pays to Listen.
- P62 Review; KOLIN 2Q Lite Headset.
- P63 Hands on Radio. Exp 132 Resistor Networks.
- P65 Microwaves: Bandscopes, Watrefalls and Software Defined Radios.
- P67 Hints/Kinks. Surface mount Soldering. Fuse Hunt, & Meter Light Upgrades.
- P69 The Beginning. Historical reading of ARRL. Continuing from p9 Editorial.
- P71 Thousand miles per Watt. Low power QRP Award chasing can be done.
- P89 Work Long path on 6 Meters.
- P94 Vintage Radio looks at a 1922 Transatlantic Story. [www.k2tqn.com](http://www.k2tqn.com)
- P98 Index for QST Jan 1939, Jan1964 and Jan 1989.
- P156 QST Index of Advertisers.

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### REVIEW of the FEBRUARY Edition of QST for 2014.

- P9 Technology is Taking us Where.?
- P13 Logbook of the World.
- P24 Letters.
- P30 Stealth Antenna for HF. 10 thru 10M.
- P33 A 10M Beacon Transmitter. 1W or 3W.
- P36 A User Configurable Morse Keyer.
- \*P40 Using Your Grid Dip Oscillator.
- P43 Two Encoders for the TEN-TEC Orion Band Output Signals.
- P46 A 40M Vertical for Small Spaces.
- P49 Real Sig reports in Real Time using Digital modes.
- P52 FreeDV Evolves Described before. See VK5DGR David. [www.freedv.org](http://www.freedv.org)
- P53 Review Kenwood TS990S HF & 6 Meter Transceiver.
- P62 The Doc, Answers a wide range of questions.
- P65 Short Takes: HF Projects HF Packer - Amp.[160-10M]
- P66 Hands on Radio. Exp 133. Extended Zepp Antenna.
- P68 Hints & Kinks. Vac Caps, Induction Audio, Secure mast Brackets and more.
- P72 Hiram Percy Maxim. Inventor and a radio amateur.
- P78 Solar Banners A Propagation Resource. [www.hamqsl.com/solar.html](http://www.hamqsl.com/solar.html) Interesting resource read.
- P92 Above 50Mhz. Nov Spectacular F2 Openings
- P96 Vintage Radio. Life of John Reinartz K6BJ. From Spark to Radar he was an inventive genius. Further reading at [www.K2TQN.com](http://www.K2TQN.com)
- P101 Index to QST Feb 1939, Feb 1964 and Feb 1989.
- P156 Index to Advertisers.

HAPPY READING, CRAIG, VK3KG

Bit of everything page....

A good QTH Locator

<http://qthlocator.free.fr/index.php>

John Moyle and other field day SOFTWARE:

<http://www.mnds.com.au/vkcl>

The November 2013 BARG Field day was won by **Ian, VK3AXH**.

BARG Remote Radio Software Version 1007 is now available.

Ask or email Roger, VK3ADE.

The next two pages are from VK3NIC.

NIC showed his project to the group on Saturday 15<sup>th</sup> of Feb.

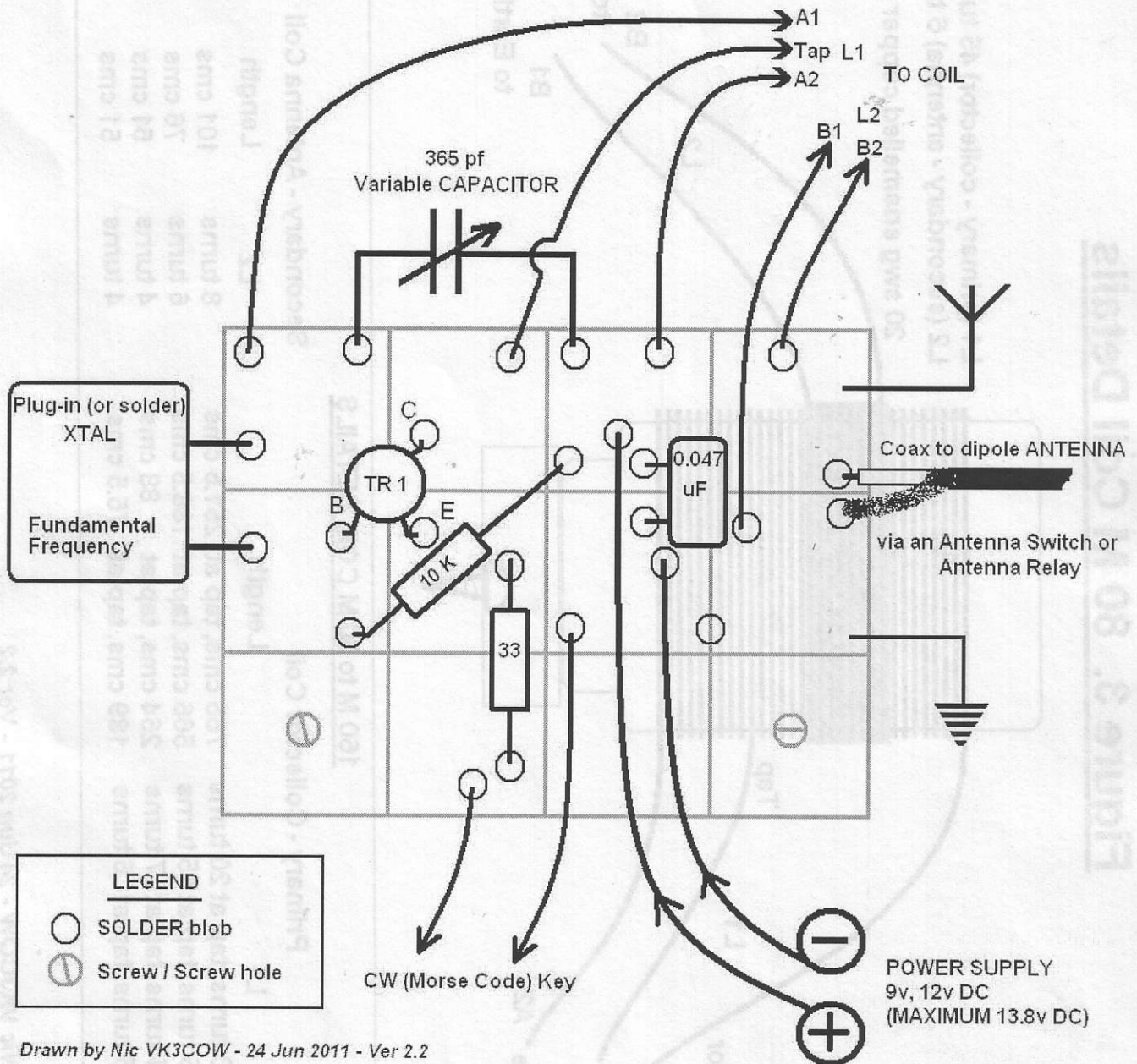
The circuits etc. were pre-publication.

If you require more detailed information, it is published in WIA Amateur Radio August 2012.

# WIA Amateur Radio August 2012

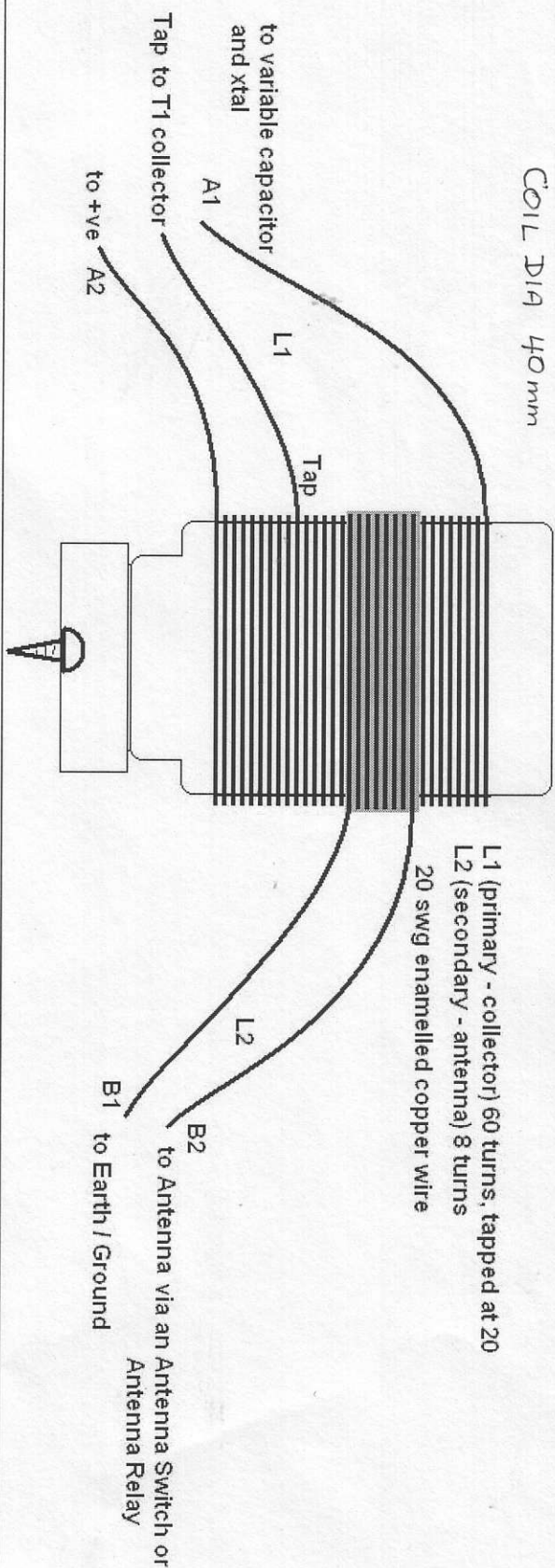
(Pages 14-17 inclusive)  
VK3COW Nic and VK4AAE Alan

**Figure 2. Blob Board Layout**



Drawn by Nic VK3COW - 24 Jun 2011 - Ver 2.2

## CW Tx 500mW Output - 160m Coil Details



### NOTES

I used an inverted vitamin container with a push-on lid as my coil former. (I fixed the lid to the mounting board with a screw - as above - and then pushed the container onto the lid.) Dimensions of my coil former are approximately 9cm (3.5") long X 4cm (1.5") diameter, but any similar dimensions also seem to work. I used 20 swg enamelled wire, but I have also used 21 and 22 swg.

I also found that the output didn't change when I varied the position of L2 along L1. (Convention suggest that the coupling coil to the antenna should always be at the 'hot end' (+ve) of L1 - didn't seem to make much difference in this case.

If you use a different diameter coil former, you may want to work with the lengths of wire from the table below, rather than number of turns. It worked for me! Don't forget to add extra lengths on each end to connect to the circuit board!

### COIL DETAILS

Primary - Collector Coil		Secondary - Antenna Coil	
L1	Length	L2	Length
160m - 60 turns, tap at 20 turns	755 cms, tap at 251.5 cms	8 turns	101 cms
80m - 45 turns, tap at 15 turns	566 cms, tap at 188.5 cms	6 turns	76 cms
40m - 21 turns, tap at 7 turns	264 cms, tap at 88 cms	4 turns	51 cms
30m - 15 turns, tap at 6 turns	189 cms, tap at 75.5 cms	4 turns	51 cms

Drawn by Nic VK3COW - 1 Dec 2010 - Ver 2.0