RAGCHEW

Winter 2025/26

Setting up for Low power Field Day (July 2025)

Editorial

I'm sorry that it's take me so long to produce another issue of Ragchew and I know that some of the articles have been waiting quite a while for publication.

It would be easy for me to moan about the scarcity of articles but actually I'm very excited because Ragchew is only one way in which we communicate. As Radio Amateurs, we have our "nets" on almost every weekday and we also have our WhatsApp group to provide instant communications. This is on top of our fortnightly club meetings, our dedicated construction evenings and our monthly Bulletin.

I also know how difficult it is to sit down an write a piece for a club magazine but I also know how well received each issue of Ragchew is so do please consider putting pen to paper (or finger to keyboard) with something radio, electronics or construction wise that interests you so that it won't be quite so long before I can publish the next issue. It doesn't need to be a polished piece. I'm happy to edit and bring it together but what I really need are ideas.

Cliff G8CQZ

Ragchew is your magazine

Amateur Radio is a very broad hobby and I am sure that there are things that you know about that others don't. There are probably also areas that you would like to know more about.

So tell us about it. What interests you? Have you, for example, tried Var-AC, been operating from a new location or got a new rig (or aerial). We will look at writing the article if you don't feel up to it and it can be anonymous if you wish. Also, what aspect of Amateur Radio do you want to know more about?

I want Ragchew to be about our members' interests and experiences, not about specifications. So please let us know, either at the club, by email to ragchew@g8cqz.co.uk or via the WhatsApp group.

Cliff

An Initial Product Review – Starter Kit - UNO R3 Project
by Brian G4CIB

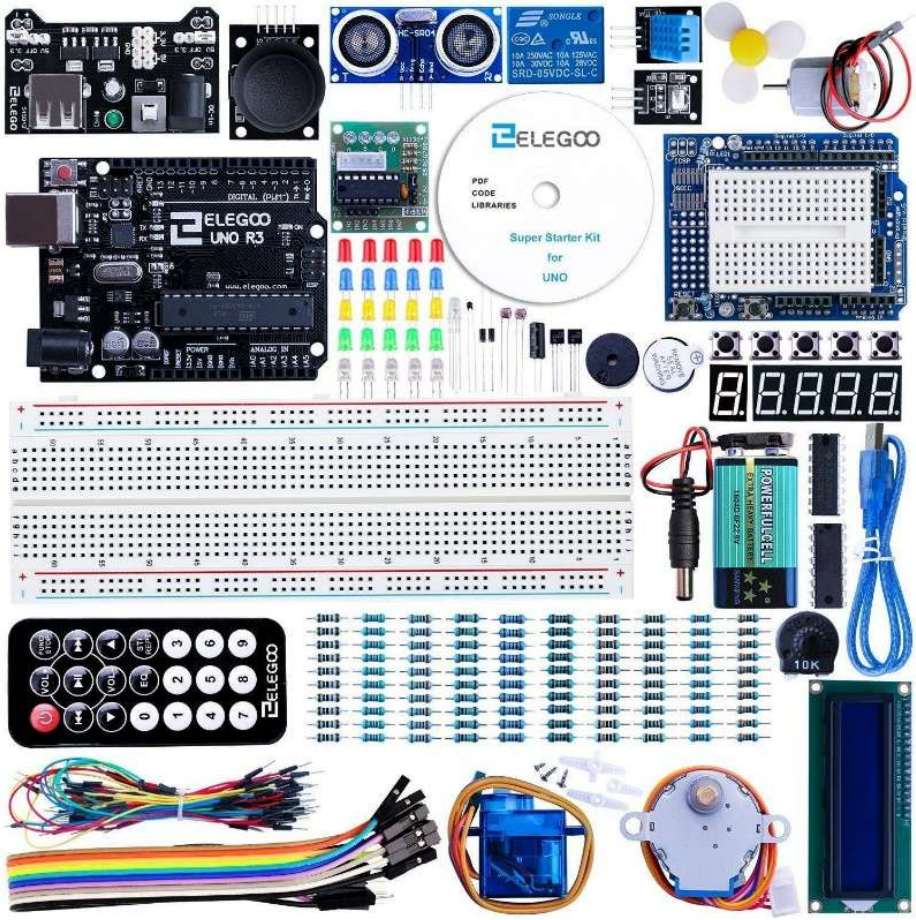
In the January 2017 "Ragchew" I reported on my initial dabbling's with a BBC Micro:bit and in the July and September 2020 issues I summarised my efforts using a Raspberry Pi 3 in my shack*. Cliff G8CQZ in the January 2023 issue outlined the features of the Raspberry Pi, PIC, Arduino UNO and NANO. I recently attended the Ledbury Community Day (https://www.ledburytowncouncil.gov.uk/en-gb/events/32/ledbury-community-day-2025) and one stall featured a newly set-up youth group aimed at encouraging teenagers to get involved in computer projects. On display were various applications using the BBC Micro:bit, Raspberry Pi and Arduino.

The Arduino Uno R3

I chatted to the group leader and explained my progress in this field to date and that I needed to further my knowledge. He recommended "The Most Complete Starter Kit UNO R3 Project" and that it would be £50 well spent. Ignoring cheaper Chinese "lookalike" kits I purchased the genuine Elegoo kit on eBay which quickly arrived. You certainly get a lot of bits and pieces for your money all neatly packaged in a partitioned case.

No documentation comes with the kit, which is understandable, as there is a wealth of information which can be downloaded from the internet. The first thing I downloaded was the "Tutorial for UNO", ELEGOO UNO R3 Project The Most Complete Starter Kit Tutorial – ELEGOO Official

The kit comprises a variety of pre-assembled modules including a stepper motor, power supply module, LCD, RFID, motion sensor, sound sensor and water level sensor, numerous discrete components, and of course a UNO R3 Controller board. The first lesson in the tutorial instructs the user how to install the Arduino Integrated Development Environment (IDE), in other words the software, and the second installing additional Arduino libraries for the various projects and Open Serial Monitor.



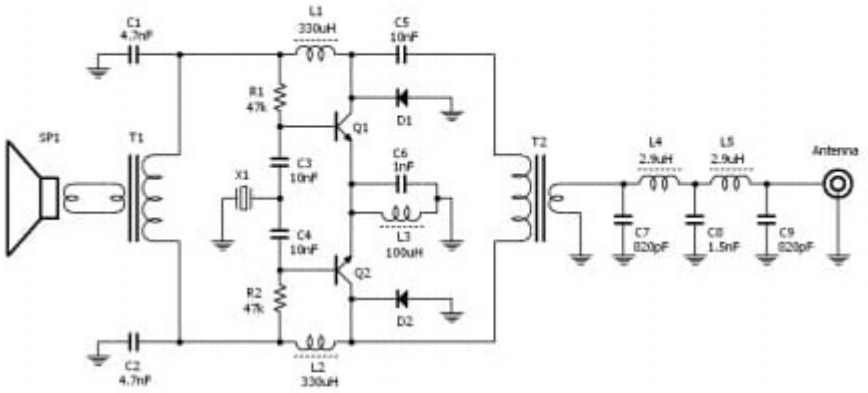
Contents of the kit

Following these tutorials there are some 30 projects to get stuck into, covering all manner of electronic control circuits such as an infra-red receiver module, ultrasonic sensor module, PIR sensor, real time clock, photocell, analogue joystick module and various stepper motor control units.

The IDE downloaded faultlessly, and I was soon into the next module exploring the various libraries available. These libraries contain the code making it easy to connect the Arduino to the various sensors, displays and modules. There are literally hundreds of libraries available to download so plenty of inspiration to explore new projects! I was soon into the next lesson learning how to control the speed of the LEDs on the Uno. Simple stuff, yes, but it got me familiar with changing parameters, uploading to the Uno and generally seeing the results of the changes.
I've yet to take the plunge into getting to grips with further applications and will report my progress in due course. If there are any members out there (and I am sure there are!) who are already familiar with Arduino, please do feel free to contact me at g4cib@outlook.com and point me in the right direction!

Two 80 metre designs for Ragchew
Sent in by Andrew G4IVD

Andrew found these two 80 metre designs which, he said, may be of interest in Ragchew.
The first is a voice powered transmitter. It seems like a crazy design, having no battery or other external power. The designer, who is a highly qualified engineer, says that it will generate about 50mW on peak voice. Neither Andy nor I (Cliff) have tried it but it may be worth a go. Simply change the 75m Xtal for an 80m one.



SP1: Junkbox PM loudspeaker; 7 Ohm, 400mW
T1: Audio transformer; 8 to 1200 Ohms
X1: 75m quartz crystal
Q1, Q2: MPS6521 (junkbox finds)
D1, D2: Germanium signal diodes (1N34a, etc.)
T2: 9 to 1 impedance step-down transformer (Minicircuits T9-1, etc.)
L1, L2, L3: Molded RF chokes

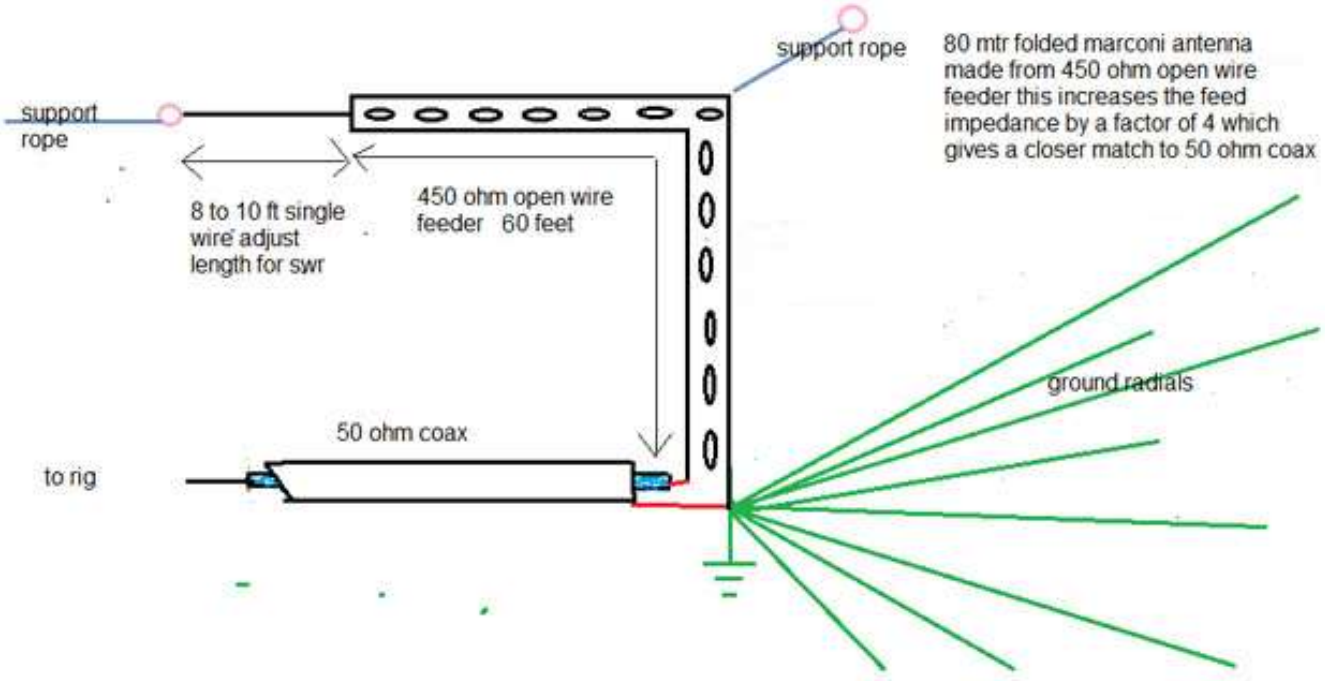
El Silbo

Voice-Powered 75m DSB

de AA1TJ

10/22/09

The aerial is different in that Andy tried it with good success. However, he says that his XYL couldn't stand the sight of the black ribbon feeder every time she went out on the patio and he had to revert to a single wire "inverted L" which is not as efficient.

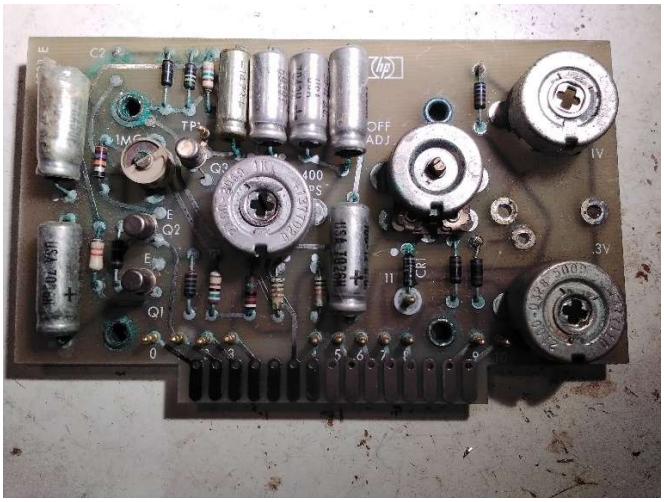


Beyond Economic Repair?
By Gary M0XAC

At this year's RetroTech (the British Vintage Wireless Society's Vintage Communications Fair held annually in Ryton-On-Dunsmore), I was attracted to an “everything for £1” stand. Amongst the various items was a Hewlett Packard 427A Voltmeter. Well, I handed over the asking price and, turning away from the stand, asked if it was working. I've really no idea came the response but even if it isn't the meter movement itself must be worth £1. So, for £11 (including the £10 entry fee) I was now the proud owner of a 1965 vintage high impedance voltmeter – condition unknown.

My first full time job after training was repairing and re-calibrating various items of precision electronics. Just occasionally, initial visual inspection or subsequent attempt to repair would condemn an item as being “Beyond Economic Repair” (BER) i.e. the cost of spares or labour was not worth further action.

The 427A incorporates an internal battery float charged from the mains and circuitry to generate the +6V and -6V supplies required by the DC and AC coupled amplifiers. Well, the instrument had obviously not been used in a long time and the battery had deteriorated and vented leaving a green deposit on circuit boards and wafer switches, corroded component leads etc. In a professional capacity I would have declared it Beyond Economic Repair but I like a challenge and decided that if the meter movement had been unaffected by corrosion I'd try to get it working.

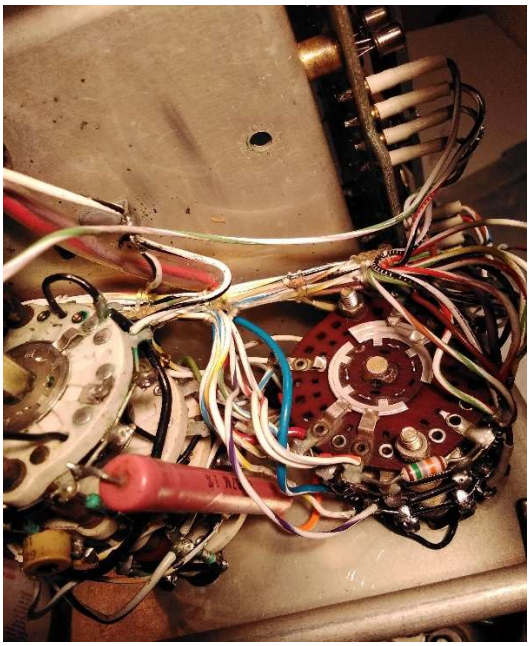


The 427A has 10Mohm high impedance input, DC voltage ranges from 100mV to 1000V full scale deflection (FSD) and AC voltage ranges from 10mV to 300V FSD true RMS reading up to 1MHz. Additionally, resistance measurement from <10 ohms to 500Mohm are provided. The value of an analogue instrument like this is most apparent when adjusting resonant circuits for a peak or a dip – try doing that on a digital meter!

I tested the meter movement with my bench power supply and a series resistor and found it was working. I carefully disassembled it to inspect the moving coil for signs of corrosion. Fortunately, the case was sealed by a rubber gasket which had prevented damage from the venting battery.

An internet search revealed a manual in pdf format which included a full circuit diagram, circuit description and calibration procedure. I would have struggled without it. In those days HP freely supplied this information.

I decided not to attempt to restore the +6V and -6V power supply circuitry which used a combination of silicon NPN and germanium PNP transistors but to provide power from the bench power supply. If I could get it working like this, I'd build a small power supply later using modern components.



Before proceeding, I replaced suspect electrolytic capacitors and cleaned the worst of the green copper deposit from the circuit boards. There are various adjustments provided by pre-set potentiometers such as DC offset, AC, DC voltage and ohms range calibration – nine wirewound potentiometers in total. Of these, six had succumbed to corrosion and were open circuit. I replaced them with items I had in my “it may come in useful one day” collection.

Remarkably, this got the AC and DC amplifiers working. On AC ranges readings were remarkably accurate after adjusting the appropriate presets. But DC was all over the place!

To cut a long story short, the 427A uses separate attenuators on AC and DC ranges. I own a high precision digital multimeter that will measure resistance into the 100's of Mohms and spent ages working round the DC attenuator only to discover high resistance paths (in the 100's of Kohms to 10's of Mohms range) to ground at various points. Given the very high input impedance of the DC amplifier these unwanted paths were having a significant effect.

The attenuator is built using precision resistors mounted between ceramic rotary switch wafers. The copper deposit that was evident on the printed circuit boards had affected the ceramic switches too. In fact, it seemed to have a particular affinity for these depositing an almost impossible to remove bridge between rivet heads holding contacts in place. It took a combination of scraping with a scriber, heating with the soldering iron bit, scrubbing with isopropyl alcohol and finally applying deoxit switch cleaner to clear it. There was one solder tag riveted to the switch wafer (not a switch contact but a junction between components) that I just couldn't clear the unwanted path to ground. Instead, I found another unaffected tag to use as the junction. At last, after many hours work I got the DC ranges working.

I've just ordered components to build a 6-0-6V power supply at a cost of £15. So, for a total outlay of £26 I'll have a useful additional item of “uneconomically repaired” test equipment.

Finally, be warned, leaving old and deteriorating batteries in equipment wreaks havoc – DON'T DO IT!

Ann 2E1GKY sent “something to help make members laugh“

Where did I put the handheld?

The Story Behind the Letter
By Brian G4CIB

Some club members may be aware that Leta and I regularly have a stall at the Malvern Flea and Collectors Fair held at the Three Counties Showground. We find it useful to dispose of some of our remaining stock from our time running Courtyard Books at Bishops Cleeve and latterly in Ledbury. Inevitably, we also look around other stalls for anything interesting which may catch our eye. On a stall which specialises in ephemera, Leta spotted this letter dated 18th April 1933 from the then RSGB Secretary John Clarricoats (G)6CL ("Clarry") to a Mr R C B Barnes. I leave the reader to draw their own conclusions but it appears that accusations about running more power than the license allows is nothing new. I would love to have seen the postcard sent to Mr Barnes by (G)6MN!

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53, VICTORIA STREET,
LONDON. S.W.1.

HEADQUARTERS:
BRITISH EMPIRE RADIO UNION.
British Section International Amateur Radio Union

28th April, 1933

Personal.

JC/MG.

R.C.B. Barnes, Esq.,
16, Orlando Drive,
Carlton,
NOTTINGHAM.

Dear Ray,

I am very sorry to hear that friction has arisen between yourself, Lees and Martin. I would, however, like to assure you that no information to the effect that you have been using high power has reached me from 2IO. As you know your application for an increase to 50 watts was held over temporarily, because Council have ruled that a member must be licenced for a period of twelve months, before an increase is recommended. The question of your increased power has not, as far as I can remember, been mentioned by G2IO in any correspondence.

Your applicationwas, I believe, made direct to this office, instead through Lees, and it is quite possible that I sent him a copy of my letter advising you that this could not be granted, but on this point I am not at all sure. Regarding his own licence, this was extended some while ago to 100 watts, and if he is using more than this power, it is a matter outside our control.

I was of course very sorry indeed to see a copy of 6MNs postcard to you, but I think you will agree this is purely a personal matter, and one over which we cannot adjudicate. I of course had no knowledge of the power he uses when working on the 1.7 mc band,but in common with all other amateurs he is only licenced for 10 watts.

In connection with his remark regarding the power used during the B.E.R.U. Contest, I think this is a matter you should challenge him to prove. It is of course a serious statement and one which you are entitled to obtain an apology for if, as I firmly believe, it is incorrect.

Yours sincerely,

G.Clarry

The V9977 crash
By Malcolm G6UGW

In his talk of Jodrell Bank Radio Telescope, on 13th October last year, Mike (G4IZZ) mentioned an aeroplane that crashed on 7th June 1942 near Symonds Yat. This was V9977, a Handley Page Halifax II.

About 30 years ago I researched the crash and Flypast (an aircraft magazine) mentioned the crash in June 1992 and February 1993. They said "The historic importance was that it carried the world's first ground mapping bombing aid that operated on the new 10cm wavelength, designated by the code name H2S."

V9977 was from the Telecommunications Flying Unit at Dexford. It caught fire at 500' and crashed 8 miles South West of Ross-on-Wye. It was reported to have been "a new aircraft and the second of over 200 that were constructed by English Electric in Preston".

The Forest and Wye Valley Review reported about the crash (date unknown)...

When Halifax V9977 crashed in flames a mile upstream from Symonds Yat on June 7, 1942, it was carrying a prototype of the first ever ground mapping radar bombing aid, later used to devastating effect against Nazi industry and U-boats raiding vital shipping in the Atlantic Ocean.

The four-engined bomber had been on a test flight from RAF Defford over South Wales with the experimental airborne radar, and returning up the Severn estuary caught fire. The pilot was seeking flat ground to land on when the big 'plane crossed the River Wye and crashed, 150 yards from the bank, at The Green, near Welsh Bicknor.

The doomed 'plane crashed in a field yellow with buttercups on rising ground in view of Symonds Yat Rock. Eleven men were incinerated on that hot summer Sunday afternoon and it is said that Sir Winston was kept informed of the crash investigation by despatch rider.

Onslow Kirby was at work on his land to the west of Offa's Dyke when he saw the 'plane cross the river towards him. The starboard wing broke off and the wreckage landed in a ball of flame.

By chance, the prominent scientist A.D. Blumlein and two colleagues were on board as invited guests for equipment demonstration. Their company, EMI, was developing a similar prototype navigation bombing system in parallel to that designed and made by the Telecommunications Research Establishment at Malvern, where the Defence Research Agency is now sited.

What caused the crash? Sabotage was naturally blamed, especially as Blumlein was on board. He had been called "the father of the electronics age." But failure by a fitter working in the open air at Defford to tighten the locknut on an inlet tappet during a routine safety check had actually caused a valve to fracture, and a flashback was followed by major fire.


Halifax

The prototype Halifax made its first flight was on 25th October 1939 and Halifax I's made their first raids on Germany on 12th March 1941. Although some earlier Halifax's had shorter wingspans, the Halifax II had a wingspan of 102' 2" and was powered by four 1675 hp Bristol Hercules engines. Altogether, 6176 Halifax's were built (Hippo book: Aircraft of World War 2).


V9977.