newsletter

wythall radio club

"*having fun with rf*"

wythall contest group

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Nov—Dec 2012

Wythall Radio Club meets from 8pm every Tuesday evening at Wythall House, Wythall Park, Silver Street, Wythall, B47 6LZ, near Birmingham. Visitors are very welcome. **Wythall Radio Club** is affiliated to the Radio Society of Great Britain. Contact g0eyo@blueyonder.co.uk

We just get better and better!

Well it has been a very busy couple of months at Wythall Radio Club. In October we had our AGM and elected the officers and committee. Constitutional changes agreed at the AGM limited the number of committee members to the three officers and six committee members due to the fact that the principal of non-committee members taking responsibility for club activities had proved so successful in the past year. The responsibility of the committee is now clearly defined as to ensure good management of the club and its maintaining its growing reputation as a happy club.

The election for officers was conducted under secret ballot conditions and the outcome was;

Chairman - Mike G4VPD
Secretary- Anita M6DUO
Treasurer- Ian M0IDR
Committee Members;
David G0ICJ
Peter M5DUO
Callum M0MCX
Jim 2E0BLP
Chris G0EYO
Stu M0NYP

The introduction of a new LCD display screen and classroom re-orientation together with the internet facility has made a huge difference to our training and they are often used on Tuesday nights to aid discussions and presentations from visiting speakers. The club have also purchased a new HF/6M rig, the Kenwood TS590S from Martin Lynch and Son at the Lincoln Hamfest. By all accounts this is a nice rig to operate and it is getting regular use on the normal Tuesday and Friday nights. The club shack is also starting to be used for contests at the weekend as well as the usual Tuesday night UK All Clubs contests run by the RSGB.

When we purchased the rig from M.L.&S we were entered into their Hamfest raffle and guess what ,we won!. We are going to be presented with vouchers to the value of £600 at the M.L.&S open day on Dec 1st. Several members plan to go down to London for the presentation. Trouble is, what do we spend the money. Hard to decide for a club that has everything already. We will have to decide by the next Committee meeting though (13/11/12).

The beginning of September saw us participate in the HF SSB Field day under the guidance of Callum M0MCX. We had a great weekend and you can read all about it on P5 of this newsletter. We also attended the Stoke Prior Steam Rally as a special event station GB0SPR and had a lot of fun on 20 and 40m. Thanks to Darren and Carol for that one.

October also saw the publication of the RSGB yearbook for 2013 (which incidentally is the 100th anniversary of their formation in 1912) and Wythall Radio Club were a featured club, one of only two in the Midlands region. Great to be recognised.

We have some exciting things to look forward too over the next few months. In addition to the usual Xmas activities, such as the Xmas Contest, Xmas Fox Hunt and Xmas Social, we also have some talks lined up; Wire Antennas for Dummies by Callum M0MCX; Filtering in the Shack by James M0YOM over the next few weeks and don't forget the CW training sessions on Tuesday evenings have re-started. Finally another date for your diary is the all important Wythall Radio Rally on Sunday 10th March 2013. Keep this one clear in your diary, you will be needed.

The AGM ended my year as Chairman, a job I had not expected to have a year earlier. Thanks to unequivocal support of club members, officers and committee this has been a very successful year and the club is much stronger than it has been for many years. There is a great atmosphere and we have a very full calendar of activities. For that support I thank you and hope that you will continue to give your support to the new officers and committee. I know I shall be proud to play my part in the club's continued success.

Chris G0EYO

Temperature controlled soldering iron

My Weller TCP magnastat iron broke, the magnetic switch stuck open circuit. This is the second time in three years this has happened. Needless to say I was feeling a little hacked off about this given the price of spares for this iron, the magnetic switch retails at approximately £30.00.

Twenty four Volt AC, 48 Watt Chinese temperature controlled irons (heating element + temperature sensor) can be purchased on Ebay for £9.99 inc. shipping from a UK distributor - an incredible price. Taking a gamble, one of these irons was purchased with the view if I get twelve months out of it and it packs up it is cheaper than fixing the Weller.

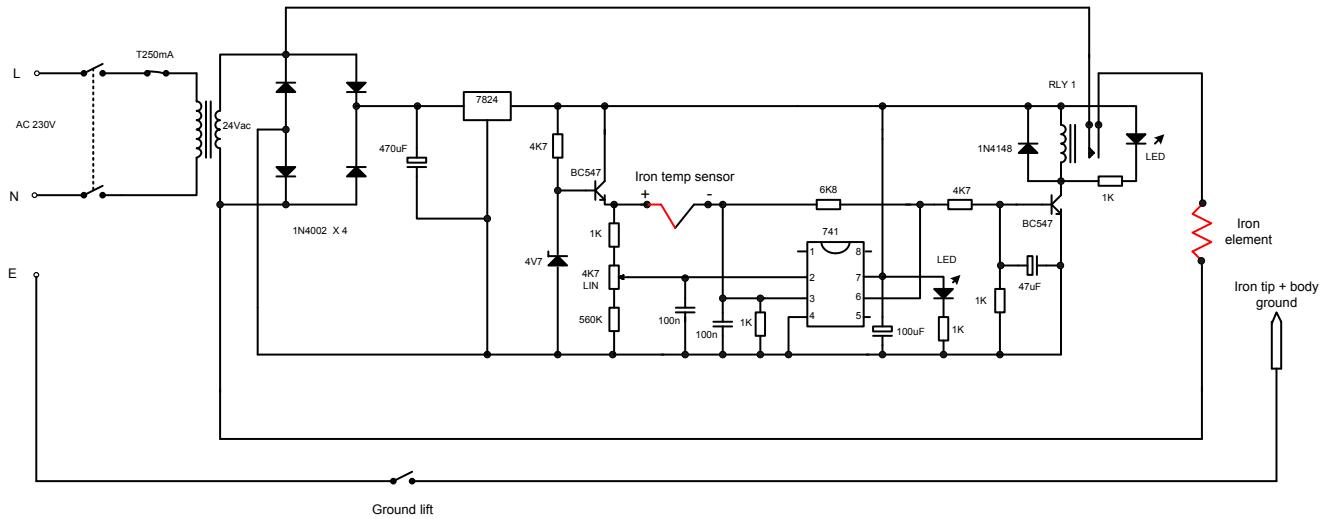
A temperature controller circuit was designed and tested for this iron using junk box parts, the result of which is shown here.

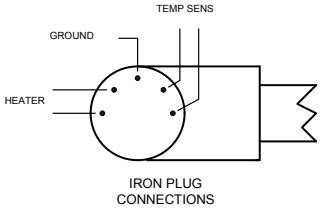
No data for the iron was available so a little experimenting was carried out. The heater element connections are the first two on the left as you look at the 5 pin din plug (flex facing away from you). The centre pin is the iron ground. The remaining two pins are the temperature sensor which I think is K type thermocouple.

The controller circuit uses a 741 op amp configured as a comparator to switch the relay contacts feeding power to the iron heating element. A pot is used to vary the comparator reference voltage so various temperatures for the iron can be set and maintained due to the closed loop servo action of the controller circuit.

The reference voltage source for the comparator is derived from a small regulator (Tr1) producing 3.5V. Using a low reference voltage gave better results than just potting down the 24V rail as a reference voltage. The minimum and maximum temperature range can be altered by changing the resistor values in the potentiometer network to suit one's preference.

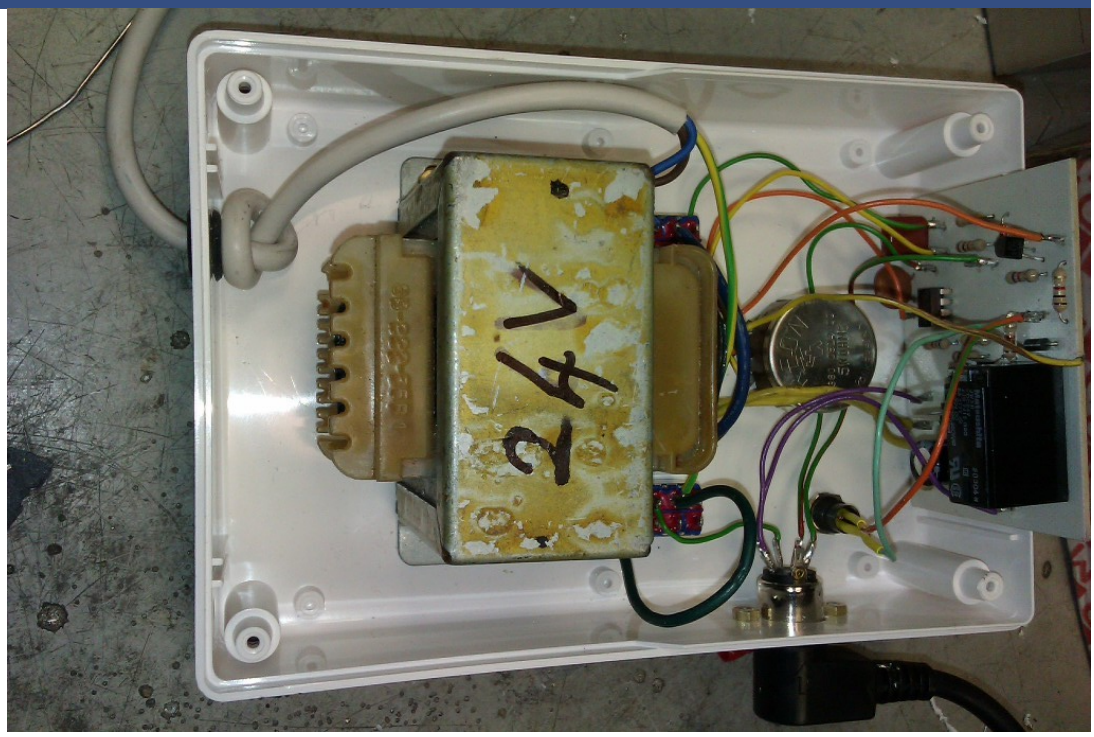
M0DGQ





IRON PLUG
CONNECTIONS

Temperature controlled soldering iron (cont)



All of the components came from the junk box. RLY1 has a 24V coil and should have a contact rating of three amps or better. The 24V transformer was removed from a ancient scrapped midi system

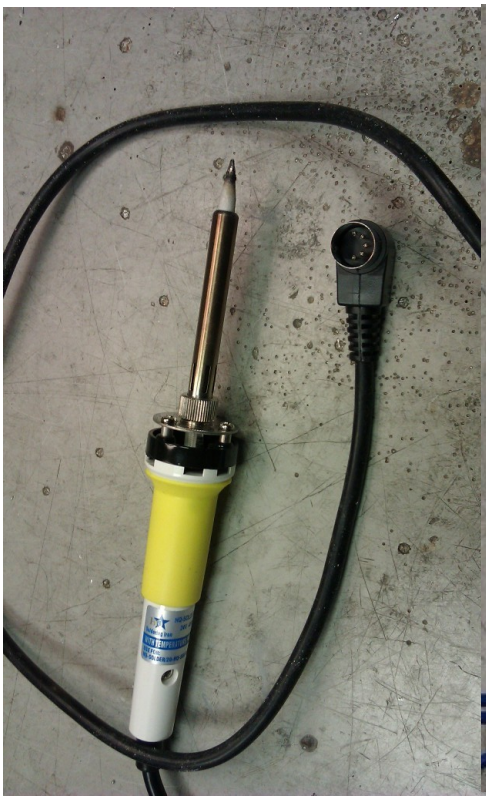
The temperature control pot was roughly calibrated using a K thermocouple resting on the iron tip connected to a multimeter, if one is not available just mark the pot scale min and max as any one who is experienced at soldering will know when the iron is the correct temperature for the job in hand.

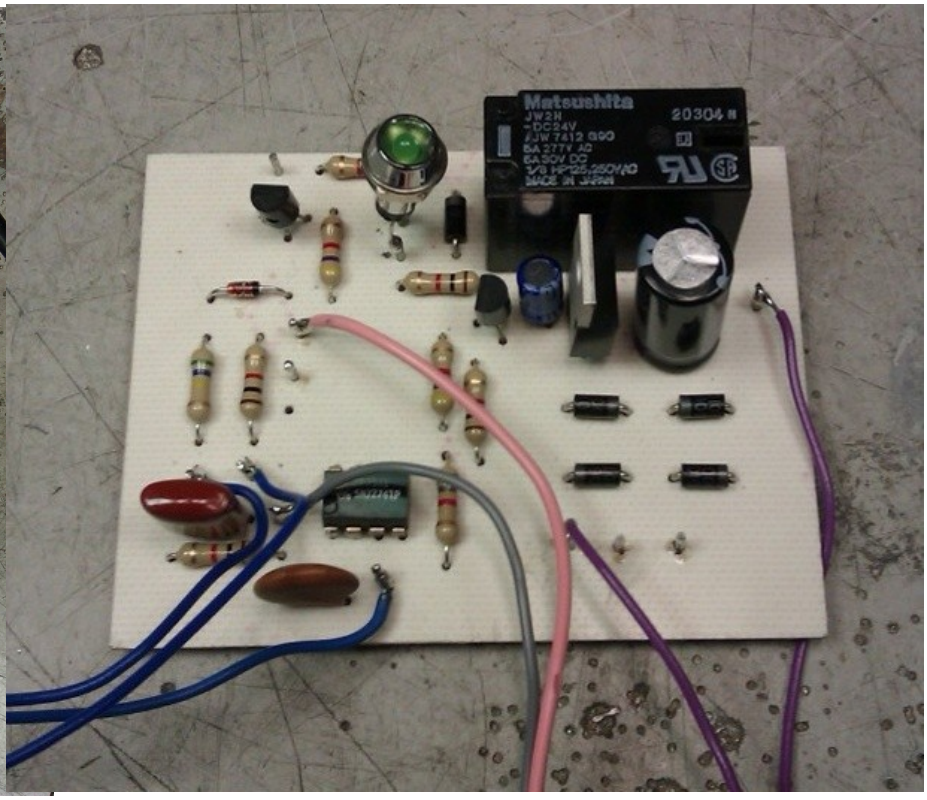
In use the iron maintains a steady average tip temperature. A LED is illuminated when power is applied to the iron heater.

A ground lift switch is included as sometimes it is handy to use the iron with out the tip grounded, the ground should be permanently wired if this feature is not required.

The soldering iron itself has a very good ergonomic feel - as good as the Weller, in fact it looks like a copy. Time will tell as to its reliability.

Barry M0DGQ





The G4YKB Multi-band antenna

I have finally put my end fed Un-Un longwire up this weekend with some great results. I am not so sure about it's performance on 10m band but 40/80m and 160m are superb. The signal to noise ratio is also better than my G5RV. My QRM issue still persists, however the signals now soar above the hash. Below is a description of the antenna.

This is a quality multiband antenna designed for QRO or QRP Radio Hams and SWL's with restricted space !! You can operate on all the HF bands on this one antenna. Including TOP BAND. It's time to prepare for the long winter nights and the lower bands openings

Users are delighted by the performance, with input levels as low as 10 watts you will get terrific reports from stations worldwide, those who have compared it to their half size G5RV find the signal to noise ratio far better plus the SWR does not alter when it gets wet as is the case with the G5 due to it's ladder/ribbon feeder.

The antennas are individually hand made by Howard G4YKB and consists of a 66 Feet long wire, end fed through a unique magnetic balun in an Un-Un arrangement which is housed in a rain-proof casing and is fed by standard 50 ohm coaxial cable, connection is by the popular SO239 so as to take the standard PL259 plug. The antenna can be used in a straight line or where space does not allow it performs very well in a V, L or other configuration that suits your needs.

It is also very feasible to take it portable for those field events or to your favourite DXing location as others have done with some excellent results. The colour of the radiating wire is dark brown with black insulators.

There are no traps or coils and no silly trimming or gamma matching to mess around with and a counterpoise is apparently not required. You could say it's virtually plug and go, it is very low profile and has very low impact on the eye and being end fed it is almost invisible against the sky, it looks like a thin telephone wire (no "T" piece or unsightly feeder) great for those awkward neighbour/ sensitive area situations.

You can have this antenna up and running easily within 15 minutes ,just use the clamp provided, fasten the housing to a pole/mast run out the wire and tie off using the insulators provided and that's it your done. Everything needed is included in the box (except the coaxial cable and pole of course.)

Although the antenna works barefoot on some bands, an AMU. is recommended for optimum performance (particularly on 6m) ,you will find the antenna does tune very easily from 1.8 to 54MHz, signal to noise is outstanding on receive. The antenna has proven to work as well if not better than some other multi-banders costing hundreds of pounds

Rob M6HCS

Editor's Note

So how do these "wonder antennas" work.

End fed antennas present a very wide range of impedances to the coax feeder depending upon its length and frequency. If the end fed wire length was an even multiple of quarter-wavelenghts for the operating frequency then the impedance could swing between 500 to 5000 ohms or even higher. If the wire length was odd multiples of quarter-wavelength for the operating frequency then the impedances might be easier to work with at between 30 and 90 ohms. It would take a pretty fantastic balun to accommodate this range of impedances and transform it down to 50 ohms. In reality the Un-Un balun is a 1:9 impedance transformer and they are usually a primary and a secondary wound on a ferrite ring former. With this impedance transformation the balun should match 50 ohms to 450 ohms.

The G4YKB antenna is 66ft long and if we think of this in terms of quarter wavelengths for the various ham bands we can get some idea as to whether it is going to be a high or low impedance at the operating frequency.

66ft =20.1m and allowing for end factor correction is the equivalent of 21.2m electrical length

See table below

The impedance of the end fed will also be affected by the height above ground of its feed point. As to whether the antenna will look like 450 ohms when used on 80m – 10m is anyone's guess and the proof of the pudding will be in the eating and Rob seems to have got good results when he fed it via his ATU. On the question of grounding I am surprised that there is no ground attachment at the balun. G4YKB says ground the screen to the rig and ground the rig. It would be interesting to see what the actual impedance is on the end of Rob's feeder cable on the Antenna Analyser (before it goes into the ATU) over each of the above bands

Chris G0EYO

Band	Frequency MHz	Wavelength m	λ/4 wavelength	No of λ/4	Impedance
160m	1.850	162.2	40.6	< than λ/4	????
80m	3.600	83.3	20.8	1	Low
40m	7.100	42.2	11.3	2	High
20m	14.2	21.1	5.3	4	High
15m	21.3	14.1	3.53	6	High
10m	28.5	10.53	2.63	8	High

SSB Field Day 2012

For those people who prefer voice to CW, SSB Field Day is a great way to get out in a field with your team mates, build a station and contact the world. Field Days have a superb history going back to the early days of radio when clubs would organise field days to demonstrate how quickly and efficiently they might put a station on in times of emergency. These days, it's morphed into a straight forward contest.

Although SSB Field Day is an official RSGB contest, it is also supported by the German "Deutscher Amateur-Radio-Club" (DARC). Collectively, we are called SSB Field Day Region 1. It's a 24 hour contest starting mid afternoon on the first Saturday of September. Coincidentally, the All Asian Contest happens to be on at the same time. Some confusion reigns because on the one hand the Region 1 Field Day contesters are

giving away serial numbers but the Asian contesters are expecting ages. You can imagine the problems that might occur when an inexperienced Asian operator swaps their report of 59 44 (say) and we give them 59 and 112 (for instance). Yes, you really can hear eyebrows rise over a microphone.

Strategy

It gave me great pleasure in captaining the SSB Field Day team this year, having being the original SSB FD protagonist for Wythall back in 2006 (I think). In that year, we put a Windom up at about 12 meters and ran 100 watts in the Low Power section.

Experience tells me that low power is sometimes not as enjoyable as high power, particularly if we're just having a bit of fun, and not taking ourselves too seriously. This year to keep things really easy, we used a fan dipole for 80, 40 and 20 with an amplifier, and for 15m and 10m, we just kept the power down (a bit) and crossed our fingers that the high SWR wouldn't melt anything!

Setup & Equipment

Along with the fan dipole, we used my lighting generator and a lightweight 5 metre, thin-walled mast on top. When hydraulically raised, this gave us a feedpoint height of around 15 meters, high enough to have fun and low enough to keep the cost and effort down.
The "shack" was housed in Colin's blue (hence the blue cast in the p;ics) tunnel tent (since procured by the club) running two logging PCs (one as a backup) and one FT1000MP with a fancy stick microphone. We also had WiFi and internet, a luxury but quite necessary in modern contesting circles, particularly if we're out to impress :)

The team

A fantastic turnout meant that the station was built in record time and many people helped; too many to mention by name and I apologise for not rattling off a roll-call but we really did have upwards of 20 people milling about over the weekend – genuinely a huge turnout.

Operating and logging

Running moderately high power from the ACOM 2000 meant that generating interest on the bands was quite easy – even with a dipole on 20m band. The country total was astonishing and we witnessed many callers from all around the globe, many running only 100 watts and we were receiving genuine 5 and 9 reports both ways. The beauty of running out in the wilds in a field meant that modern electrical interference is well down on what we are normally used to in our modern houses so even running on 40 and 80 was a breeze with static noise in the low S3s. A real luxury.

A number of people took the operators chair over the weekend, producing a healthy score (for a part-time entry!) with around 800 QSOs logged including much DX. Jim 2E0BLP, Barry M0DGQ and myself M0MCX slept out in the field causing the station to shutdown between midnight and 7:00am – had we not done shut down, I am of the opinion that our modest station would have achieved over 1,000 QSOs. Quite a thought. Next year we can be more ambitious with antennas but keeping a station at the minimum really does have its benefits. We were packed away 33 minutes after the contest ended. That has to be a record!

We scored 280,692 across 92 countries (all bands), and here's the detail:
Callum M0MCX

Band	QSOs	Pts	DXC
3.5	155	640	18
7	290	1150	23
14	330	1237	47
21	7	20	3
28	2	4	1
Total	784	3051	92

Our new Baby in the Shack- Kenwood TS590S

First Impressions

Straight out the box, the Kenwood felt surprisingly heavy for its size being a mere 10.5 inches by 3.5 inched by 11.5 inches deep (excluding space for connections) This rig has a small footprint and would fit in well even in the smallest of shacks. Kenwood's standard type of power lead is supplied (twin red and twin black) terminated in stripped and tip soldered conductors needing little preparation before connection to the PSU.

A "mobile " mounting kit is supplied as is Kenwoods standard fist mic with a 600 ohm dynamic insert . A selection of connectors and spare fuses complete the package. Two rear panel SO239 provide the antenna connections and there are a range of other connectors including Com, USB, external speaker, accessory , remote, key and paddle. A separate receive only antenna (RCA Phono type) is also included

There is a bail bar which lifts the front of the rig to provide a raised operating Position. At switch on the standard familiar orange Welcome screen greeted us and those familiar with the TS2000 will immediately feel at home with the screen layout. There is an option to change the screen background to Green which is a Kenwood First.

Operating the rig

David G0ICJ was first up and he opted to use the headset with vox. The receive audio was of a good rounded nature, perhaps a little "bassy" for some folks but of very acceptable quality. The speaker is top mounted and an improvement I am sure, could be made by using a larger external speaker of 8 ohms impedance. After having made a couple of contacts it became apparent that the vox delay was set by default too long for his personal preference and David opted to PTT himself using the front mounted button. A good solid feel to the VFO control gave confidence for a well engineered product as did the whisper quiet twin fans set within the rig.

A very comprehensive range of DSP filters and the ability to shift the IF make for a rewarding listening experience. A superb notch filter and noise blanker add further to the operators arsenal of weapons to dig out dx from the noise.

As is usual with modern rigs there are a host of menu driven changes that can be made from the default setup and the manual describes each option to aid the tailoring of the rig to personal preference. It is clear that a thorough read of and trying various options is going to be required to get the most out of this rig.

So first impressions are very good. Personally I have been able to do a bit of comparison between the Elecraft K3 and the Kenwood TS590s and these are my thoughts.

For comparison the set up was:

Elecraft K3 , standard (default) set up for things like mic gain, transmit audio contouring, receive audio contouring. Uses Kenwood protocol for mic connections and so the same mic was used on both rigs.

Kenwood TS590S, again all at Manufacturers default. Standard Kenwood mic.

Fed via coax to a two way antenna switch with identical patch leads of RG58 coax 60 cms long.

The first thing I noticed was the smoother more rounded audio from the Kenwood, the Elecraft was more toppy and this I am sure is down to the fact that the speaker in the Kenwood is bigger and more solidly mounted in the case.

Secondly the Kenwood consistently was showing slightly less noise on the S meter across all bands, and again this was confirmed by listening tests- not much difference but it all helps.

The various filters provided a very good range on both rigs and each was capable of picking out stations from crowded bands but the Kenwood had the edge in as much as the noise filter especially on range 2 was more effective.

The biggest difference was in transmit audio quality. Of all the variables this is the one where every voice is different and some will need far more audio contouring and experimentation than others The Elecraft provided really good audio reports without any tinkering needed to the audio response. One or two contacts felt there was too much bass which can easily be sorted via the equaliser but really nice audio was a typical response.

Easy to "whistle up" the rig to tune but not so easy to get full power out from the normal voice levels without the alc telling you to back off the mic gain.

The Kenwood, again easy to "whistle up" full power but more difficult to get full power output from normal voice levels. Initial reports were that the audio was thin and lacked punch and so armed with a willing contact tried various settings and eventually achieved a good quality ssb signal. Much more difficult to achieve and by using the desk mic, the MC60A, the results were unsatisfactory with rf getting in to the audio.

A search on the internet revealed I was far from alone with this and the fix was easy, but should not be necessary on a listed (and expensive) option.
Using the Nissei 308 (Adonis clone) – the one I use on my 2m rig- produces a remarkable improvement to audio quality, so for desk mic users, that is what I personally would choose.

In the pile up conditions over the contest weekend, the Kenwood gave a very good account of itself and lots of contacts were made.

Take time to set up the transmit audio response for your voice and microphone combination and the results are really very good.

Ian
M0IDR

Lord Pettitt Shooting Trophy 2012

This year's clay pigeon shooting morning took place on Sunday 21 st October, which is a little later in the year than usual. The weather forecast had predicted rain all week but Sunday morning turned out bright and sunny, although a little chilly out of the sun.
11 people attended, both club members and family and we split into 2 groups led by the resident instructors Alison and Lewis, who organised the itinerary and provided some welcome guidance and tuition.
We had 8 different stands of 5 shots on each with some easy and some not so easy "birds".
This year's winner was Craig (Barry's son) with 33 out of 40 and was presented with the trophy by Lord Pettitt himself !

Full table of results.

Name	**Hits**
Craig	33
Jonathon	33
Stuart	32
Colin M0GJM	31
Stephen	30
Mike G4VPD	29
Barry M0DGQ	28
Chris G0EYO	26
Peter M5DUO	26
David G0ICJ	25
Neil	25

Well done to Craig who had not had a go at clay pigeon shooting before and to Jonathon who kindly allowed Craig to win by declaring that he was a regular shooter.

A lot of fun for those taking part and I am sure we will get many to return for next year's competition. Anyone who has not tried this before is more than welcome to join in and have a go !!

Colin MØGJM

Training Notes

.Our advanced training course is almost two thirds of the way through and we have just put in for our candidates, Jim 2E0BLP and Tony 2E0TSK, Carl 2E0CWC, Chris 2E0ETH and an external candidate Shaun 2E1BWN to sit the exam on Wednesday Dec 3rd at 19.00. We wish them all good luck and hope to hear them as Mzeros on the air sometime in December.

We shall be starting an Intermediate course in January although the date of the first session is yet to be fixed. This is a 9 week course which will be held on Monday evenings. We may also try another weekend Foundation course sometime in the Spring as there seems to be a demand for it although I think it is a hard ask for a complete beginner and is probably better suited to those with some experience in the hobby either as a CBer or SWL.

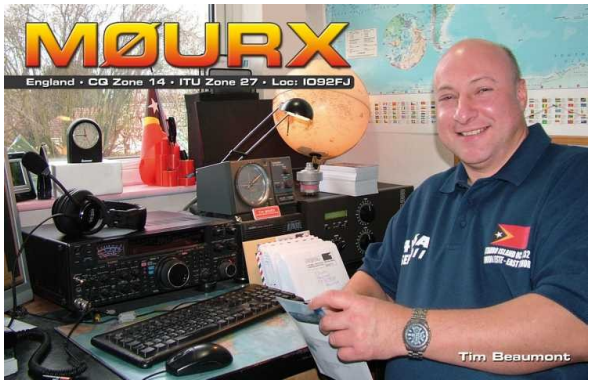
In October I attended the RSGB Convention in Buckinghamshire as I was particularly interested in the sessions on Training and Education. I got a chance to meet the Chairman of the Training and Education Committee Steve G0FUW who is also the brains behind the Advanced Distance Learning programme (of which I am a tutor) which enables students to study at home from material e mailed to them and get their homework and practise papers marked by a tutor.

Steve outlined some of the changes that are coming along including optical marking of exam papers. Invigilators will still mark the Foundation and Intermediate exams and say whether there is a pass or fail but the official certificate will come from RSGB HQ after the optical paper has been read by the computer. Students will have to transfer their mark from the question paper to the optical paper using HB pencil so they can correct if they make a mistake- These optical papers will thenbe collected immediately after the exam and placed in an envelope in front of the candidates and sealed.

Other topics included sharing of teaching resources such as power point presentations, videos, course materials, teaching-techniques, and a fresh approach to Train the Trainers sessions

Chris G0EYO

M0URX's DX Forecast



Now that we have passed the Autumnal Equinox and the days are getting shorter and nights longer, what should we as Radio Amateurs be looking for on the HF bands. November still has a lot of potential on all HF bands.

There are some major DXpeditions such as ZL9HR Campbell Island between November 28th & December 9th. ZL9HR are well placed for working from England as Campbell Islands are as close to our Antipode as you are likely to get, so don't be surprised if you hear these guys on any HF bands with good signals. Signals to and from as close as 1,000 km from the antipode will have very little attenuation and there is very little difference between day and night on the effects of the signals. For more information on this one go to: http://www.campbell2012.com/

During November you can still work some very good DX on bands as as high as 10m, although band openings are likely to be shorter than we have experienced since September as there is less sunlight to charge the Ionosphere at our latitude at this time of year.

December will prove to be a great month for low band operation 40m and 80m will give is good conditions in the hours of darkness, especially listen at sunset and sunrise for grey line conditions. With wire antennas you can expect quite easily to work Australia and New Zealand areas at this time. However as we are approaching the Solar Cycle peak conditions on the low bands are not expected to be as good as they were between 2006 - 2009.

So how do I find these DX stations? By far the best way to work DX is call "CQ DX" and see what stations come back to your calls. Tune around the bands especially around sunrise and sunset. For example at 0700z I have just tuned around 20m and found a signal on 14.210 MHz it was 3D2PT on IOTA OC-121 Tavarua Island, Fiji and workable with 100W.

To help you search for the DX you can use a tool called "The Cluster" here you will see DX spotted by other Radio Amateurs from all over the World, you can filter the spots for the bands that you want to work or for areas or countries that you want to look for.

A very good cluster to download is VE7CC-1 CC Cluster http://www.ve7cc.net/ or alternatively, logging software programs will have the facility to use download a cluster from the software.

Another great tool for the Radio Amateur is software called DX Atlas http://www.dxatlas.com/ Electronic World atlas for Radio Amateurs. Scrollable World map with smooth zoom, DXCC territories, province/state prefixes, Grid Squares, CQ and ITU Zones in the rectangular, azimuthal and Globe projections, 3D relief, Gray Line, city and island index, unique hierarchical prefix database, local time with DST for all cities, islands and call areas, unique ionospheric maps.

I first downloaded DX Atlas when I got my licence and still find this a very useful tool today.

Tim M0URX

M0RKX Transverter Project

For a while now I have been thinking about the 4M band, something that I lack with my current gear, and the equipment needed to get on this elusive band. I could buy a new rig (FT847 or similar) or use a transverter with my favourite IC706mkIIG. The transverter seemed to be the most popular (and cheapest) option, so after a chat with Tony at Spectrum Communications I decided to buy the TRC4-10sL boxed kit. Buying the kit saved £87 over the built model and Tony assures me that there are no complicated alignments, so how can I lose….

Part 1. The unboxing:
Hmmm there are a lot of parts, but there are some cold winter nights coming up so I need a project don't I??

From left to right there is the main transverter PCB and parts, the output transistors and heatsink, sockets and case hardware, the linear amp PCB and parts (this model has 25W output), and of course the pre drilled box.

Time to clear some space in the workshop and start the assembly, I'll let you know how I am getting on in Part 2.

Mark M0RKX

The next issue of the Wythall Radio Club Newsletter will be published at the beginning of Jan 2013

Editor: Chris Pettitt G0EYO, 23 Dark Lane, Hollywood, Birmingham, B47 5BS. Phone: 07710 412 819, E-mail: g0eyo@blueyonder.co.uk