

STARLITE

THE JOURNAL FOR THE STOURBRIDGE AND DISTRICT A.R.S.



**G6OI
G6SRS**



ISSUE: JULY 2023



G4CVH

**STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY
INCORPORATING
OLDSWINFORD HOSPITAL SCHOOL RADIO CLUB**

MEETINGS NORMALLY HELD AT

**OLDSWINFORD HOSPITAL SCHOOL
HEATH LANE
STOURBRIDGE
[8:00 TO 10:00 PM]**

VISITORS ALWAYS WELCOME

**DURING COVID, THE SOCIETY HOLDS ITS MEETINGS
EVERY MONDAY AT NORTON SOCIAL CLUB,
OSMASTON ROAD, STOURBRIDGE**

RSGB AFFILIATED SOCIETY

STARLITE

Telephone Enquiries to:-

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be addressed to the Hon Secretary at:-

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Kidderminster
DY10 3ND

StARS Website URLs:-

www.g6oi.org.uk

StARS Facebook Page:-

<https://www.facebook.com/groups/stourbridge.ars/>

Forthcoming Meetings

July 3 rd	Honey Bees & Communication with Adrian G0JTB. 8pm
July 10 th	BBQ at The Sheepwalks. 6.30 – 7pm start
July 17 th	Extraordinary General Meeting [A.G.M]. 8pm
July 24 th	Club Meeting at Norton Social Club. 8pm
July 31 st	Club Meeting at Norton Social Club. 8pm
August 7 th	Club Meeting at Norton Social Club. 8pm
August 14 th	Club Meeting at Norton Social Club. 8pm
August 21 st	Club Meeting at Norton Social Club. 8pm
August 28 th	Club Meeting at Norton Social Club. 8pm
September 4 th	Club Meeting at Norton Social Club. 8pm
September 11 th	Club Meeting at Norton Social Club. 8pm
September 18 th	Club Meeting at Norton Social Club. 8pm
September 25 th	Club Meeting at Norton Social Club. 8pm
October 2 nd	Club Meeting at Norton Social Club. 8pm

On the calendar

July 3rd sees Adrian Hamlyn G0JTB giving a presentation on Honey Bees and Communication. Apparently, they use radio waves to navigate. Should be an interesting topic. This will be at Norton Community Centre And Snooker Club.

July 10th is time for the annual BBQ at the Sheepwalks. Normally burgers and dogs, plus Wayne's Indian street food. Additionally, a /P station is there to make a few contacts. In the past, this has been an enjoyable social event held in pleasant weather conditions.

July 17th is the deferred Annual General Meeting and the most important Club meeting of the year. If you can make it, you would be encouraged to attend. The venue is to be confirmed.

In this issue:

- Transistor Transmitter and Receiver by G0KVK*
- P.S.U. Modification by G0KVK*
- Foundations Of Amateur Radio*
- Ofcom News*
- A Selection Of Woofferton Visit Photos by M5LLT*
- DX Spots For July*

Transistor Transmitter And Receiver

By Geoff G0KVK

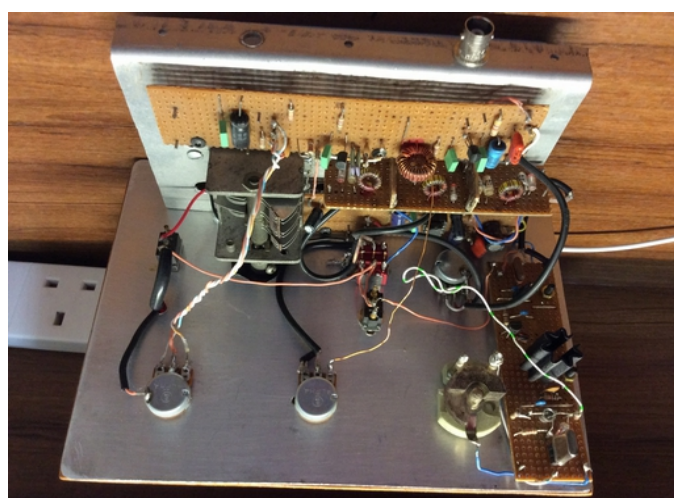
Back into the construction again.

This time it is a 40 meter QRP cw transmitter and a regenerative receiver. The circuits were taken out of G-QRP Sprat magazine, only I had to use Veroboard (strip board) as the PCBs were no longer available. At the heart of a regenerative receiver is an oscillator circuit with not quite enough loop feedback to maintain oscillation. The regenerative receiver's oscillator uses some method to control the feedback, to a point just below oscillation, to receive AM stations and just above for CW and SSB signals. A sine wave oscillator with insufficient feedback to sustain oscillation becomes a sharply tuned band pass filter with high gain at the oscillator frequency. Thus the circuit has high amplification (gain) and narrow bandwidth (selectivity) at the chosen frequency, two highly desirable properties for a short wave receiver.

A quick description of the photos. The board closest to the aerial socket is the RF tuned circuit, tuned by the variable capacitor. Also, the oscillator is adjusted by the control top right. The middle control is for the r.f. gain. From this board it, also, produces a.f., which is fed to the audio board via the a.f. gain control (this board is lying down behind the vertical one). This has one I.c. on it, which gives enough audio to drive a small speaker. The vertical board mounted onto the front panel is the c.w. transmitter with its own tuning capacitor (this allows the Crystal to be adjusted by a few cycles either side of the calling frequency). The vertical board between the rf and af boards is a three section low pass filter tuned to pass 40 metres only. The three switches on the front are on/off, net, and transmit/receive.

How it works. You tune in a cw signal then turn on the net switch. This just turns on the oscillator only and this is fed into the receiver (via the green and white wire). This allows you to adjust the oscillator until it sits on top of the incoming signal. Then switch off the net switch and wait for a break. Then switch to transmit and you know you are on spot.

This is a good little receiver. It takes a little time to get used to operating it, as it need a balance of adjustment of the tuning and rf gain and regeneration controls, but once you have mastered that, it's fun to operate.



Power Supply Modification

By Geoff G0KVK

On seeing Wayne's PSU with its display, I decided to add one to the manufactured one that I had. So, sending for one to see if it would be a useful addition,(as this PSU was set for 13.8 volts and 6 amps constant and 8 amps surge).

On receiving the display unit, I first thought about mounting it in a plastic box and fitting it either on the top or at the back, but in both positions it would mean drilling a hole in the cabinet and running the wires down to the output terminals, plus it would look untidy. So, on close examination it looked like it would just fit between the maker's name and the power switch, So I cut a piece of card to the right dimensions and found that it just fitted.

Then removing the front panel, on/off switch and output terminals, I marked the hole out carefully, keeping it dead level. I then used a drill to make a hole at each corner and a 22mm hole punch to take out most of the metal for the hole and using a file to remove the rest, trying the meter all the time so that it just fits. I fitted the meter unit into the front panel, with a touch of glue just to keep it in place (as the metal front panel was too thin for the securing clips on the display to grip).

Then putting it all back together and connecting it up, an external meter was connected to the output terminals, switching on. On the back of the digital meter are two presets, one for voltage and one for current, these were adjusted to match the external meter.

With it all boxed up it looks great.



Foundations of Amateur Radio

Testing your radio's audio frequency response

During the week I was reading a comment from another amateur about digital modes. Tucked inside that comment was a phrase that could easily have been overlooked, but it reminded me that there is plenty to learn and test in the field of amateur radio.

The phrase, "requires actual understanding of audio level paths" was uttered by Chris, VK2CJB and it prompted a brief conversation at the time, but I've been working on it ever since.

Where I arrived at is an attempt, incomplete as yet, to design a mechanism to show the impact of various transmitter settings on the received audio in such a way that you can test your own gear and see the result.

Before I explain how I'm doing this, let me describe why it's important.

Using a radio in concept is pretty simple, if you yell into the microphone, the audio comes out distorted and if you whisper, it might also be distorted, but in a different way, neither is conducive to communication.

One way to improve this is a tool called the ALC. Using Automatic Level Control as a guide to what level your audio should be is outlined in every amateur radio manual I've seen, but how much it matters and to what extent is left unsaid. If you apply a filter or any number of other fancy options, what happens to your audio?

To get some sense of what I'm describing, listening back to your own voice after it comes across HF SSB is surprisingly distorted in comparison to a local recording.

You might argue, what's the harm, as long as the other station can hear my voice, we're good to go.

Sure, if voice is all you're using, but what if it's data? In that case, the audio you're transmitting is actually encoded digital information. To decode it, the software needs to deal with frequencies, distortion and levels to name a few.

In computer science, "garbage in, garbage out" is the concept that flawed, or nonsense input data produces nonsense output. In our case, if you transmit garbage, the receiver is going to start with garbage and what gets decoded is likely not what you expect.

Without going into error correction, essentially, the cleaner the path between the transmitter and the receiver, the higher the chances of success and to be fair, you already know this when you attempt to work a pile-up on a noisy band. "Again, again, just the prefix, again!", sound familiar?

To achieve this I started with the idea that you could transmit a tone and if you knew what it was, you could determine the difference between what was sent and what was received.

My first step was to generate a single 1 kHz tone, but then I wondered what would happen if you did multiple tones, one after the other. My current version is an audio frequency sweep, running from 0 to 5 kHz in five seconds. It's essentially a computer generated sequence of tones with known characteristics. You transmit this audio file using your radio and then record it off air, either from a local receiver, WebSDR, or the radio belonging to a friend.

Using the recording, you can create a spectrogram, a picture, showing the frequencies over time present in the audio. Compare the two and you just learnt what each setting on

your radio does precisely to the audio.

Of course it's simple for me to say this, but I'm working on using a tool I've spoken about before, csdr, to do the heavy lifting, so you can actually do a meaningful comparison between the various audio files.

In the mean time, I've managed to use SoX, the so-called Swiss Army knife of sound processing programs to both generate the audio sweep and draw a preliminary spectrogram.

Next up is showing some side-by-side images of various radio settings and their effect on the spectrogram. I'll publish this on my website when I have something to show-and-tell.

I also don't yet know if my source audio file is going to be sufficient, but I'll subject that to some testing as well. For example, I'm investigating multiple simultaneous audio sweeps with different frequency ranges. The more complex the spectrogram, the more we might be able to learn from the distortion on receive, but time will tell.

If you have some ideas on how to improve this, let me know.

I'm Onno VK6FLAB

• *This article is the transcript of the weekly 'Foundations of Amateur Radio' podcast, produced by Onno Benschop, VK6FLAB who was licensed as radio amateur in Perth, Western Australia in 2010. For other episodes, visit <http://vk6flab.com/>. Feel free to get in touch directly via email: cq@vk6flab.com*

Ofcom News

This may be of interest to club members. It is a consultation document from Ofcom regarding proposed changes to the amateur radio licence.

https://www.ofcom.org.uk/__data/assets/pdf_file/0021/263181/consultation-amateur-radio-review.pdf

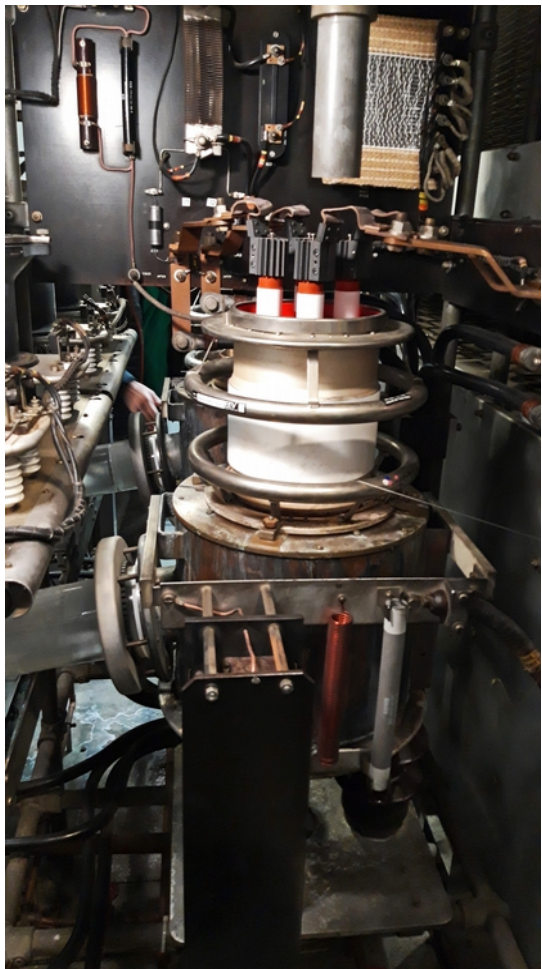
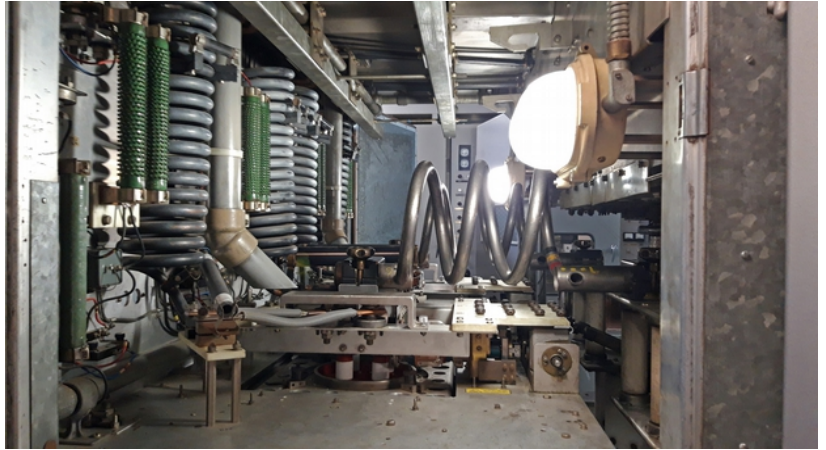
A Selection Of Photos From The Visit To Woofferton 24-04-2023. By Wayne M5LLT

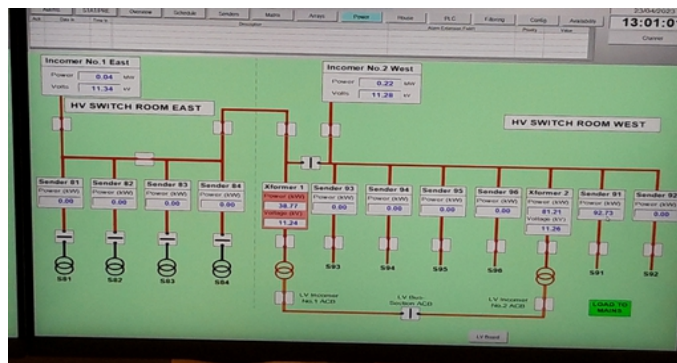
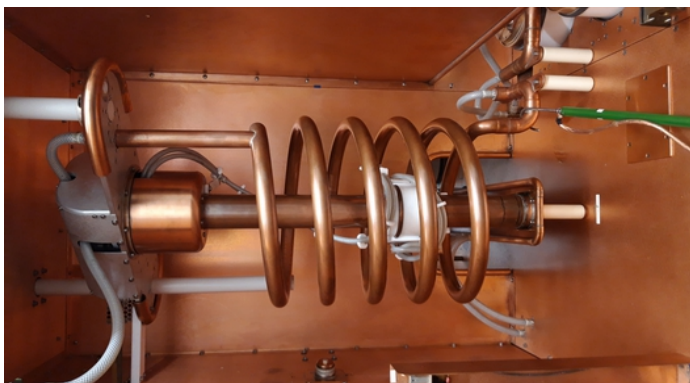
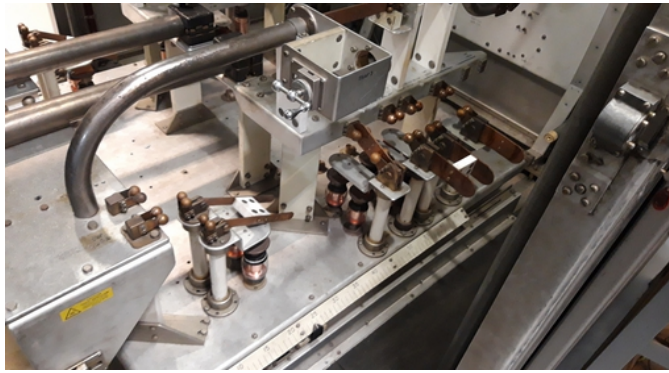


The Visitors

I have no narrative for the following photos. Editor







W1AW/KH8 American Samoa

Members of the KH8RRC Team will be active as W1AW/KH8 from American Samoa, 12 - 18 July 2023.

They will operate on HF Bands, CW, SSB, FT4, FT8.

TG4/KT8X Guatemala

Dennis, KT8X will be active as TG4/KT8X from Guatemala, 23 July - 4 August 2023.

He will operate on 40 - 6m, CW, FT8.

QSL via LOTW only.

8Q7HU Maldiv Islands

CX3AN will be active as 8Q7HU from Dhaalu Atoll, Maldiv Islands, IOTA AS - 013, 11 - 18 July 2023.

He will operate on 40 – 6m.

QSL via home call.

JG8NQJ/JD1 Marcus Island, Minami Tori Shima Islands

Take, JG8NQJ will be active again as JG8NQJ/JD1 from Marcus Island, IOTA OC – 073, Minami Torishima, starting 20 July 2023.

He will operate on HF Bands CW. QSL via JA8CJY.

Address for direct QSL: Susumu Sanada, 5- 4- 5- 17, Shin-Ei, Kiyota, Sapporo, Hokkaido, 004-0835, Japan. DXCC DXCC Country - Minami Torishima.

QTH Locator – QL64xg. WAZ Zone - CQ 27.

FP/KV1J Miquelon Island

Eric, FP/KV1J will be again active from Miquelon Island, IOTA NA-032, 27 June - 11 July 2023.

He will operate on 80 - 6m SSB, RTTY, CW, FT8 and FM Satellites. He will operate, also, in some contests.

QSL via home call, LOTW.

Address for direct QSL: ERIC A WILLIAMS, 763 PLEASANT ST, MARLBORO, MA 01752, USA.

PJ5C PJ5/PA4O PJ5/PE6Q Sint Eustatius

Peter PA4O and Ad PA8AD will be active as PJ5/PA4O and PJ5/PE6Q from Sint Eustatius Island, IOTA NA - 145, 6 - 18 July 2023.

They will operate on 80-6m CW, SSB and FT8, including activity in IARU HF World Championship as PJ5C.

KH8RRC Tutuila Island, American Samoa

KH8RRC Team will be active from Tutuila Island, American Samoa, IOTA OC - 045, 4 - 18 July 2023.

Team - N3QQ, KB2FMH, W8HC.

They will operate on HF Bands.

They planning to active some POTA references.

More information later.

QTH Locator – AH45pr.

TR8CR Gabon

Roland, F8EN ex CN8EM, FO8BV, 3C3CR, TR50R will be active again as TR8CR from Gabon, 4 June - end of July 2023.

He will operate on 30 - 10m, CW.

QSL via F6AJA.

Address for direct QSL: JEAN MICHEL DUTHILLEUL, 515 RUE DU PETIT HEM, 59870 BOUVIGNIES, France.

FO/F6BCW Huahine Island, French Polynesia

Didier, F6BCW will be active from Huahine Island, IOTA OC - 067, French Polynesia, May - October 2023.

He will operate on 160 - 6m, CW, SSB.

QSL via F6BCW, LOTW.

Address for direct QSL: Didier CADOT, 180 rue du Moulin de la coudre - 71440, TRONCHY, FRANCE.

DXCC Country - French Polynesia.

VK0AW Davis Base Antarctica

Allan, VK0AW will be active from Davis Base, IOTA AN - 016, Antarctica starting 14 February 2023.

He will operate on HF Bands.

QSL via EB7DX.

Address for direct QSL: DAVID LIANEZ FERNANDEZ, P.O.BOX 163, 21080, HUELVA, Spain.

FH4VVK Mayotte

Marek, F4VVJ ex SQ6WR will be active as FH4VVK from Mayotte, IOTA AF - 027, 1 September 2022 - 1 April 2024.

He will operate on HF Bands.

He is planning to activate Le Petite-Terre, FH – 002.

DXCC Country - Mayotte, FH.

QSL direct or via eQSL.

Address for direct QSL: DLEM - CCL - BML, DZAOUDZI, Quartier CABARIBERE, DLEM 97615, Mayotte.

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