RAGCHEW

OCTOBER 2020

FROM THE EDITOR

Now we are past the Autumn Equinox I'm certainly spending more time in the shack as the nights draw in. I took a break from contesting in September, and of course the VHF conditions for the UKAC 2m and 70cm contests were described by participants as excellent - typical! With renewed enthusiasm I participated in the October 2m FMAC, 2m UKAC and 6m UKAC, all of which I thoroughly enjoyed - see the Contest Round-Up in this issue.

Earlier this year I did a very foolish thing by putting too much input RF into my **Heathkit VL2280 2m amplifier** and blew the PA transistor. Read all about the repair in this issue.

Mike G4IZZ suffered a technical glitch recently when he was preparing to take part in an HF contest. In this issue Mike explains the problem and his eventual solution.

A small group of members took to the hills in late September to participate in the **Practical Wireless 70MHz contest.** Many thanks to **Gary M0XAC** for organising this event, also for the report in this month's Ragchew.

Malcolm G6UGW continues his series reviewing the Radio Spectrum from 300Hz - 300GHz and this month he describes the Ultra High Frequency band 300MHz - 3000MHz (3GHz).

Several members have recently queried the status of subscriptions. In the July "Bulletin", **Dave G4BCA** wrote the following:

"Normally, membership renewals start to be collected immediately following the AGM. The 2019/20 membership year will be extended until the end of the year. Assuming a January restart, a reduced subscription of £10 (£12.50 for Family Membership) will be charged for 2021. This reflects the loss of meetings in 2020 following the lockdown in March, and a shorter 2021 'club year'. This will be revisited if we are not able to return to the school in January."

Once again can I put a plea in for more articles for publication in **"Ragchew"**

73 Brian G4CIB (g4cib@outlook.com)

November "Ragchew"

Copy please by Saturday 31st October

Update on Richard M0HNK's VLF Upconverter

Just prior to putting September's Ragchew together, **Richard M0HNK** sent me an updated version of his article **"An Alexanderson Day Success"** which somehow didn't make it into the published article. **Vernon G0HTO** assisted **Richard** by analysing the sound files of both transmissions successfully received and confirmed his impressions that the afternoon transmission was stronger than the morning one.

Alan Turing - BBC Radio 4

I've mentioned before that Radio 4 is an almost permanent feature in the G4CIB/G4RHK household and also on our "commute". So it was great to hear about Alan Turing recently on **"In Our Time"** presented by Melvyn Bragg.

Listen to the programme on BBC Sounds https://www.bbc.co.uk/programmes/m000ncmw

RaspberryPi and Jaybeam Antenna updates

Updates on these projects are on hold at the moment until further progress has been made. Sorry about that!

Contest Roundup by Brian G4CIB

Currently in 20th position in the **UKAC Local Clubs** table, **Tony G8JAY** boosted our 70cm score, entering the September event, his first appearance in the club's results. Welcome Tony!

The following all regularly submit entries into the monthly VHF contests:-

Gary M0XAC, Dave G4BCA, Mike G4IZZ, Barry M0HFY, Les G0ULH, Graham M0XGL, Martin G4ENZ and myself G4CIB.

On HF, the **Autumn Series** has started and the club is currently in **16th position** in the **Local Clubs table,** with entries on SSB, CW and Data from **Martin G4ENZ, Gary M0XAC, Mike G4IZZ** and **Bob M0NQN.**

Martin G4ENZ is proposing to hold a weekly net on Friday afternoons at 15.30 local time on **145.425MHz.** To quote from his email:- "The objectives of the net are to share experiences of events in the past week, to co-ordinate club efforts in the coming week(s) and to act as a contact point for members interested in contesting but struggling with how to do something."

If you wish to be involved, let Martin know - email him at g4enz@outlook.com

Practical Wireless 4 Metre Contest 2020
by Gary M0XAC

In this strange year I did not think we would have been able to do the contest as we have for the previous four years but as the lockdown had eased, it became possible as long as we observed the rule of six which had just come into force.

This year's team was myself, Arron M0HNH,Dave G4BCA and Mike G4IZZ. We had one authorised visitor, Mike M7THK. We were again located at Crickley Hill.

Setup was the same as in other years. The Gazebo had another run out and we used Dave's IC 7300 with Arrons 4 metre amplifier and five element LFA Yagi at about 30 feet. Electronic logging made life easy on the club's laptop. The club's generator is still going well too.

The weather was good, quite warm in the morning a little chilly in the afternoon but sadly activity was low as far as we were concerned. The first hour was fine then things slowed considerably no matter where we pointed the aerial. We will find out early next year how we did. A fun day was still had by all. Next year Arron has promised us stacked Yagis!

One thing we did manage to do was present Mike G4IZZ with the G3MA Trophy which was the only Trophy awarded this year.

Mike,G4IZZ was presented with the award by our Chairman, Dave,G4BCA.

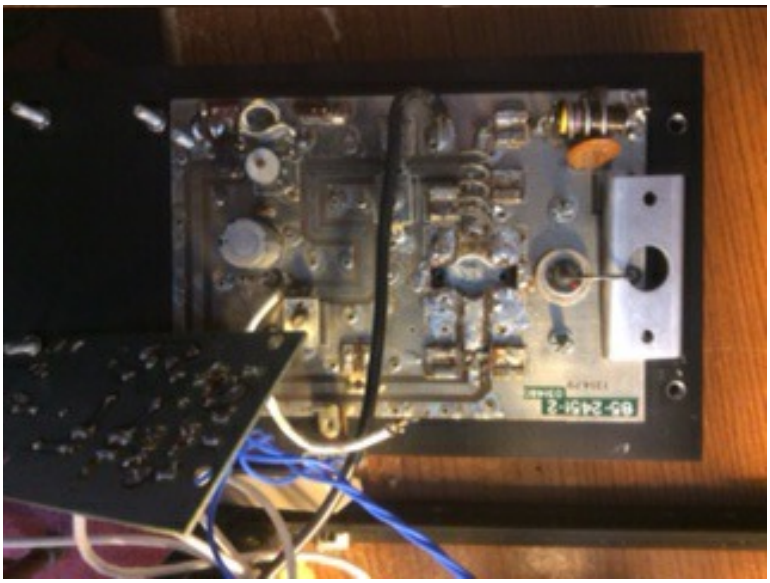
Heathkit VL2280 Amplifier - Repair Report

By Brian G4CIB

Firstly, a brief history of my Heathkit amplifier. In the early 1980s the Heathkit (Gloucester) branch, located in the Bristol Road near the Morelands Match factory, closed down. A batch of VL2280 amplifier kits, which were in stock at the time, were purchased by **Roy G3VZR,** at that time the proprietor of Richards Electrics, opposite the Swimming Baths in Barton Street, and I managed to buy one from him. The unit has a self contained power supply consisting of a massive transformer and bridge diode, a regulator board, an amplifier board containing a single MRF247 RF power transistor and the antenna switching board. The RF and antenna boards are bolted to the inside of the left hand heat sink, and the PSU board on the right hand heat sink. The amplifier is specified to give 90 watts output for 10 watts input. The amplifier has given good service over the years, but earlier this year I managed to accidentally stuff a lot more than 10 watts into the input. Result - one dead MRF247. Many years ago I must have anticipated that this would happen as I found in my spares box a brand-new MRF247 in original packing and an invoice dated 1987.

A few Saturdays ago, with nothing but a a dismal selection of TV programmes, I decided to attempt to replace the dead PA transistor. The mechanical dis-assembly was quickly achieved and the PA board hinged out from the chassis frame. Before getting to the leads of the transistor, I unsoldered the four mica capacitors surrounding the PA device (physically large surface mount blocks) - these capacitors can withstand ferocious amounts of heat so a large soldering iron quickly applied to the top of the device removes them easily. Beneath these were soldered the transistor tabs. As the device is defunct, there is no need for delicate unsoldering but of course I had to be mindful not to damage the PCB.

At that point I called it a day as it was approaching midnight - and mental faculties diminish rapidly at this time!



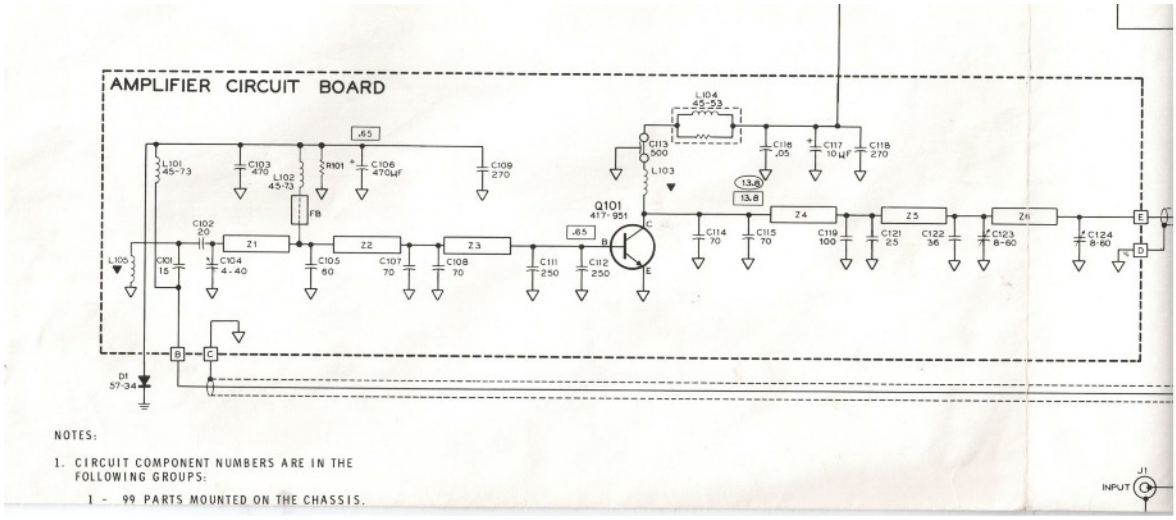
Here is the board minus the dead MRF247 and associated mica capacitors. The large component on the right hand side is a large automotive alternator type “press-fit” diode and it’s associated heat sink, which has to be unbolted as these form part of the PCB mounting on the side-panel heatsink.

This diode is connected to the base of the MRF247 and regulates the base bias voltage.

The original design at Heathkit was done by Chuck Clark AF8Z and Jim Poll WB5WPA (now AA5CT)

This view shows the new PA transistor and associated mica capacitors soldered on to the PCB also the base bias regulating diode and associated heat-sink re-assembled. The unit is now ready to be tested.

Like all Heathkits, the manuals are written in such a way as to guarantee virtually 100% success, so at this point I turned to the relevant part, picking up where the assembly work has been completed and various static tests are required before power can be applied.



RF Amplifier - Circuit Diagram

The manual calls for a VOM (volt-ohm-meter) or VTVM (vacuum tube voltmeter) to conduct these tests, and amongst my test gear I have a Heathkit V-7AU VTVM. So I knew at least I had the right test equipment! One of the DC resistance checks is around the transistor, a base to ground resistance of a minimum of 4 ohms, and from collector to ground a minimum of 500 ohms. When I checked the latter, it was zero ohms! Either I had managed to damage the MRF247 during soldering or there was a solder bridge under the mica capacitors. I therefore unsoldered the two capacitors hanging on the collector and re-measured the collector to ground resistance. Bingo - a lot higher than 500 ohms. I resoldered one capacitor and re-checked - still greater than 500 ohms, then attached the second capacitor and once again re-measured. Luckily, still greater than 500 ohms. The remaining checks were carried out without incident, and the moment came to switch on. All was well with the amplifier, giving not quite full rated output. Further measurements revealed that the maximum output from the PSU is 13.0 volts - it should be 13.8 volts. I can only assume that anno-domini has played a part and some of the resistors and capacitors have shifted in value with age. I don't at the moment plan to delve too deeply into the reasons as basically the amplifier now works and I'd rather leave well alone.

A Strange Fault
by Mike G4IZZ

It's easy to jump to conclusions when something goes wrong with amateur radio kit (or at least, it is for some of us). My tale of woe started mid October when my FT991 radio suddenly switched itself off mid way through a 2m chat on the club 3pm net, just as I pressed the mic switch. Upon re-powering up immediately, it continued to do the same thing. I leant back and had a think. But that didn't work, so I tried again. This time all was well (but I knew it probably wasn't, not really). The next day, the rig worked fine, but as I idly wondered what had happened, I decided to have an hour using my other rig, the TS890S. But now things got really odd, because after about 10 minutes operation, that rig switched itself off as I began to use CW – then switch itself back on immediately – but each time I began using the paddle, off it would switch. So – and here's my conclusion jumping bit – I decided that stray R.F. was getting back into the shack and playing havoc. I checked my earthing system – and did all sorts of continuity tests, but all was well. It wasn't until the next day, when I'd started testing things again that the light-bulb moment occurred. As before, the TS890S again switched itself off upon keying, so I thought I'd see how the FT991 was behaving. But it wouldn't power up at all. Of course!! It's a simple power supply problem. I removed my small distribution board (four outputs) and the first thing I noticed was that it rattled!! Taking the back off revealed a loose nut – and a 'floating' connector on the power input poles. Twenty minutes later, with everything tightened up, re-soldered and crimped, all was well.

The Radio Spectrum by Malcolm G6UGW

Part 7 - Ultra High Frequency 300MHz - 3GHz

These frequencies correspond to wavelengths between 1m and 0.1m (10cm).

Used for military communications at higher command levels as it has a tighter and therefore less jammable beam, whose range can be increased by bouncing the beam off the troposphere by what is known as the "tropospheric scatter phenonomenon"

(Series to be continued)

Lundy 2020 and 2021

by Brian G4CIB

Luckily Leta and I were able to grab four nights on Lundy in early March just as the Covid-19 pandemic was spreading rapidly. As reported in the April Ragchew, **Jim 2E0GKN** made a good effort contacting us on 2 metres /P from Haresfield Beacon and therefore retains the Lundy Old Light award. Sadly our planned visit in June was cancelled and the booking has been transferred to next year. 2021 marks the 75th anniversary of the Lundy Field Society and the current Chairman Alan Rowland has recently regained his lapsed call sign G4OJQ as a result of seeing me operating on the island a few years ago. Alan and I are currently investigating the possibility of running a Special Event Station to coincide with the Annual General Meeting of the Lundy Field Society due to be held on the island for the very first time next May, which luckily coincides with our booking!

Watch this space for further updates

From the Archives

I've been trawling through Volume 27 of the RSGB Bulletins which cover July 1951 through to June 1952. This period covers the Festival of Britain, described at the time as a "Tonic to the Nation" and coming 100 years after the Great Exhibition in 1851 was designed to be a window on post-war Britain emerging from austerity. The Gloucester club was listed as meeting on alternate Thursdays at 7.30pm in the Spread Eagle Hotel in Market Parade. In the September issue there is a two page article entitled "Amateur Radio and the Festival of Britain" and features special stations organised by the Bristol RSGB group, Camberwell (SE London) club along with the Newbury and District Amateur Radio Society. In the same issue the NFD results were announced, the Gloucester club in the guise of G3MA/P (A station) and G2RT/P coming in at 64th position out of an entry of 104 stations.

Two Metre Field Day Winners.

A group of Cheltenham members in action somewhere in the Black Mountains during the R.S.G.B. 2-metre Field Day. G5BM operates the key, G3FRY is keeping the log, while B.R.S. N. Bozzard rotates the beam. During rain squalls the equipment was covered with canvas bags.

R.S.G.B. BULLETIN, SEPTEMBER, 1951.

Many older club members will remember **Frank G5BM** who latterly lived near Newent. Here is a photo from the September 1951 RSGB Bulletin - the caption is self-explanatory. His "antenna rotator" is SWL "Hank" Bozzard who I got to know during my time at Smiths Industries in Bishops Cleeve where he was a prototype wireman in the Model Shop.

In the October 1951 issue, T1154 transmitters (as used in Lancaster bombers) were being offered for sale complete at 59/6. For the benefit of "younger" members, this was 59 shillings and sixpence. Twenty shillings to the pound, so that makes it £2-19-6 (two pounds, nineteen shillings and sixpence - I think!!!) Packing and carriage was 25/- (twenty five shillings with 12 shillings and sixpence refunded on return of the transit case

The November 1951 Bulletin records that **Pat (E.A.) Perkins G3MA** is the RSGB Town Representative for Gloucester.

On a more general note, the December 1951 Bulletin records the death of **Leslie McMichael G2FG,** founder of the company which bore his name and was based in Slough.

Moving on to the April 1952 Bulletin, the price of the **T1154 transmitter** has slumped to 25/- (twenty five shillings) and are being advertised by Charles Britain (Radio) Ltd in Upper St Martin's Lane, London W.C.2.

The May 1952 Bulletin lists all the stations who have applied to the GPO for permission to operate portable for National Field Day. Gloucester is to be represented by **G3MA/P** ("A" station) and **G2RT/P** ("B" station") both operating at Green Farm, Minsterworth.

STAND BY! T.1154 TRANSMITTER

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Covers the frequency ranges 200-500 kc/s., 3-5.5 Mc/s., 5.5-10 Mc/s. in three switched bands. Has V.F.O. Control. Services provided include MCW, CW and R/T.
Power Output: 50-80 watts, ¼ power on MCW and R/T.
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Has two moving coil meters for reading P.A., Anode current and Aerial current. Fitted with unique pre-set station selecting mechanism for speed of operation.
Complete with two valves Type ML6 and two valves Type PT15.
Power supply required: 1,200 volts at 200 milliamps and 6 volts at 6½ amps.

These units are complete as described. All four valves are filament checked before dispatch and a guarantee of completeness only is given.

Owing to the price at which they are offered it is not possible to aerial test them, but the physical condition is good.

Dispatched in maker's original transit cases and supplied with circuit diagram and operating instructions.

ONLY 59/6
Packing and carriage 25/-, 12/6 being refunded on return of transit case.

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R.S.G.B. BULLETIN, OCTOBER, 1951. 139