



# Llais Y Ddraig Chwefror 2018 Rhif.117

## The Dragon's Voice

Cylchlythyr Clwb Radio Amatur Y Ddraig  
Newsletter of the Dragon Amateur Radio Club

Chwefror / February 2018. Rhif/No. 117.

### Rhaglen Clwb / Club Programme

#### March

**5th** Battle of Britain, 'the 122 days that saved Britain' David Roberts GW8NZN

**19th** Peanut Power in the CQWW Contest. Stewart GW0ETF

#### April

**2nd** Discussion Night

**16th** Drones Steve MW6KGY

**Saturday 21st** International Marconi Day from Waunfawr.  
(Set up Friday 20th and take down Sunday 22nd).

**Sunday 29th** Blackpool Radio Rally (Norbek Hotel)  
(See note on Page 3).

#### May

**7th** VHF Propagation Simon MW0NWM

**21st** Summits On The Air John GW3GUX

#### June

**4th** Bletchley Park Peter Roberts GW4UWD

**18th** Junk Sale

Please note that the main event of each club night is listed in **bold** and will begin at 20:00. However the club will be open each evening from 19:00. Sometimes there will be the HF station or advertised workshops between 19:00 and 20:00.  
Weekend activities are listed in **Green**.

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## From the Editor....

Dear Friends,

Welcome to the Chwefror / February issue of Llais Y Ddraig. Once again we have an interesting mix of club news about forthcoming events, technical articles, opinion and more. It is most gratifying to receive material from both club members and also friends from within the amateur radio community. It is the friendship and sharing made over the airwaves, in club rooms, weekly nets and internet forums that are the very essence of this hobby. I am proud to say that I am a radio amateur!

Finally I shall finish this very short editorial by highlighting the fact there will be several special event stations this year. I hope many of you will volunteer your time and support to these events, particularly as we hope to use them to raise the public profile of our club and also the wider hobby.

‘73

Simon

MW0NWM

Editor of Llais Y Ddraig

## Norbreck Rally, Blackpool Sunday 21st April

Dear Members,

Once again Dragon ARC is running a coach to the prestigious Northern Amateur Radio Societies Association (NARSA) Rally at the Norbreck Hotel, Blackpool on Sunday 29<sup>th</sup> April.

Goodsirs are running a coach for us, departing their Holyhead depot at 06:30 and a second collection point at the Pringle overflow car park in LlanfairPG at approximately 06:50. I am sure another collection point along the A55 route can be easily arranged.

The cost of the coach is £15 per person. The full amount is payable when you book. This will be returned immediately if the coach is cancelled for any reason.

If you would like to attend, please fill in the form below and return to me at your earliest convenience.

Regards,

Simon Taylor MW0NWM  
Chairman Dragon ARC

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Names of people travelling to Norbreck Rally:

.....  
.....

Total Payment of £..... enclosed.

Make cheques payable to 'Dragon Amateur radio Club'.

Give to the chairman on a March club night, or email me on [m3set@yahoo.co.uk](mailto:m3set@yahoo.co.uk) for alternative arrangements.

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**Thank you...**

Diolch yn fawr iawn to the following who have contributed to this issue:

Paul GW1PCD, Cliff 2W0CBZ, Stewart GW0ETF, Mike Street G3JKX and Bryan Clegg GW7IRV.

## Tape Measures

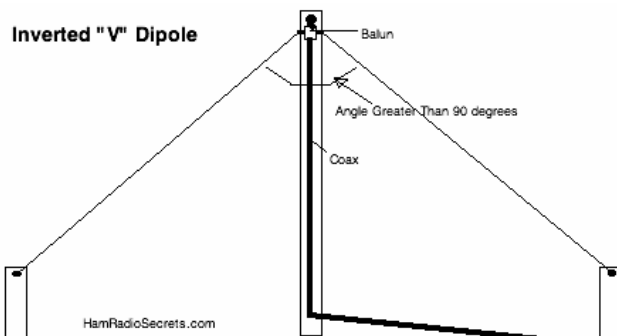
Cliff 2W0CBZ



I have found that if you put two tape measures next to one another, they often differ in length slightly. Not useful for antenna making if you perhaps measure two legs of a dipole with different tape measures!

It appears this problem often involves using our favourite discount retailers!

So my advice is this ..... Use the same tape measure for your antenna, or buy quality, we don't want any lopsided dipoles do we!



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## Committee News

At the January Committee meeting it was decided that Steve Goodwin MW6KGY would take on the role of Special Event Coordinator. Paul Dicken GW1PCD also volunteered to take on the role of Public Relations Officer. Paul was also co-opted onto committee for the year, making the committee contain 9 members.

I hope you will all join me in thanking Steve and Paul for volunteering, plus wishing them the best of luck in their new roles.

Simon

MW0NWM

## Meet the Members

Paul Dicken (G1PCD) interviews Les Hayward (MW0SEC)



Our meetings are a great opportunity to get to know one another better, but we decided to dig a little below the surface and find out some more about our members. Over the next few newsletters we will be publishing the answers to a series of questions that we are posing to some of the long-established and the newer members of the Dragon Amateur Radio Club

*How did you come into the world of amateur radio?*

I had always worked in electronics and had been something of a pirate in my teenage years using homebrew equipment. In 2002, John VVC said I had no excuse now I was retired and so I became an M3 for a year or so and then was able to do the full licence as it was the changeover between the old and new system

*Is anybody else in your family a radio ham?*

My grandfather was a keen SWL and was a Voluntary Interceptor during WWII, capturing German transmissions and sending them on to Bletchley Park, although of course he didn't know where they were going.

*Which modes do you use regularly and what is your preferred mode?*

I use AM, FM and SSB but not CW. My preference depends on band conditions

*What are the main pieces of radio equipment you use and what antennas do you use primarily?*

I use an Alinco DX77 base station for HF, a Yaesu 2900 for 2m and 1.5KW homebrew linear. I have a doublet, dipole and a 3-element Yagi antenna. I used to have a log-periodic antenna but was defeated by North Wales winds!

*What is the most interesting QSO that you have made?*

I spoke to a Russian, named Gary Podgorny, and discovered that I had been using some of his published material for a club talk.

*What is your view about three levels of qualification as an amateur?*

It seems to work but I would prefer that professionals were able to go straight for the full licence

*What are the things that you like most about amateur radio?*

Without a doubt, that has to be design and construction. I make a lot of my own kit – the latest is a condenser microphone.

## Meet the Members Ctd:

*What drives you insane about the hobby?*

Contests!

*What would you like to see the Dragon Amateur Radio club doing more?*

Good talks and arranged visits to interesting venues. I wish we could get a visit to the Dinorwig power station

*What could the club do to attract young people into the hobby?*

Eliminate smart phones!

*What do you think the future holds for amateur radio?*

It seems to be doing well enough with people still doing useful experimental work.

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## Letter to the Editor

Dear Editor,

Another very interesting offering from Les MW0SEC in the latest newsletter which included the following paragraph:-

*"The compressor operates very quickly on the occurrence of a voice peak. The chosen components for the release time constant presently provide for quite a rapid recovery of gain, in order to follow quick speech. This can be changed if required by altering one component of the combination R11/C5. The release time constant is simply  $T=C*R$  (in seconds)."*

The fact that (dis)charge of a resistor/capacitor combination is related to, and measured in, time is intuitive and easy to visualise; but it always intrigued me how multiplying capacitance in units of Farads by resistance in units of Ohms led to the answer in units of seconds. Turns out it just needs the terms expressed in equivalent forms more relevant to the situation like this.....

...the time constant  $T$  (in seconds) = Capacitance  $C$  (in Farads) x Resistance (in Ohms), or  $T = C \times R$

$C$  is defined as the ratio of charge  $Q$  (in Coulombs) to voltage  $V$ , or  $C = Q/V$ .

$R$  can be defined by Ohms Law as the ratio of voltage  $V$  to current  $I$ , or  $R = V/I$ .

So we can say  $T = Q/V \times V/I$  and the  $V$  terms cancel leaving us with  $Q/I$ . But accumulated charge  $Q$  is simply the current flowing multiplied by the time, or  $Q = I \times T$ . So we can replace  $Q/I$  with  $I \times T / I$  and the current terms cancel leaving us with just time in seconds. (You can also do this by leaving  $Q$  alone and defining the current in terms of charge and time)

It looks a bit messy because it's written out in plain text but is very simple and involves nothing more than basic definitions.

Stewart GW0ETF



**[www.americanradiohistory.com](http://www.americanradiohistory.com)**

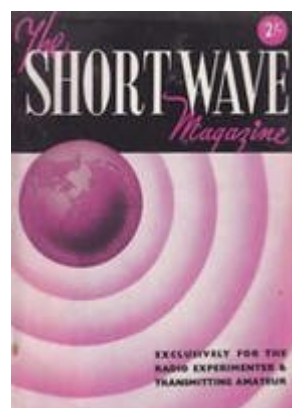
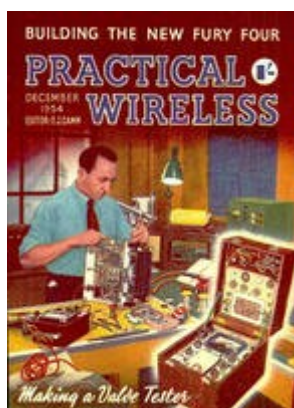
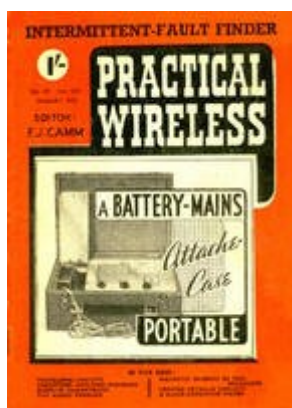
**‘a fascinating resource’**

**Cliff 2W0CBZ**

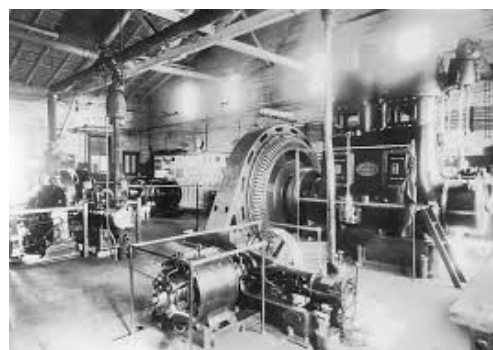
I have found this fascinating website recently and wanted to bring it to the attention of club members, who might find it interesting:

[www.americanradiohistory.com](http://www.americanradiohistory.com)

The site contains pdf archives of many radio related magazines including Practical Wireless issues from 1932—1989, Shortwave Magazine and much more. I am sure you could lose yourself in their archive for days.... I know I have!



## International Marconi Day 2018



Once again Dragon ARC will be taking part in International Marconi Day on 21st April. We shall set up the station on Friday 20th and take everything down again on Sunday 22nd.

The aim of this global event is to celebrate Marconi's birthday and to recognise his achievement in creating a global wireless communication network.

We aim to have the usual ssb/cw station, hopefully a WSPR beacon, an AM station and possibly digi-modes too. Plus with any luck a repeat of last years fabulous bbq!

I encourage all members to come along and take part in what promises to be a fun event!

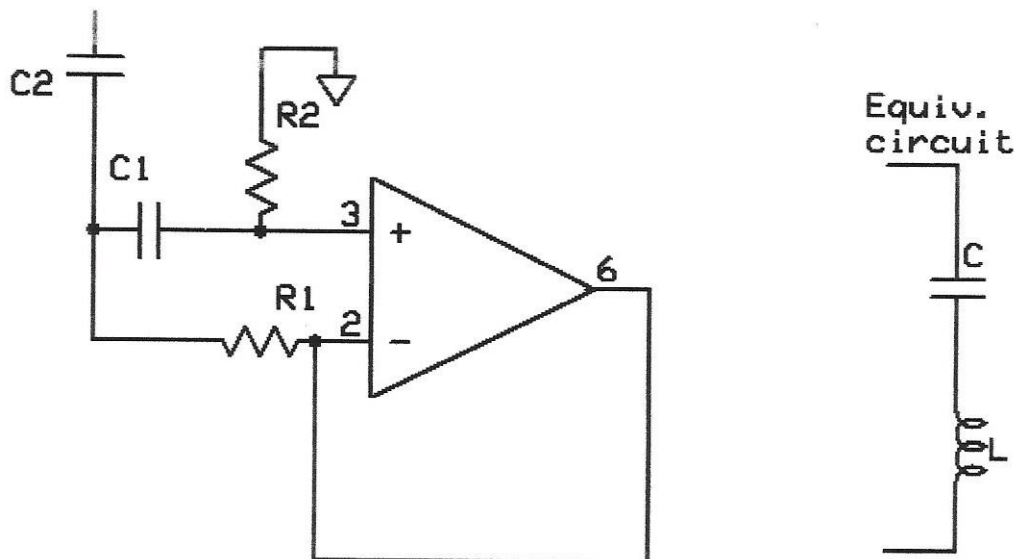
## Audio Considerations

Les MW0SEC

### (3) Messing around with the equalisation

A small effort to emphasise the edge of the audio bandwidth might be advantageous in order to make the best of the limited space available and to make the sound as crisp as may be practicable. Some people are not blessed with BBC voices and here, a bit of tweaking may help to deepen a thin voice, or the reverse. This equaliser circuit provides one suggestion. I have used 'gyrators' – a simple arrangement which uses R/C circuits to simulate an inductor and thus saves winding a suitable component. The result is a circuit which can be used to provide a variable boost in this case at the HF and LF extremes, but additional tuning elements may be added or subtracted as required to enhance any part of the spectrum.

The method of obtaining resonance is achieved by this 'tuned' circuit C2 forms the 'C', the rest is the 'L':



The inductance is simulated by the operational amplifier in conjunction with the components R1, R2 and C1. The inductive part (L) is given by  $C \times R1 \times (R2 - R1)$ . We now have an inductance which can be resonated to the required frequency in a series circuit by the addition of C2. The final resonance is calculated

in the usual way by  $f = \frac{1}{2\pi\sqrt{LC}}$

This is used to reduce the feedback in the common amplifier at the frequency in question; the amount of feedback reduction (and thus boost) at a particular frequency being controlled by the level potentiometer.

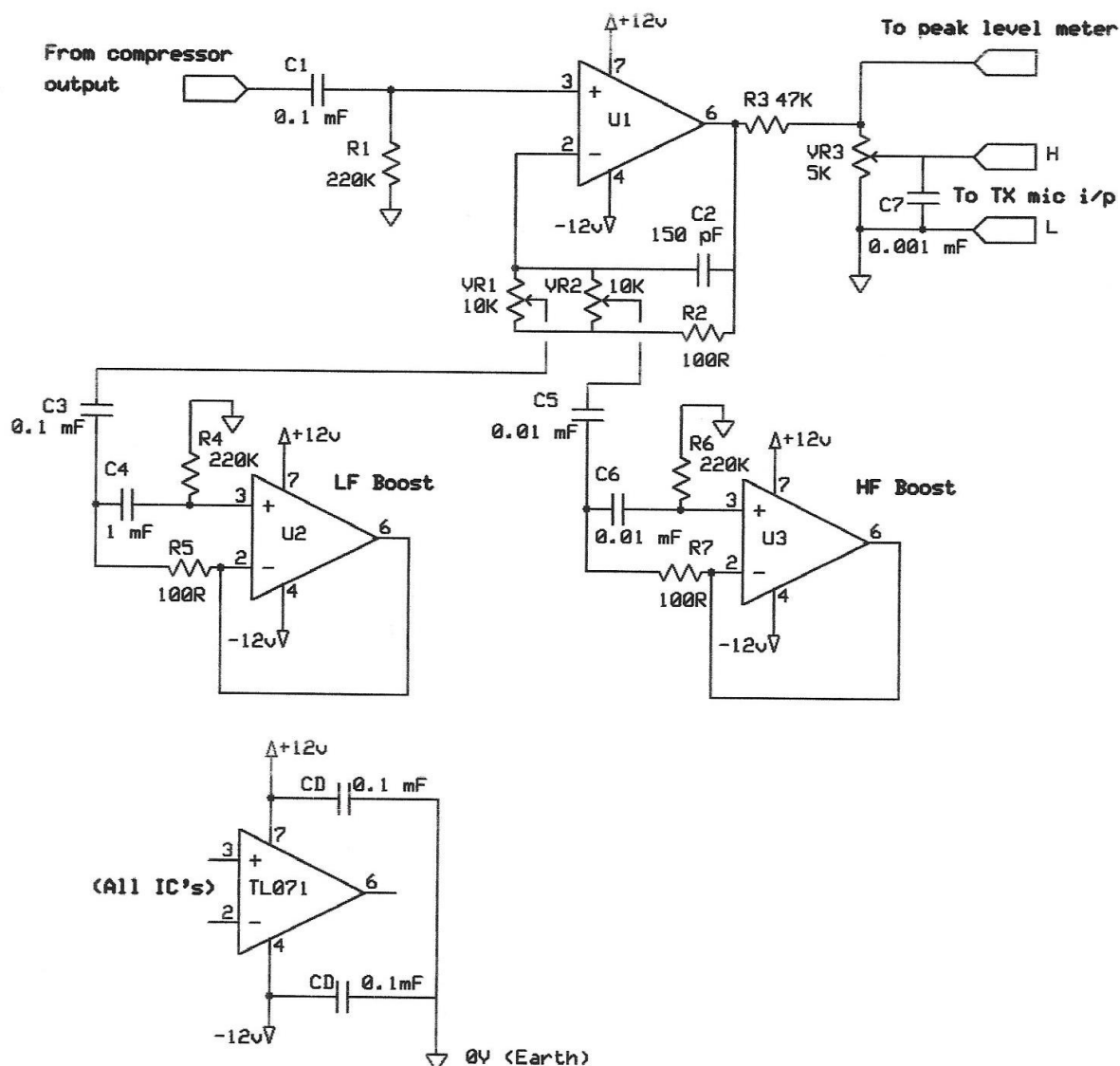


## Audio Considerations ....

### Messing Around with the Equalisation Concluded:

Below is the complete circuit with values which I selected to give a variable amount of boost in the regions of 125 c/s and 3.5 Kc/s. This is the final link in the audio chain – all that remains is to describe a peak metering circuit and monitor.

Note the preset level potentiometer prior to the feed to the TX mic socket. This is simply adjusted once to provide the correct output with a standard tone or voice input and with the compressor operating at around half scale. After this, any adjustments are to the main faders and the compressor should take care of all but gross variations, maintaining a fairly constant optimum modulation. When setting this, if the TX has a meter indication of modulation or ALC, use that – otherwise the only alternative is to use an oscilloscope or monitor the transmission using a dummy load and receiver.



*The final instalment of Audio Considerations will look at metering and monitoring. This will be included in the May / Mai issue of Llais Y Ddraig.*

## Centenary of the Sinking of RMS Leinster

Simon MW0NWM

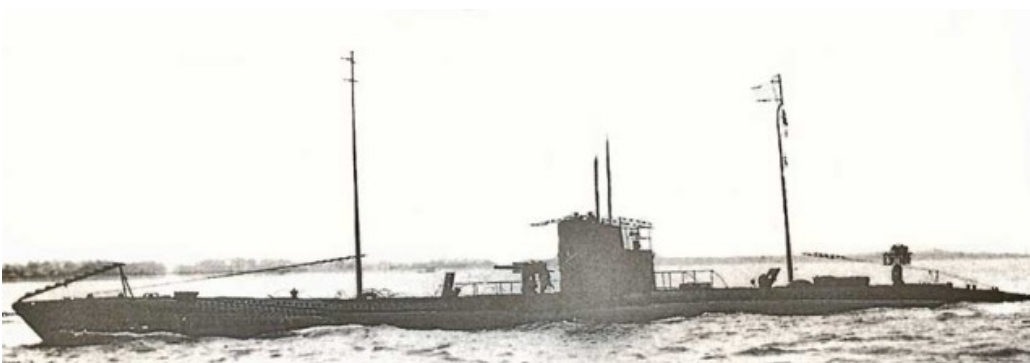


The 10th October 2018 marks the Centenary of the sinking of Royal Mail Ship (RMS) Leinster, just one month and one day before the end of World War One. MCV was the wireless call sign of the RMS Leinster, which was owned by the Dublin Steam Packet Company and it's sinking was the biggest single loss of life ever recorded in the Irish Sea..

The Ship was torpedoed by UB123 just 25 kilometres (16 miles) off the Irish coast, on it's route from Kingstown (now known as Dun-Laoghaire) to Holyhead. 567 souls on board the Leinster were lost. To add to the tragedy, 2 weeks later UB123 was sunk with the loss of all 36 crew, many were very young with the oldest being 27 years old.

### Numbers on board RMS Leinster

Category	Died	Survived	TOTAL	Country of Origin
<b>Military</b>	360	142	502	Australia, Canada, England, Ireland, New Zealand, Scotland, USA, Wales.
<b>Civilian</b>	146	58	204	Ireland, England, Wales, France, Channel Islands.
<b>Post Office</b>	21	1	22	Ireland.
<b>Crew</b>	40	38	78	Ireland, Wales, England.
<b>TOTAL</b>	567	239	806	



German U-Boat  
UB123

## Centenary of the Sinking of RMS Leinster Ctd:

To help commemorate this historic event, volunteers at Holyhead Maritime Museum asked Dragon ARC to run a special event station. I am pleased to announce that we have been issued the 'Special' Special Event call sign of GB100MCV. We aim to use this call from the 10th until 14th October and possibly at other dates throughout October.

Similarly, our amateur friends based at the National Maritime Museum in Ireland have secured the call sign EI100MCV and we hope to make direct communication with them on the 10th October at 10am, 100 years to the very moment the first torpedo struck the Leinster.

As well as marking a very significant event, we shall have a prime opportunity to show 21st Century amateur radio to the public at a high profile event. I do hope that many club members will be able to show their support.

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### Gwilym GW2DLK Silent Key

Many of you will have known Gwilym GW2DLK for many years and I am sorry to have to report him becoming silent key on the 2nd January. The following extract was taken from the Daily Post:

*'Gwilym, GW2DLK or 'dlk as he was known had been a faithful member of the Dragon ARC for many years and always supported the Club, attending Special Events etc wherever possible. The last few years had seen a deterioration in his health and he had stopped attending, however he did keep in touch with a number of friends on the radio. A local character who will be sadly missed'.*

Although I only knew Gwilym for a few short years, I personally have very fond memories of him. He was the first person at club to speak to me from his post as door keeper. He was a warm friendly character, always willing to make people feel welcome.

I last saw Gwilym last autumn when I had the pleasure of visiting his home. Whilst it was obvious his health was deteriorating, Gwilym was still only too happy to chat over a paned. We spent a happy hour or so looking at old photographs of Dragon ARC activities and members, a kind of rogues gallery!

'DLK a true gentleman, a good friend who will be missed by all.

## The Future....

Paul GW1PCD

DARC membership comprises 90% past the first flush of youth, indeed, most of us have our bus passes. It does not bode well for the future of the club and the hobby. I was taken with this stand at a radio rally I saw advertised recently. This is the sort of thing we need to be doing to attract youngsters to the hobby. Does anyone have suggestions, please for where DARC might have such a stand locally?

- **Interactive Zone for kids:-** with simple electronic experiments, in previous years has included sending and receiving MORSE CODE, seeing a 3D printer in action and learning more about Amateur Radio.



The author will be very grateful for material for inclusion in the May / Mai issue of Dragon's Voice. Antenna designs, band reports, equipment reviews, comments, ideas for club events, activity reports, in fact anything suitable will be most thankfully received. Don't be shy!

All material for inclusion by close of play on Sunday 20th May.



## Nuts & Bolts for the Home Brewer

Bryan Clegg GW7IRV

### ***Construction:***

Measure Twice, Cut Once.

For pilot hole use up to 3mm drill bit.

If using unaided electric hand drill, not advisable to use a bit greater than about 6mm on tough surfaces.

For a larger hole use a chassis punch or round file.

Follow a colour wiring scheme.

Connect on/off switch in the positive supply.

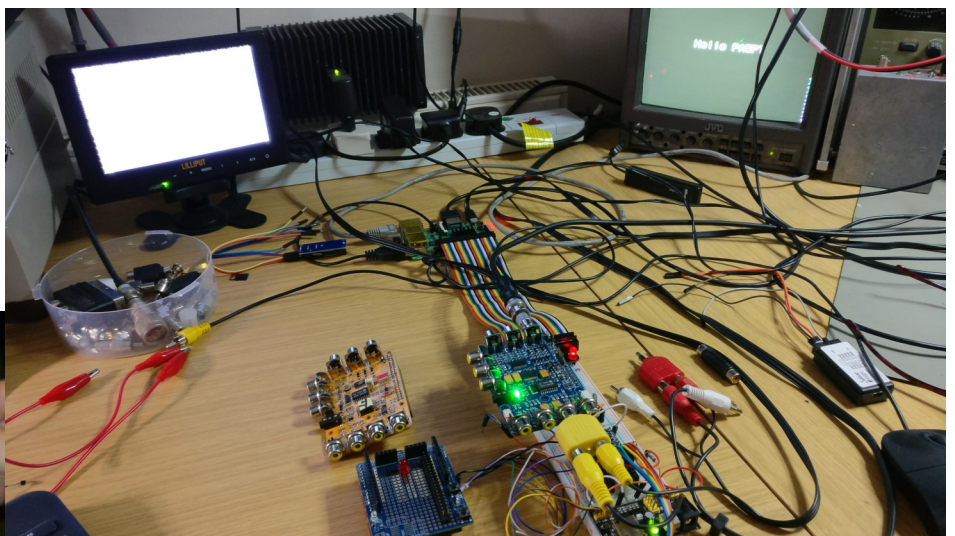
Be careful not to apply excessive heat to semiconductors and some sensitive passive components such as sub miniature switches.

When soldering apply bit to joint and let the heat at the contact of the joint melt the solder. Do not let solder drip from the bit to the joint!

As you proceed with the construction of your project make regular continuity checks.

If using a metal chassis remember to use spacers to secure circuit board to base.

Check to see signal is not being earthed by chassis.



## Nuts & Bolts for the Home Brewer Ctd:

### Fault Finding:

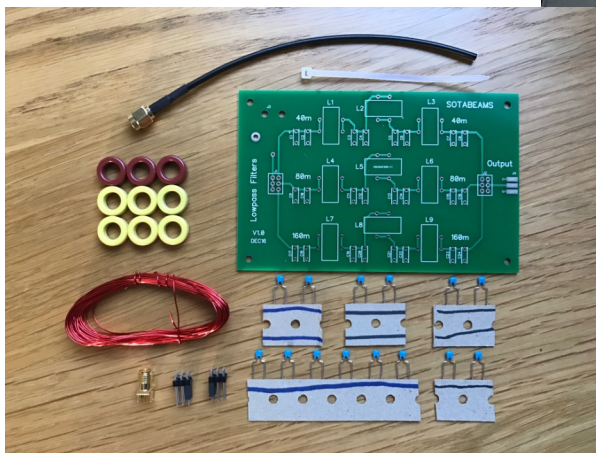
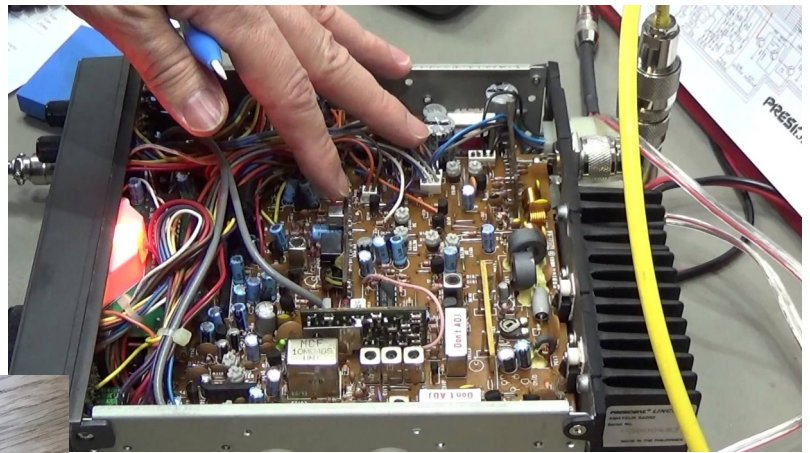
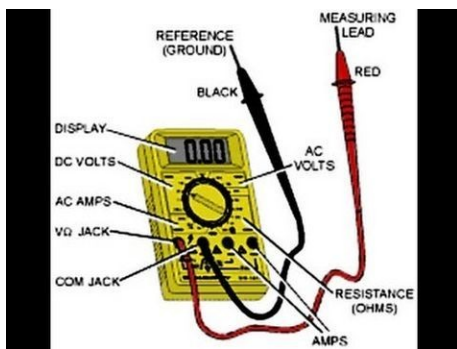
Make use of your senses.

In low voltage applications – if battery casing is getting warm disconnect and check the circuit for shorts.

Components in low current consumption circuits should not be overheating such as CMOS chips and if they are then the component may be faulty, connected wrongly or a short.

Burning smells indicate a faulty component or circuit and likewise lookout for blistering and decolourisation of casing too!

After project is built always do a visual inspection first being on the lookout for incorrectly fitted components for that circuit, no circuit mistakes, solder bridges and breaks in wire etc.



If project is not working after completion check to see if the main power source is supplying the circuit.

Remember if using batteries to check the voltage as old batteries voltage can drop a lot under load and is advisable to use an unused new battery to alleviate this problem.

For a continuity test use a multimeter on the low resistance range. Also if you have a protective diode in series with the supply then make allowances for the diode's forward drop resistance.

If the circuit seems to be working ok but intermittent then check the wiring and connections.

To simplify system fault finding it is always useful to think of circuit in block form and to follow a logical systematic approach.

If you know about the likelihood of a fault occurring from past experience such as an unreliable component then put this knowledge to good use!

*(Bryan GW7IRV is a member of Conwy Valley Radio Club)*



## Magnetic Fields

Mike Street G3JKX

Moving a wire in a magnetic field causes a current to flow in it. Keeping the wire still and moving the magnetic field has the same effect. Your receiving aerial does just this, converting moving alternating magnetic fields into alternating currents for your Rx to sort out. Giving a wire some current also causes a magnetic field to be produced. Your TX PA is an electron pump and, as your aerial is conductive, it also produces magnetic fields. Applying a voltage to a coil of wire produces a strong magnetic field. As this field builds, it induces another voltage into the coil, called the 'back EMF', which opposes the applied voltage. This means that the current flow starts off quite small and takes some time to reach a maximum. In other words a coil has inertia, which is called Inductance, the unit of which is the Henry or H for short! (For RF frequencies, a Henry is too large a unit. e.g at VHF, coils of a fraction of a microHenry are used). If you now switch off the applied voltage, the resulting collapse of the magnetic field causes another back EMF to be induced which tries to prop up the rapidly falling applied voltage and reinforces the falling current! These 'back EMFs' can be very high, especially if the magnetic field is very strong and can cause quite high reverse or overswing voltages to be generated. To prevent a relay coil from doing so when it is de-energised, a diode is wired across the coil to short it out when the reverse/overswing polarity appears, safeguarding nearby circuits which may be damaged if, say, a large negative voltage appears on the collector of an NPN transistor.

A coil and capacitance in parallel presents a high impedance ( $Z$ ) to a signal at the resonant frequency. If wired in series, the  $Z$  is low, accepting or passing the wanted frequency) Remember,  $Z$  is a mixture of  $R$  and reactance. The efficiency or 'Q' must be kept high by having a very low RF resistance. This means using wire of sufficient diameter or otherwise the RF currents will be lower than they could be, so the signal passed on to the next stage will be low too. As we go higher in frequency another problem appears. There, the RF tends to travel on the outside of the wire. We get around this by silver plating the wire and/or increasing the wire diameter even more, increasing the surface area and thus improving performance. Some VHF/UHF coils use silver plated tubing. Yes, the plating oxidises in air, but fortunately the oxide conducts almost as well as solid silver! The silver plating liquid you can buy is quite effective, even at HF. Try it on your tin-plated ATU coils. Big RF currents flow in here so keeping the resistances down is important. So, while you have the lid off, check all the soldered joints and the mechanical chassis connections for tightness and corrosion too. A good idea? You bet your sweet life it is! VLF coils, some needing thousands of turns, have to use Litz wire to keep the  $R$  low. What is Litz wire? Imagine a bunch of very thin varnished copper wires, all twisted together and soldered together at each end. All the wires in parallel will result in a very low overall resistance but have a large overall surface area, keeping the  $Q$  up. Finally there's the subject of  $L$  to  $C$  ratio. Oscillators tend to use a low  $LC$  ratio, i.e a small  $L$  and a big  $C$ , so that circuit capacitances, including strays and those of the active device, (transistor) are swamped out. i.e any changes in  $C$  have less effect, so the oscillator frequency doesn't drift so much. Most RF circuits in your Tx & Rx have high  $LC$  ratio to keep the losses low and the signal up!



## Gwybodaeth am y Clwb / Club Information

- Cynhelir cyfarfodydd y clwb yn Neuadd Ebeneser Lon Foel y Graig, Llanfairpwll ar Nos Lun y cyntaf a'r trydydd yn y mis am 7.00 ar gyfer 8.00 o'r gloch. Croeso I ymwelwyr ac aelodau newydd.
- Club meetings held at Ebeneser Hall, Lon Foel y Graig, Llanfairpwll on the evening of the first and third Monday in each month at 7.00 for 8.00. Visitors and new members always welcome.
- Pob gohebiaeth at yr ysgrifennydd. All communications to the Secretary, John Pritchard MW0JWP QTHR. Tel: 07515 031025. email: mw0jwp@yahoo.com

### Cylchlythyr Golygydd / Newsletter Editor

Simon Taylor MW0NWM. QTHR: Email: m3set@yahoo.co.uk  
Tel: 07904 874652

### Pwyllgor / Committee

Cadeirydd / Chairman: Simon Taylor MW0NWM  
Is-Cadeirydd / Vice-Chairman: John Parry GW3VVC  
Ysgrifennydd / Secretary: John Pritchard MW0JWP  
Trysorydd / Treasurer: John L Brimecombe GW3GUX  
Aelodau / Members: Cliff Nicholls 2W0CBZ, Bryn Smiles MW6DZO, Emil preda MW0IMZ,  
Steve Goodwin MW6KGY and Paul Dicken GW1PCD.

**We are on the web...**

<http://www.dragonarc.org.uk>

Issue number 118, will be issued in Mai / May 2018. Any material for inclusion to be sent to the editor.