



**RAGCHEW**

**MARCH 2021**

## From the Editor

Club members continue to stay in touch through the various day-time and evening nets along with our Zoom talks and social gatherings ably organised “behind-the-scenes” by **James G8YYH**. A growing group of members too are supporting the club on the contest front with entries in the various UKAC events.

This month’s “Ragchew” is focusing on test equipment along with a few regulars, including **Vintage Column**. The **G-QRP Club’s** quarterly magazine **Sprat**, for many years edited by the late **Rev George Dobbs G3RJV (SK)**, has long been a source of practical projects, many of which feature test equipment. **Malcolm G6UGW** revisits the **Tripuss Meter Tester**, one of G3RJV’s useful little gadgets that first saw the light of day in the Short Wave Magazine (SWM). I’ve done some digging around on a fascinating web site <https://worldradiohistory.com/> which contains scans of numerous magazines including the SWM, to discover why the name Tripuss. In the original article George made the unit by directly soldering the leads and resistors to the AA battery and the end result looked like an octopus with three arms!

Several years ago **Graeme G0EEA** purchased a home-brew **L-C Meter** at a Cheltenham Amateur Radio Association (CARA) auction and in this issue describes the unit.

Also in this issue **Nick M0NYY** has written about his experiences using his first HF rig, an Icom IC705. In this wide-ranging article he describes his SOTA activities, contesting in the UKAC events, computer logging and digital modes. Certainly “**A Year of Firsts**” for Nick. He also tells me that he has recently purchased a **ZM-2 ATU kit**, and hopes to review it in a future issue.

One item I suspect every amateur owns is some kind of test meter, either an analogue volt-ohm meter (VOM) or a digital version. Other useful pieces of equipment I’ve used over many years is a valve voltmeter and grid dip oscillators (both valve and solid state versions). In **Vintage Column** I describe a Heathkit Grid Dip Oscillator and the later solid-state version FET Dip Oscillator.

As the lighter nights approach and also hopefully some warmer weather along with the easing of Covid-19 restrictions, some /P operating may be feasible. Time to dig out that portable mast and antennas that have languished in the shed over the winter.

As usual, the plea for more articles for “Ragchew” - send to **g4cib@outlook.com**.

I hope **Nick M0NYY’s** article has inspired some of our newer members to get on the air and record their activities in future editions of “Ragchew”.

That’s all for this month

**73 Brian G4CIB**

## Contest Corner

### By Brian G4CIB

A growing group of GARES members continue to support the various club based RSGB contests and your experiences (either successes or failures) along with future plans can be discussed on the air on Friday afternoons at 1530 local time on 145.425 MHz and is hosted by **Martin G4ENZ**.

At the time of writing the club is in **19<sup>th</sup> position** in the **UKAC Local Clubs table**, with log entries from **Les G0ULH, Dave G4BCA, Brian G4CIB, Mike G4IZZ, Graham G8DLW, Barry M0Hfy, Gary M0XAC, and Graham M0XGL**.

In the **FMAC series**, the club is in **2<sup>nd</sup> position** in both the **2m and 70cm Local Club tables**. And hot on our heels in both tables are the **Tall Trees Contest Group** - so the usual reminder - the more members who send a log in, the more points we will accumulate. So even if you have only worked a few stations, your points could make all the difference at the end of the year. In the FMAC series, logs have been submitted from **Les G0ULH, Mike G0UWU, Dave G4BCA, Brian G4CIB, Mike G4IZZ, Graham G8DLW, George M0HWT and Gary M0XAC**,

On the **HF front**, in the **80m Club Championship**, we are in **10<sup>th</sup> position** with log entries from **Penny G0NVP, Brian G4CIB, Tony G4CMY, Martin G4ENZ, Mike G4IZZ, Bob M0NQN and Gary M0XAC**.

Towards the end of February the results of the **AFS 70cm contest** were published, the club coming in at **18<sup>th</sup> position** out of 47 entries in the **Local Clubs table**. Logs were submitted by **Dave G4BCA, Brian G4CIB, Mike G4IZZ and Gary M0XAC**.

This was the final contest in the **2020/21 AFS Super League** and the club came in at a very creditable **9<sup>th</sup> position** out of 73 entries. Members submitted logs for every one of the HF and VHF AFS contests which make up the Super League.

On the first weekend in March I had a dabble in the March 144/432 MHz Contest, 6 hour section and was pleased to work F4FET (JO00TQ 303 km) using my loft mounted 5 element ZL Special. Many years ago, in 1970 to be precise, I operated in this contest as G8CIB/P from Cutsdean Hill in the Cotswolds assisted by Arthur G8BRN whose Dormobile we used as the shack. The weather was atrocious and was memorable for the tea freezing in the tea-pot. An uncle of mine who was involved with the local area Royal Observer Corps took pity on us and the following year we were given permission to operate from their underground bunker near Brockhampton. Lowering an RA17 receiver down into the bunker was interesting - but that’s a story for another time!

## An L-C Meter

By Graeme G0EEA

Why did I buy this Meter ?

What I really like about this LC Meter is getting a speedy measurement, at ease. Of greatest importance is the inductance capability, before getting this meter my only available method was a GDO, which is fine provided you have the choice of a few capacitors at hand to resonate with the inductor you want to test. Somehow, the most suitable capacitor always seemed to be absent when needed. Finding a suitable inductor when you wish to measure capacitance is less challenging because of the set of range-coils which plug into the GDO, but I am digressing. I bought this meter at a CARA auction several years ago, and I am delighted with it.

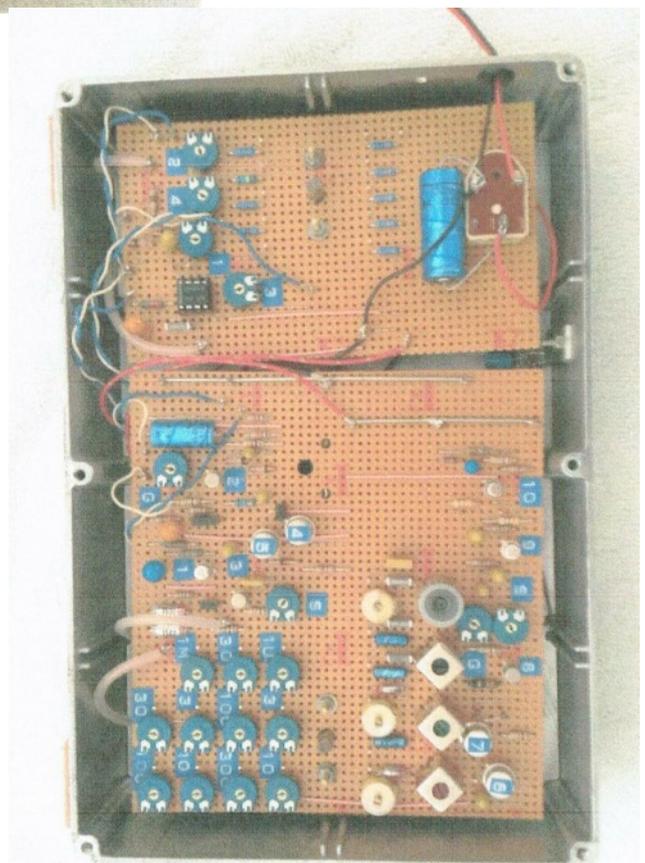


You can see in the photograph that the front panel is beautifully presented. Because the die-cast box is laid on it's back for taking this photo, the meter needle is not showing at zero but in practise the box stands on it's narrower side, where the cork pads are, and the needle is at zero whilst neither capacitor nor inductor is attached.

The view of the inside shows a neat and tidy construction, I have no circuit diagram and can only guess what is going on. For the inductance measuring mode, I don't really know what's happening, the components on the Veroboard include several transistors and trimpots for each of the ranges. For the capacitance measuring mode, I see a 555 timer on the Veroboard, behind the Capacitance range knob, and I guess the timer is pulsing the analogue meter, the reading displayed being dependant on the capacitor under test and a resistor value selected by the range switch.

Would I buy like this again ?

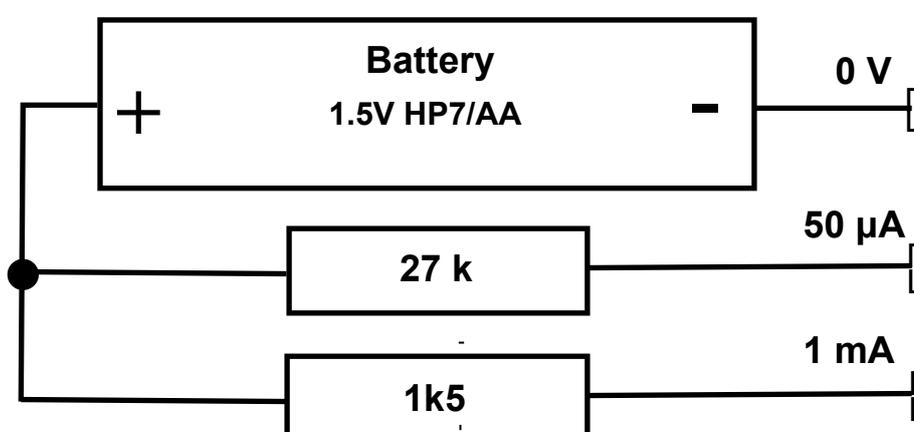
Absolutely, yes. Recycling is green, good value for money, and you see what you get before you part with your cash!



## The Tripuss Meter Tester Re-visited by Malcolm G6UGW

The original design was published in the Short Wave Magazine June 1982 in an article by the Rev. George Dobbs, G3RJV (now Silent Key).

To use of the Tripuss, the negative (0V) lead is connected to the negative side of the meter and the positive lead to the positive and the needle will indicate the appropriate current. 50 $\mu$ A and 1mA were chosen for the two current values as a compromise which should be useful for quite a range of meter scales. Very few surplus meters are less than 50 $\mu$ A full scale deflection (FSD) and very few are over 100mA FSD unless externally shunted. Try the test on the 50 $\mu$ A scale first, then if the reading is very low try the 1mA range. The test is also very useful as an indication of the state of the meter as it instantly shows up non-working meters or ones with needles which stick.



G3RJV had originally designed the circuit so that it did not need switches and many components.

The other problem was that the leads could short in the pocket. If a battery box was used a piece of cardboard could be inserted between the battery terminal and battery box connection to eliminate the need for a switch.

I then built one in an old torch case (2xAA battery type) using one side as the battery holder. The circuit can be incorporated into other homebrew test meters.

Tip: the labels can be made from old calendars e.g. numbers + MA = start of March or May.

$\mu$ A = appears in January or February. This is how I labelled one. If you need smaller numbers or mA or  $\mu$ A use last month and forward month often given at the bottom of the calendar. (*Tails can be added to the u to make it look like mu - Ed*)

Do not forget to bring it with you to the Club Junk Sale should be the last instruction!

## A Year of Firsts

By Nick M0NYY

Nothing is ever simple in life and Amateur Radio certainly isn't simple. It doesn't help when I factor in the outside world that adds even more complexity to the hobby. Living in a terraced house next to electricity pylons with no space for a HF antenna or purchasing a transceiver that's designed for open spaces. Even worse is the roof of my house is covered in solar panels (PV) so I lose the 40M band during daylight hours.

Apart from that I jumped in and bought an ICOM IC-705 for my first HF rig. As it's limited to 10W some would say I have added to my problems where an ICOM 7300 with the 100W would have made it easier to grab some QSO. There is however reason to my madness as I'll explain later.

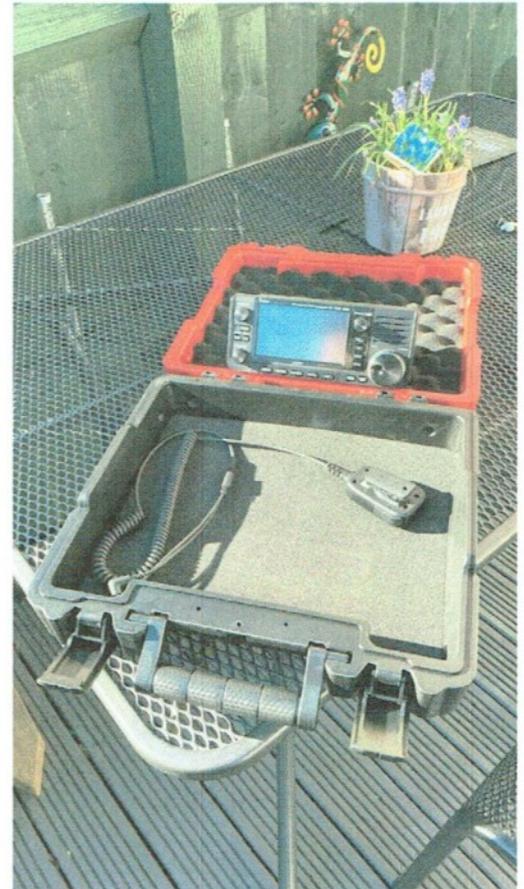
Last year before lockdown became the norm I was able to gain my first SOTA point at Cleeve Hill. Doing SOTA (Summit On The Air) for the first time was about as scary as doing your first HF for the Foundation Practical. Armed with a Yaesu HH, several pencils and notepads, I found a comfortable spot near to the trig point and fired out my CQ on the 2m band. Perhaps because it was sunny and Sunday the avalanche of response blew me away. I ended up with my first pileup and it didn't take long to activate my location.

Even better I bagged my first two Summit to Summits (S2S). M1HAX was traveling fast to bag as many of the lower hills in the area so I waited around for him to activate Ruardean Hill and May Hill. What I had originally planned for a quick hour at Cleeve Hill turned into an afternoon of watching the world go by and a relaxed chat on a busy 2m Band. Silly mistake was not switching to 70cm to activate the hill on that band and gain another point.

With the IC-705, my next SOTA outing means I can activate on the HF bands too. A few of the reasons I chose this transceiver was for the portability, the band scope and the number of bands it can handle. It's a lot of radio in a small package and I expect it to spend more time outdoors than indoors.

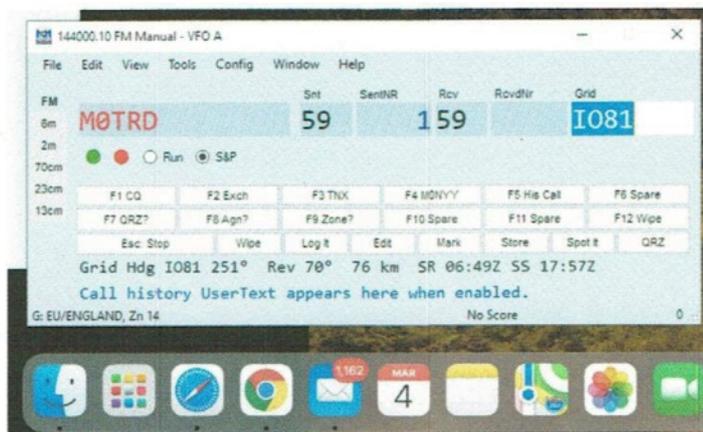
The limitation or should I say the hurdles of my home QTH means I have been looking at all the possible ways I can communicate. My background in IT means it didn't take long for me to try digital modes. A Zumspot married to a Raspberry PI has extended my Yaesu and Alinco HH from the analog repeater realm into the Fusion and DMR world. Adding the IC-705 with its built in WiFi has given me access to D-Star and Tuesday afternoons has turned into a regular spot to talk to a group of retired Americans living in Okinawa.

With the newsletters sent out by Les and Rita, I got to thinking about contesting and wondering what is it all about. After asking on the club net and being met with encouragement from Gary (M0XAC), I decided to look into it a little deeper. YouTube helps a lot to answer quite a few questions that I had and the RSGB website filled in the gaps. As I would be working from home and with no HF antenna, my first attempts would be on FM.



For contesting I wanted to run an electronic log and this became my first little hurdle. I operate a Mac computer as I have to suffer Windows all day at work. (ask me another day why I hate Windows). With extensive research I decided that the logging system I would use would be N1MM Logger+ but that software only operates in Windows.

The first task was to virtualise Windows to operate on the Mac and the results speak for themselves. I now have N1MM Logger+ operating seamlessly on a Mac without the clutter of Windows behind it. Better still, with the USB cable connection to the IC-705, the logging software could read from the transceiver.



My choice of N1MM Logger+ as the electronic log was down to it's clean looks and the ability to reduce the view down to a single, tiny window. It looks the least confusing when you first operate it too.

I also have RumLogNG installed on my Mac and iPad which may become my everyday logging system for general DX and SOTA expeditions.

The second hurdle was my lack of suitable FM antenna and the fact that my radio shack is my garage. As my QTH of Cirencester is pretty much a valley, I wanted to add a bit of height. The cheap and quick solution was to hang a "Slim Jim" from the rafters of the loft and locate the radio to the upstairs landing. That took three trips up the stairs with PSU, computer and radio. What with the draft coming down the loft hatch, it felt I was preparing for a SOTA activation and not a gentle contest.

The hour arrived for my first contest (RSGB 144MHz FMAC) on 2nd March 2021. As the second hand on the clock ticked past the hour, the FM band lit up with life. I was gobsmacked with the number of CQ happening in this tiny slice of the 2M Band. It really did feel like a SOTA pile up and there was only one thing left to do which was jump in.

That hour went really fast and not without a few mistakes such as not recording their serial number. It does get a little hectic near the end as the time ticks down. With my tiny 10W and a "Slim Jim", I didn't have the guns to take on the big guys but 8 QSO with Swindon and Chippenham areas has shown that my location can get out. Most importantly I really enjoyed it.

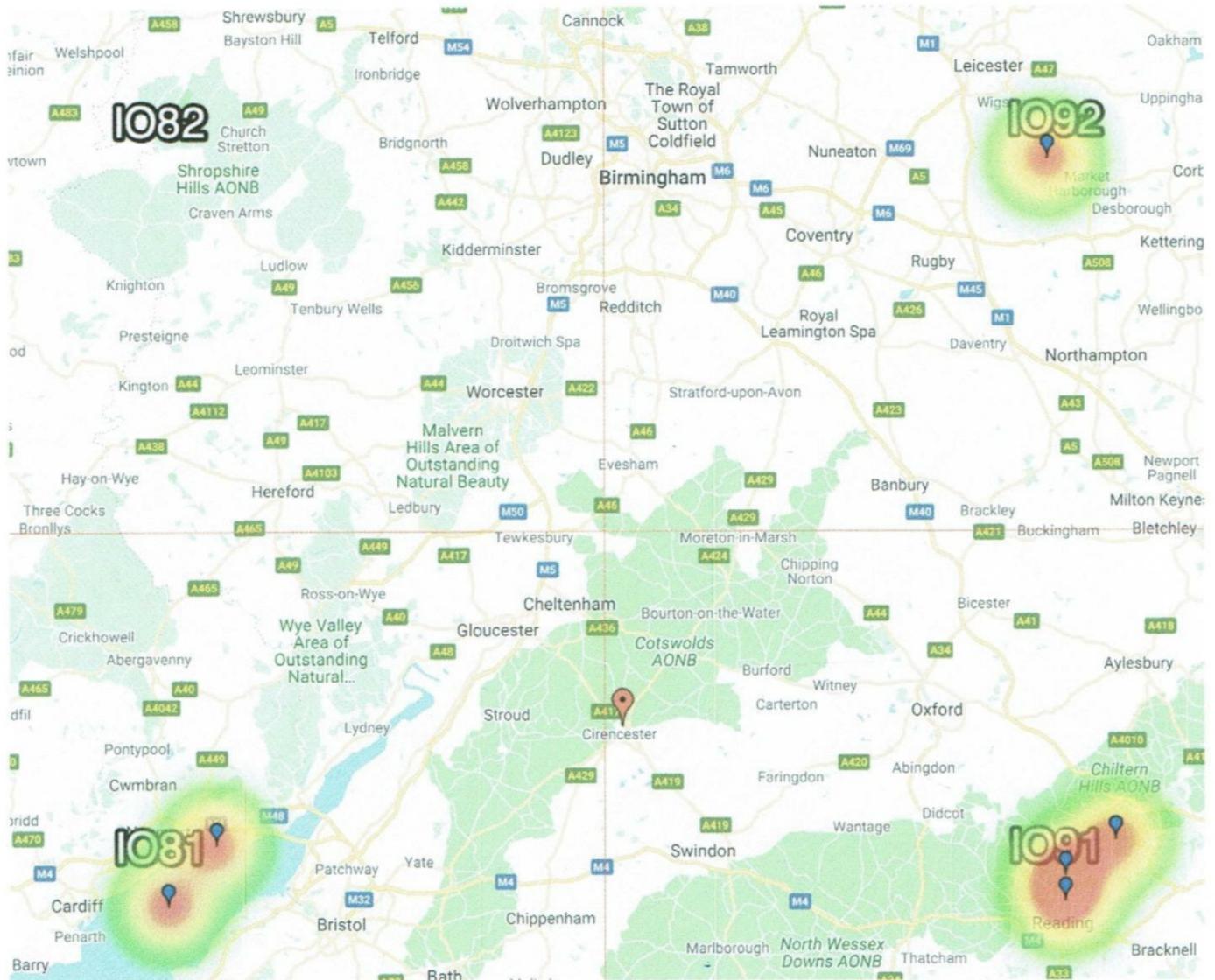
Straight after this contest the 2nd contest of the evening starts up on FM but using SSB, CW and Digital. This was a bust for me as my antenna orientation (vertical polarisation) just left me hearing nothing. There were some very weak signals from operators that had come across very strong an hour earlier. This will need looking into and I do have a Moxon antenna built to 2M band that may work here.

Of course having done one contest you have to try some more and FT8 on FM on the 3rd March beckoned.

First thing was to install WSJT-X on the Mac, marry that to the IC-705 and write the logs back to N1MM Logger+. It sounds complex but thanks to YouTube, the process was straight forward.

Now I've listened to FT8 and watched the band scope and on FM it has always been completely dead. Well that was to change and when the time hit 19:00 the scope in WSJT-X filled with activity. The first half of the hour I chased CQ and into the second half I called CQ. My reason was I was chasing people who could not hear me so switching to calling made me stand out from the crowd.

I wasn't prepared for the results. I expected to see the locations of Swindon and Chippenham light up but I ended up with Leicester, Newport and Reading on 10W.



I know they call FT8 Weak Signal but these results are the complete opposite of what I expected. I mean where are the locals? Especially when members of Swindon DARC did take part this evening.

More questions than answers but at least I have a month before the next attempt. Perhaps I can operate from the shack and not the upstairs landing. Maybe an external collinear on the chimney but that requires spouse approval.

I'm having fun and looking forward. What more can you ask for?

## Vintage Column

By Brian G4CIB

An event much looked forward to by local radio amateurs, audiophiles and electronic hobbyists in the 1960s - mid 1970s was the annual Heathkit Open Day held at their factory at the bottom of Bristol Road near to the junction with Cole Avenue. As an aside, a much smaller road layout then than today's multi-traffic light junction! Having recently acquired my call sign G8CIB and completed my graduate apprenticeship at Smiths, cash was still tight so the display of amateur gear at the 1971 Open Day was still beyond my means. I did, however, realise that it would be a good idea to buy some affordable test gear and I purchased a GD1-U Grid Dip Oscillator (GDO) kit. The unit is essentially a single valve wide range variable frequency oscillator (VFO) using a set of plug-in coils to cover the range 350 kHz - 230 MHz. A micro-ammeter is inserted into the grid circuit of the valve. A resonant circuit tuned to the same frequency as the GDO will absorb energy from the oscillator causing a reduction in the valve grid current to be observed, hence the term "grid dip". So a useful device for giving an indication of the resonant frequency of a tuned circuit. The relative Q (the frequency to bandwidth ratio) of a circuit can be determined by the sharpness of the dip - a broad dip indicating a low Q circuit. Plugging a pair of headphones into the phone jack converts the unit into an oscillating detector enabling the frequency of an oscillator to be determined. The unit can be switched to the "diode" position when it becomes a wave meter. It must be emphasised, however, that this is not a precision device but is nevertheless a handy piece of equipment. Having understood the basic operation, it opens up the possibility of many more applications including determining an unknown capacitor also the inductance of rf coils. The GDO comes with a built-in mains rectifier circuit and of course this limits the use of the unit to the shack. During the 1980s Heathkit introduced the HD-1250, a solid state version, which being powered by a 9 volt internal battery, can be used "in the field". I was lucky enough to purchase a kit on a business trip to the USA in 1984.



The GD1-U Grid Dip Oscillator unit with the coils in the supplied box, along with 3 separate low frequency coils. Heathkit were well known for their superb manuals which detailed not only the step-by-step assembly instructions, also setting up procedure, operating and service information. As mentioned in the recent Zoom talk by Steve G3ZPS, a second-hand Heathkit can be stripped down to the original components, replacing where necessary (e.g. out of tolerance resistors) and rebuilt in the knowledge that in all probability it will work.



This photo shows the HD-1250 Solid State Dip Meter in its carrying case.

Next month in Vintage Column - The Heathkit Vacuum Tube Voltmeter