



# Llais Y Ddraig

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

Mai / May 2016. Rhif/No. 110

## Rhaglen Clwb / Club Programme

### June

**6th** Introduction to radio FOX HUNTING and construction of fox hunt equipment.

**12th** Practical Wireless 144Mhz QRP Contest (Holyhead).

**20th** Fox Hunt and BBQ (testing our new DF equipment, who will find the fox first?).  
*Venue to be confirmed*

### July

**3rd** RSGB VHF NFD 70Mhz Contest (Holyhead).

**4th** Discussion and club matters.  
*Your chance to air your views and talk about topics of interest.*

**30th—31st** IOTA HF Contest (Holyhead).

**18th** The CQWW DX Contest  
*Stewart GW0ETF talks about the history and his interesting experiences in this contest.*

### August

**1st** Introduction to ATV  
*Chris MW0LLK*

**6th** RSGB Low Power 144Mhz Contest.

**15th** Film Night

**20th—21st** Lighthouses on the Air (Penmon) TBC.

Dates shown in blue are being held on weekends and are not the usual club nights. Further details will be available at club nights.

### **In this Issue....**

- P.3 Warren Reese SK
- P.4 Islands on the Air Contest Anyone?
- P.5 International Marconi Day 2016
- P.7 Slow Scan TV from the International Space Station
- P.8 The Marconi Atalanta, some further thoughts...
- P.9 A Message from the Chairman
- P.10 Intro to 2 Metre Foxhunting  
The DARC VHF Contest Gang
- P.11 Fox Hunt Offset Attenuator
- P.14 The TNT Transmitter Project

### **Thank you ...**

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

John GW3VVC, Stewart GW0ETF, Chris MW0LLK and GW7BZR.

### **From the Editor....**

Welcome to the May 2016 issue of Llais Y Ddraig, I hope you enjoy the variety of articles contained within and can I urge you all to consider contributing to the August issue.

Summer is almost with us, which can mean two things, lots of sunshine, or is that rain? Plus the opportunity to get outdoors for some portable activity! Why not climb to the top of your nearest SOTA summit, or for those who feel that may be a little too strenuous, take your portable equipment to the local park or beach and work the world on qrp flea power and a simple wire antenna?

Whilst in your shack, don't forget to keep a listen out over the summer months on Two, Six and Four Metres, 144Mhz, 50Mhz and 70Mhz on SSB, CW or even FM for some interesting contacts using the wonderful propagation mode known as Sporadic E.

Whatever you get up to this summer, I hope you really enjoy this wonderful time of year, and why not write an article for this newsletter to tell us all about it?

See you soon. '73 Simon Taylor 2W0CHV

**Warren Reese SK**  
**John GW3VVC**

I recently became aware of the passing of an old member of the Dragon ARC, some of the older members will remember Tracy. When we initially got Tracy's membership application Dewi and myself did wonder whether Tracy was an om or a yl but Googling provided a very quick answer! Tracy or TR as he was called lived in the US and was a highly skilled operator and technician having worked in the US Coast Station service for many years. He was involved for a long time with station KPH in San Francisco and was the technician in charge at the Bolinas receiving site. When the service was closed down he was active in the preservation of the station and in conjunction with the Maritime Radio Historical Society, helping to put the station back on the air. TR's ham call was WB6TMY. We did endeavour to contact him on 7 mc/s during a couple of our Marconi events but sadly never made it.

The Maritime Radio Historical Society has an article and some pictures at:-

<http://archive.constantcontact.com/fs149/1109843077277/archive/1123078840621.html>

As an aside – and a coincidence – KPH used a Marconi Atalanta receiver at one of their working points:-

<http://www.coastalradio.org.uk/worldcoastal/sanfranradio/sanfran.htm>

Tracy had his own website at:-

<http://www.radions.net/>

Tracy's site has a lot of interesting stuff – including a link to the Dragon ARC – click on the red dragon, and will probably be removed now that he is SK.

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## **January Caption Competition Winner!**



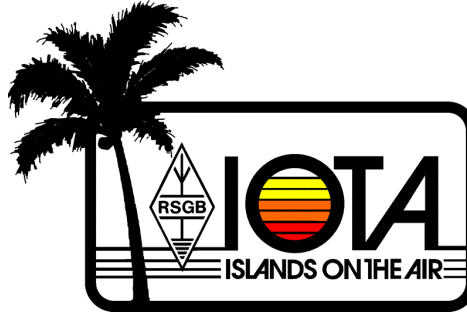
A huge thank you to those who entered the caption competition in the last issue. The winner is Stewart GW0ETF, with the following caption:

‘No copy OM.... Heavy key clucks on this side!’

Congratulations and enjoy the chocolate Stewart!

## Islands On The Air Contest Anyone?

Stewart GW0ETF



At the meeting on May 16<sup>th</sup> interest was expressed in the club taking part in the IOTA contest in July. I've cleared access to Holyhead breakwater with Stena if we want to do it from there as we have in the past so we need to think about how we want to approach it this year.

Two years ago when we last took part it was a 'serious' effort with just 2 main operators who were committed contesters. Plenty of other members were there to set up and help out generally but I felt awkward that we were deterring others from operating. Personally I would be happy to run this contest this year as a HF Multi-Op Contest training exercise for the club and add to Simon's recent efforts in helping members to get involved in VHF contesting.

However we have run the IOTA contest as a training exercise in the past with limited success in that very few who attended went on to take part in other contests, particularly the longer international ones. There are certainly now one or two extra members serious about contesting in the club and my hope would be any budding new ops would be serious about learning. IOTA is a good contest as it allows multi-op stations like ours to run a main station and also a second station which can only be used to work multipliers – in effect one Run station and one S&P station just for multipliers. The Run station will be the one harvesting most of the contacts but the mult station is crucial for increasing the overall points score and needs to be treated seriously and not as an excuse to just 'have a listen around'.

So if you fancy taking part and haven't done any/much contesting here's a few things you can be thinking about....

Download and play with N1MM Plus. Read the help stuff and play with getting spots via the internet and showing in the bandmaps. Concentrate on the basics first but cluster spots will be important in IOTA.

Practice logging contacts off air so you get used to logging while you're working stations. You don't want to be contesting with someone else logging, it's a recipe for misunderstandings and mistakes. Try and get used to speaking into the mike while typing in the exchange etc. Oh, and you'll naturally be using a boom mike headset and (in ssb) a footswitch for ptt.

In a contest the computer keyboard is the main thing and will be in front of you with the monitor(s) in your eyeline. The radio will be off to the side and won't need touching that often even with the multiplier station if you have cluster spots as you can jump from one to another with key strokes.

And ideally have a go in a couple of contests between now and IOTA. Just a handful of contacts will help and lists of contests can be found on the SM3CER and WA7BNM websites. We can talk more about this at the discussion night meeting of July 4<sup>th</sup> so please try and get there for that if you fancy a bit of IOTA operating. And even if you don't want to be in the hot seat on the day there's always a need for tea-makers, chip shop runners etc but remember the caravan will be a contest shack and not a social meeting place...;-)

## International Marconi Day 2016

Danny GW7BZR

Every year the Club participates in this event and any arrangements start many weeks in advance. This year there was the long drawn out debate about the caravan to contend with. Well thanks to the Chairman Chris it has now been made serviceable and safe to use again. After a bit of a struggle due to the owner of the building being in hospital we did once again get permission to use the building and the land. The necessary license variations for two stations were obtained from Ofcom eventually and so all we needed was fine weather and operators.

On the Friday afternoon a few of us went up there and started to set up the station. Because it was more or less the usual few people everything went like clockwork and it only took a couple of hours to do. The station was left in the care of Simon'CHV and Tony'LIS to open the stations at the required time.

It was hoped to use ATV and 2m at this event but due to lack of participants this did not happen. Steady progress was made throughout the day using both Morse and SSB. However the general lack of operators was quite evident and so people had the good fortune or maybe misfortune of being on the radio for quite a long time. Those who did use the logging programme which they had never use before. The cluster on the internet proved useful and resulted in a few pileups. All this was being videoed by the Chairman so could be an interesting film for a club night. There is also a short video that shows irrefutable proof that John'VVC can use a microphone!!

Tea was provided throughout the day by Simon mostly and I'm sure somebody else made a cup as well. Much appreciated!! The stations both operated CW with some success by John VVC and Stewart ETF and the rest of the operators using SSB. It would be interesting to note that most of the DX was done on the vertical that people dismiss as rubbish and EU on the doublet but then conditions were not all that good. Both stations closed around midnight and people were free to try for DX using their own call sign or the clubs if they wanted to.



Allan 2W0YLE and Martin 2W0FAF at the microphone of GB0MUU.



The old Marconi transmitter building at Waunfawr and also the shack for GB0MUU and the hub of all tea making operations!



## International Marconi Day 2016 ctd:

The following day is a day when anybody can have a go on the club equipment or their own equipment or socialise. Well as per usual there were no takers so it was decided to pull both stations down and call it a day. We also replaced one of the halyards at the far end of the building for future use. Every thing was packed up, stored in cars and caravan and the site was inspected for cleanliness. I arrived home about 1.30pm and emptied the van. I can truthfully say that I was tired, perhaps I am getting older, less healthy or a bit less enthusiastic than I have been I don't know. Thirteen people attended this event which is one of the biggest the club does over the year which in my view is a bit disappointing. I know people go to Tesco etc on Saturday and Sunday most weeks but how long does that take? People are giving up a lot of time to set up these events and it is quite down heartening when people do not turn up. I am sure that the average age of the operators was about 60 so where have all the youngsters gone. I am sorry to say that there were horses there showing more interest than some club members and also people saying on 2m that they did not know it was on. It is advertised in the club, on Face book and on the club website and also on the IMD site on the internet. We do not advertise it on TV, Times, Ecclesiastical Express or the Sun but the information is out there and I'm sure everybody knows my phone number by now!!

Thanks to everybody that did turn up and I hope to see you next year. To those who did not or could not turn up perhaps we will see you next year. Remember that what the man whose birthday we are celebrating did is the reason why you have radios today and the reason why on a lighter note I am not in Tesco shopping!!

Danny GW7BZR WC Ball and Chain for all my Sins!!



Chris MW0LLK at the helm of GB4MD



The shack of GB4MD

## Receiving Slow Scan TV Images from the International Space Station

Simon 2W0CHV



During April the brave, or should that be mad folks on the International Space Station (ISS) spent several days transmitting slow scan tv (sstv) images on 145.800 for radio amateurs around the world to receive.

Now I currently have no transceiver with a connection to a PC, so I had to work out how I could receive these pictures at little or no cost.

Well first off I have an inexpensive Baofeng UV5R dual band handheld, but other cheap and disposable Chinese handy's or even one of the more expensive offerings from the established manufacturers would also work as well!

Now I also have a mobile phone, who doesn't these days! So I had a search for an application (app) which could decode SSTV. After a quick search I found CQ SSTV app for my Iphone which cost me £2.99, however for Android phones there is a FREE app called robot36. The ISS was using the SSTV mode PD180 and having set this on my mobile app I was ready for my first ever attempt at receiving SSTV from the ISS.

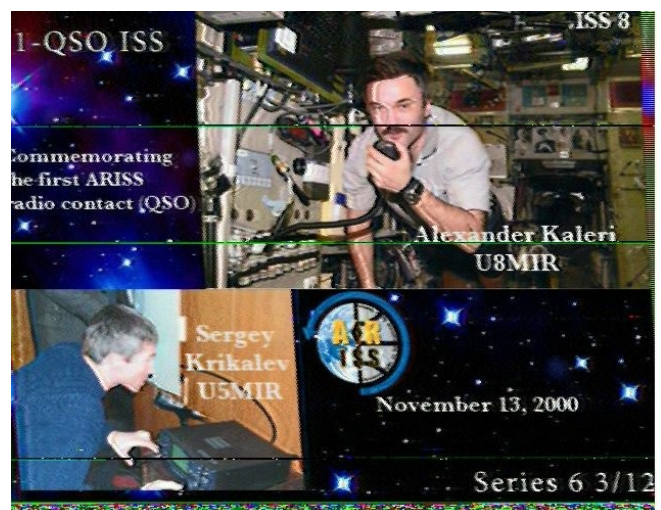
So on my first attempt I stood outside my home QTH, handheld being held aloft, volume up reasonably high and my mobile phone held close to the handy's speaker in order to hear the received warbling SSTV signal from the ISS. After a few minutes wait and some very odd glances from the neighbours, sure enough a signal was being received, but it was very weak and patchy!

Having thought about this overnight, I decided to change from the supplied stubby antenna to a higher gain Diamond dual band 'rubber duck' antenna and I tried again on a pass of the space station the following evening. This time I was at work, so after conveniently re-scheduling my tea break I headed out to a quiet corner of the Tesco car park in Bangor. And finally success! The pictures received on the next two passes are shown on this page, please not the line through the image in the bottom right hand corner was caused by a loud van driving past me and interrupting the audio link, this would not have happened with a hard wired link from transceiver to a PC! Remember you only have a window of around 8 minutes per pass.

I have to admit I have had great fun playing with this, for little or no cost too! However I did get a few strange looks on the car park at Tesco and a fair sized crowd asking what on earth I was doing. But when the assembled throng saw the images appear from outer space, some were actually quite impressed!

The only problem is I am not sure when or if my colleagues in Tesco will stop referring to me as the 'mad radio man!'

So when we are advised on the ARISS website, of further SSTV activity from the ISS, why not join me in receiving images from space on the cheap?





## The Marconi Atalanta – some further thoughts...

John GW3VVC

After my Atalanta demo at a recent Club meeting a number of members bought up some interesting points.

A couple of members queried the Atalanta spelling – even my Microsoft spell checker did! Maybe they were thinking of the KW Atlanta. Many years ago KW Electronics based in Dartford in Kent manufactured some fine ham equipment, among their product range was the Atlanta, an all band hf transceiver – but note the spelling difference – KW Atalanta versus the Marconi Atalanta... Sadly KW disappeared when the Japanese started shipping ham gear to Europe.

Someone caught me slightly off guard when they asked what the receiver's power consumption was. The official Marconi Manual does not quote the consumption whilst being used on 240 volts A.C. as there would have been very few 240 volts A.C. ships about when the receiver was current. Looking at other figures however I would guess it would have been between 80 and 100 watts, much less than one would have expected.

I was also asked about the weight of the Atalanta. My daughter helped me carry it from the garage to the house – and Billy carried it to and from the car by himself – you're a star Billy! And the weight – just under three quarters of a hundredweight according to the Manual.

And finally, the inevitable question - just how good is it? Comparing it with a few (!) Racal receivers I have here, an FRG 8800 and an IC775DSP it compares quite favourably. The selectivity is ok. It does drift a bit after initially switching it on but it soon settles down. The problem as I mentioned is that the vast majority of ships which had these receivers fitted were broken up in the Far East years ago and that's where these receivers finished off, so they're as rare as hen's teeth. If you do get the chance to buy one and the price is right it would make a nice addition to the shack – provided you have the room of course – and a strong bench!

And finally thanks to JP who found a source of Atalanta dial lamps for me. £7.72 for 2 make them the most expensive torch bulbs I've ever bought – but worth every penny for the old receiver – thanks John!



(please note this is a stock image of an Atalanta found online and is not VVC's)



## A Message from the Chairman....

Chris MW0LLK

A reminder.

The effort that goes into creating, even a one hour, presentation for club nights should not be underestimated. Hours and often days of work are required.

To then suffer interruptions from mobile phones or, worse, people having a conversation is at best rude and irritating, at worst it prevents other members enjoying the event.

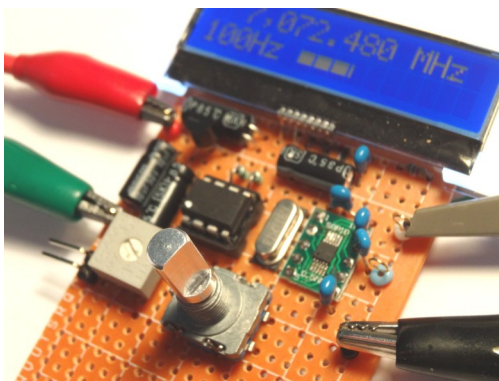
We do all forget occasionally so this note is to remind everyone to put phones on silent and, if you really have to take a call or have a conversation, please take it outside.

Thank you, Chris.

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Coming Soon ....

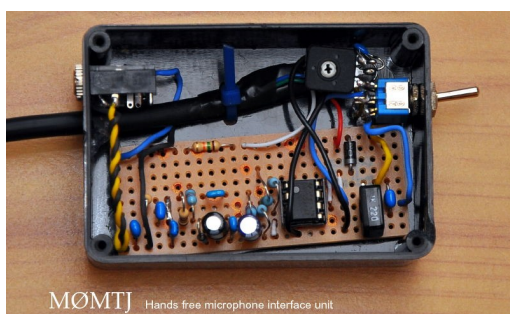
## The Dragon ARC Ten Pounds or Under Construction Competition



Your chance to make something useful or interesting for a radio amateur and then tell your fellow club members all about it!

The contest will be judged by you, the membership on Monday 7th November and full details will be given at the first meeting in September and the next edition of The Dragon's Voice.

A trophy shall be awarded to the winner at the AGM.



Why not try a little construction, perhaps for the first time.

Good luck!



## 144Mhz Foxhunting Equipment

In June, DARC are going to try their hand at Foxhunting, more correctly known as RF Direction Finding on the two metre band (144Mhz). On the club evening of Monday 6th June we shall have a brief introduction to radio Foxhunting and the equipment required. Basically to hunt the fox you will require a two metre handy, a lightweight yagi and attenuator to reduce signal strength at close range, in order to pinpoint the location of the cunning fox!

The design of the yagi we are proposing to construct can be found online at:

<http://ramdor.co.uk/2016/03/30/another-2m-tape-measure-yagi/>

The attenuator circuit is described in the following article on page 11, which has been reproduced here courtesy of it's author Dave G4EIX. So if you fancy constructing your own equipment, why not give it a go!

## The DARC VHF Contest Gang

The VHF Contest Gang has gained a couple more members since the publication of the last newsletter and now comprises the following DARC members:

John Pritchard MW0JWP, Kevin Jones MW6SKV, Bob Higgins 2W0RZL, Simon Taylor 2W0CHV, Chris Tanner MW0LLK and Kevin Thorley MW1CFA.

Our first outing this year will be on **Sunday 12th June** 09:00 until 16:00 GMT, to take part in the Practical Wireless 144Mhz QRP Contest. We shall be using the club's FT817 at 3 watts into a yagi antenna supplied by Kevin MW1CFA.

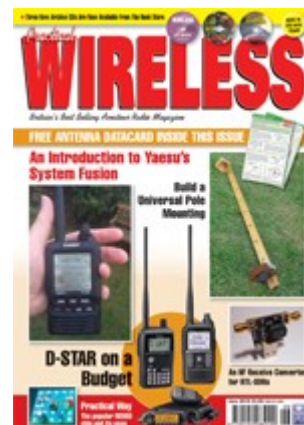
Thanks must also go to Kevin MW1CFA for volunteering the use of his field adjacent to his home QTH, which is based on Holyhead Mountain and should give us good take off over most of the mainland. If conditions allow, we should be quite a sought after station being in an unusual locator for VHF contests.

The exchange for this contest is simply signal report (5/9 etc), serial number (001, 002 etc) and Maiden-head locator, for example IO82NN.

More details will be given out at club nights and via the clubs Facebook page. However if you would like to take part in this event please can you let me know as soon as possible.

Details of the contest can be found in the current issue (June 2016) of Practical Wireless.

Simon 2W0CHV  
m3set@yahoo.co.uk



# DF Feature

## Offset Attenuator – Dave G4EIX

My latest development for direction finding (DF) is the offset attenuator. Unlike most other branches of amateur radio, the problem with DFing is that signals can be too strong! This is usually the case when getting close to the hidden station, especially if using a yagi as an antenna.

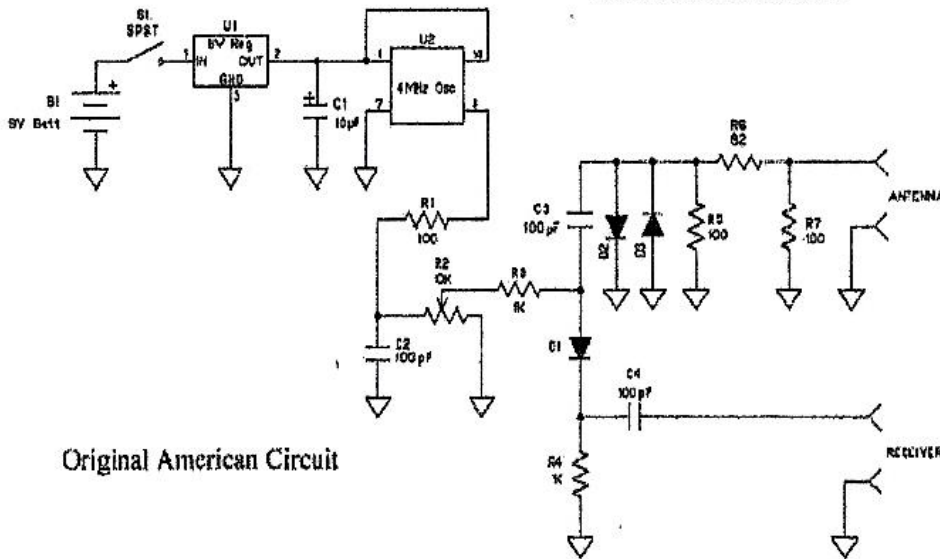
Ordinary attenuators made from resistors are just no good in very strong fields where the signals may still be full-scale even when the antenna is removed. The signals can simply enter through the case of the receiver if it is made of a plastic material. This clever device mixes the received signal with a frequency of 4 MHz from a crystal oscillator, so a new signal appears 4 MHz above and below the original frequency. The receiver is tuned to this new frequency and the strength of the signal is adjusted by altering

the oscillator injection. This is done using a potentiometer. With full attenuation it is possible to take a bearing with a yagi just ten feet from the transmitting antenna!

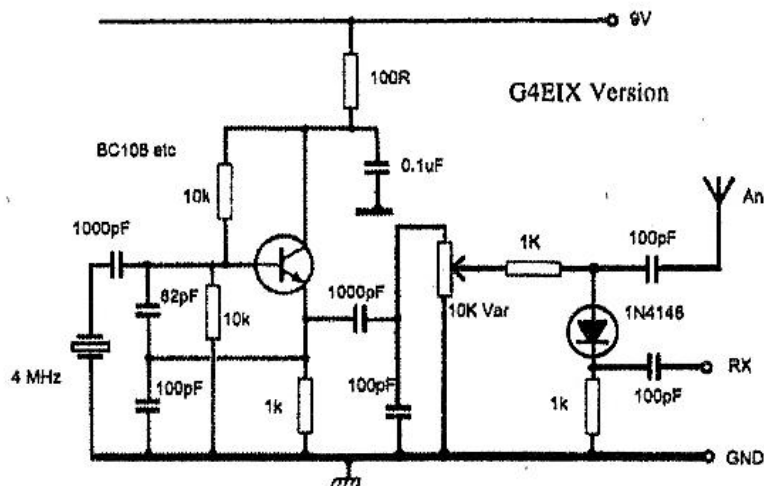
The first circuit originates from the USA and uses a crystal oscillator module from an old computer board. It is the simplest circuit, but needs a 5V voltage stabiliser and takes about 30mA. Everything between the antenna and C3 is optional and consists of a pi network attenuator and two back-to-back diodes to limit the RF input signal.

The second circuit uses discrete components and takes about 6mA. I built mine 'ugly style' on a piece of copper clad circuit board. Most of the values are not critical and the crystal can have a different frequency as long as the receiver can be tuned to the appropriate offset (or harmonic of it).

The circuit has certainly improved my performance in the last series of contests.



Original American Circuit

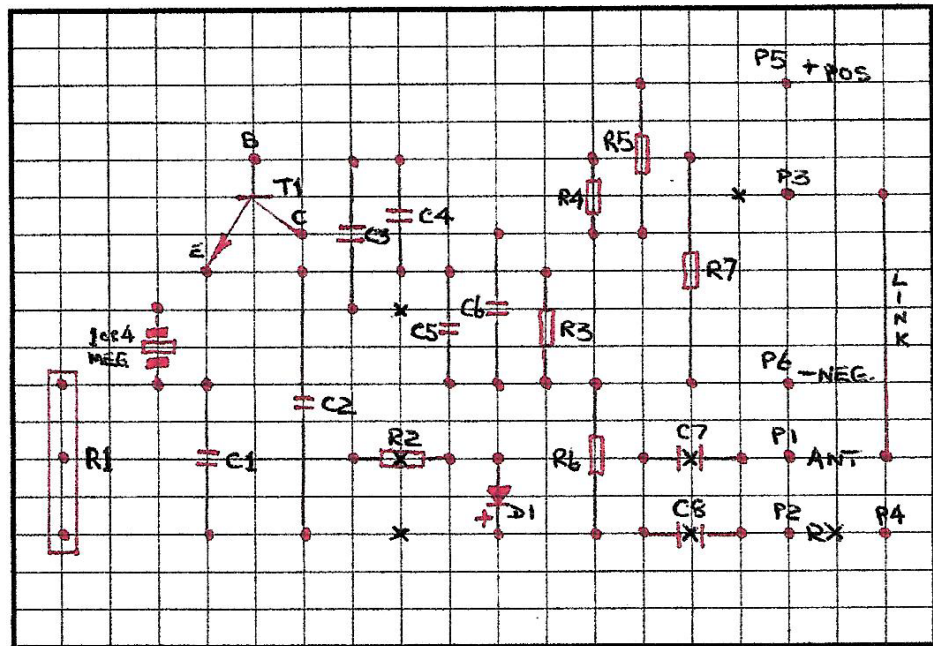
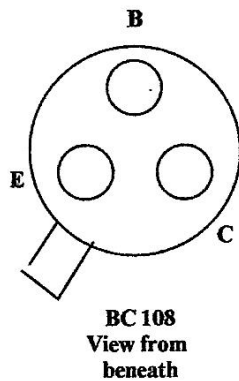


G4EIX Version

### More Ideas to Try

- Switched crystals
- Extra fixed attenuators
- On/off switch
- Different mixer diodes
- Switched attenuation
- Different types of oscillator
- Pre-amp option
- Build it into antenna



**FREQUENCY OFFSET AND ATTENUATOR FOR DIRECTION FINDING**

← View of Component side & track orientation →

'X' denotes breaks (6) in copper track underneath

**Drill sizes for Aluminium Box**

SO 239 - Body, 16mm  
SO 239 - Mounting holes, 3mm  
10K Potentiometer - 10mm  
Grommet - 6.5mm  
Switches - 6mm

**Notes to construction**

1) Shoulders of potentiometer must be filed down to enable body to fit flush on perforated board.  
2) Place insulation under circuit board.  
P1/P2 to switch.  
P3 To SO239.  
P4 To Receiver.  
P5 To 9v battery (pos) via switch.  
P6 To 9v battery (neg).  
Resistors R2 & R4 mounted vertically.

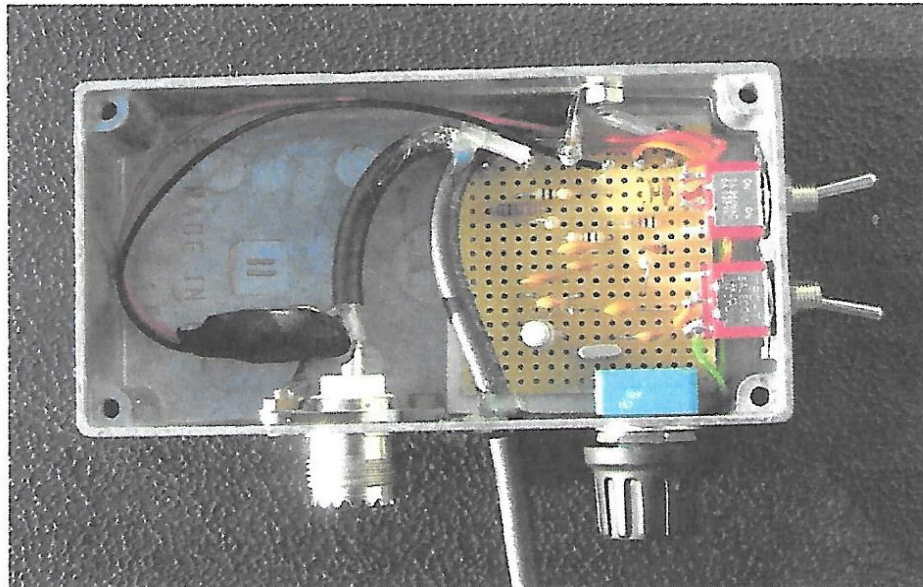
**Components and Accessories**

R5, 100R  
R2, R3, R6 - 1k  
R4, R7 - 10k  
R1 - 10k Linear variable pot.  
C4 - 82pf  
C1, C5, C7, C8 - 100pf  
C2, C3 - 1000pf  
C6 - 0.01µf  
D1 - 1N4148 Diode  
TR1 - BC108 or similar  
Crystal - Depends on Rx. parameters  
SO 239 Chassis Mount  
PP3 Battery clip  
SPST Toggle switch  
DPDT Toggle switch  
Di-Cast Aluminium enclosure  
1 Grommet  
2 - 3mm Bolts, nuts & washers  
Perforated board 16\*18 holes

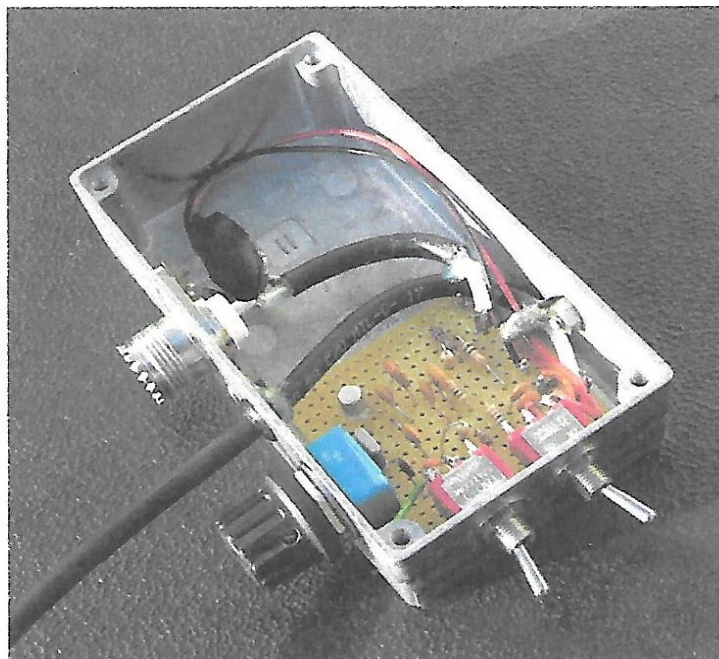
**Modification: If using a 1 Meg. Crystal, change C4 and C5 to 1nf, and R7 to 33K ohm.**



## Frequency Offset and Attenuator



NOTE: Coax to receiver held in place by using 'hot glue'.



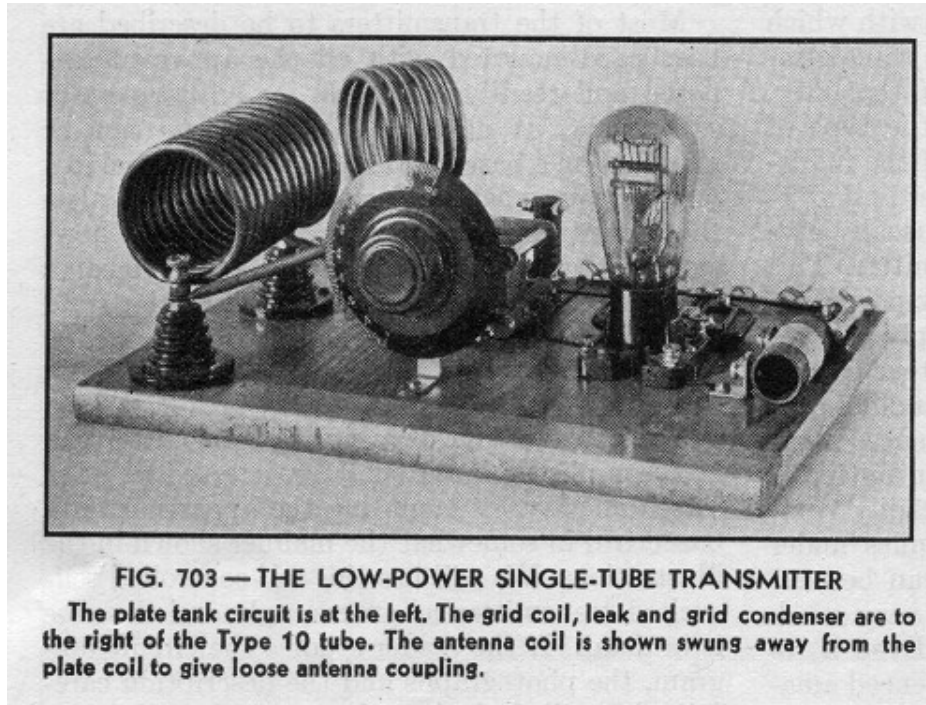
## The TNT 'Glowbug' Project

Simon 2W0CHV

Whilst not being a CW operator, I have always held an interest in early amateur radio transmitters, most if not all of which were homebrew construction. I am currently undertaking some reading about various designs of these 'glowbugs' which were popular in the late 1920's and 1930's. The term 'glowbug' was commonly used to describe these simple valve transmitters where the components were often mounted on a steel chassis or wooden board with their wonderful glowing valves (tubes to our North American friends) visible for all to see.

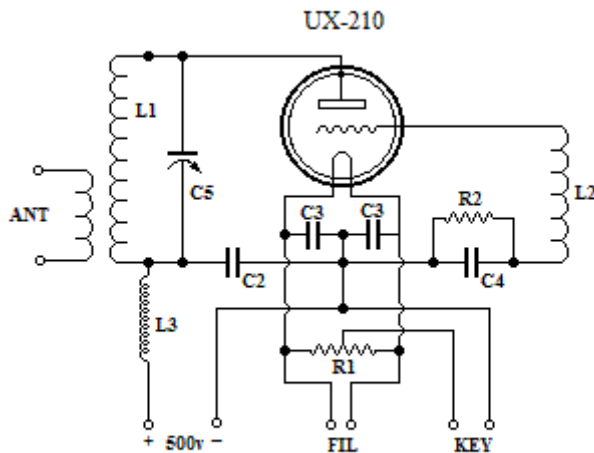
At this point in time most amateurs were constructing three basic types of transmitter, these are the Hartley oscillator, the TPTG Tuned Plate Tuned Grid type, and the TNT 'Tuned Not Tuned' type, where the valve has a tuned plate, but un-tuned grid. What is interesting to note with all these designs is that they are self-oscillating designs and employ no crystal control whatsoever. It is also interesting to note how few parts are required to construct these transmitters and the valves used were common in domestic receivers of the day. Perhaps this was due to the poor economic climate of the 1920's when most amateurs had severe financial constraints.

Now I have a soft spot for the relative simplicity of the TNT types and am thinking of constructing one for myself over the coming months. The TNT uses an 'un-tuned' grid circuit, relying on the inherent tube capacitance along with distributed coil capacitance to achieve the slight off-resonance grid tuning needed to sustain oscillation. A 1931 Radio Amateurs Handbook (US) has such a circuit which would suit my interest, it has also proved successful for VE7SL, and much of the info in this article has been 'borrowed' from his website at: <http://members.shaw.ca/ve7sl/tnt.html>



On the next page you can see the circuit diagram used by VE7SL and also a list of items required, perhaps the hardest to obtain item is the Type 10 valve, although I suspect that similar types will work just as well. Transmitters such as this should produce an output of around 3 - 6 watts approx.

## The TNT 'Glowbug' Project ctd:



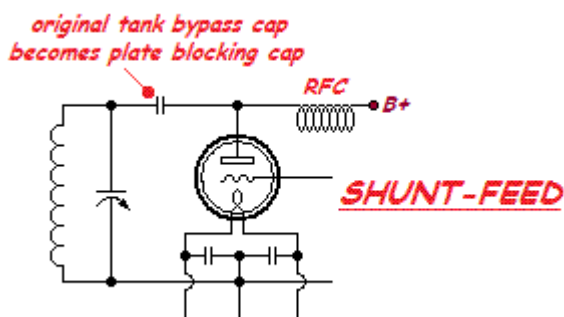
### PARTS

- C2 - .002 mfd mica  
 C3 - .005 mfd mica  
 C4 - .00025 mica  
 C5 - .0005 mfd variable condenser  
 R1 - center-tapped resistor, 75 to 100 ohms total resistance  
 R2 - 10,000 ohms grid leak, 5W  
 L3 - RFC 2" length of 1/2" tubing or dowel wound with No. 38 d.s.c. or d.c.c. wire  
 L1 - 80m 12 turns    L2 - 80m 60 turns  
          40m 5 turns    40m 25 turns  
          20m 3 turns    20m 9 turns  
          Ant 6 turns

Plate and Antenna coils are wound with 1/4" copper tubing on 2 3/8" form spaced over 4 1/2" length. Space between turns on 40m should be 3/16" and about 7/8" on 20m.

Grid coils (L2) are wound with No. 30 d.c.c. wire on a 2 1/2" length of 1" bakelite tubing, wood or other insulating material.

It is important to remember that high voltages are present in this transmitter, and as fun as this construction project would be, I would ideally like to see a few more birthdays! Therefore, VE7SL recommends a shunt feed arrangement. This will remove the high voltages from the variable capacitor and plate coil!



I am sure there is far more to learn about the TNT transmitter before I commit to building a particular design. But as antique as this design appears, amateurs of the 1920's worked the world with these simple designs!

I am committed to building a 'glowbug' transmitter and I hope that one or two of you may wish to join me or offer support and advice. Perhaps then we shall have to look at constructing a homebrew receiver to match it?

I think it would make an interesting item for a special event station to highlight to the public just how far amateur radio technology has evolved in the last 90 years.

To see a lovely demo of a similar TNT transmitter design, take a look at the following YouTube video:  
<https://www.youtube.com/watch?v=V5Qkk2c4m9E>



## 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 7.30 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 7.30 for 8.00. Visitors and new members always welcome.
- Pob gohebiaeth at yr ysgrifennydd. All communications to the Secretary, Stewart Rolfe GW0ETF QTHR. Tel 07833620733. email: gw0etf@btinternet.com

### Cylchlythyr Golygydd / Newsletter Editor

Simon Taylor 2W0CHV. QTHR: Email: m3set@yahoo.co.uk  
Tel: 07791 963814

### Pwyllgor / Committee

Cadeirydd / Chairman: Chris Tanner MW0LLK.

Is-Cadeirydd / Vice-Chairman: Alun Guest-Rowlands 2W0CYM.

Ysgrifennydd / Secretary: Stewart Rolfe GW0ETF.

Trysorydd / Treasurer: John L Brimmecombe GW3GUX

Aelodau / Members: , Cliff Nicholls 2W0CBZ, John Parry GW3VVC, John Pritchard MW0JWP and Simon Taylor 2W0CHV.

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

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

Issue number 111, will be issued in Awst / August 2016. Any material for inclusion to be sent to the editor.