TDARS NewsLetter

Issue 239 Jan. 2010

www.TDARS.org www.telfordhamfest.co.uk

Programme

January 20 *"Share a Circuit"- bring along your favourite circuits. Copier available*

January 27 *Make a 2 metre DF yagi and 2 metre offset –attenuator kit distribution. (note: antenna parts £5, offset attenuator £10: please pay on night)*

February 3 *Committee Meeting /A location TBC. LWVH HQ closed.*

February 10 *Annual 'Under a Fiver' Construction Competition.*

February 17 *2m. DF systems progress evening, incl new offset -attenuator projects*

February 24 *Video evening. A further selection of short videos.*

March 3 *Open house / On-the-Air / Committee. (usual LW HQ)*

March 10 *Main Construction Competition. Bring it in! First-Time entry section too*

March 17 *2010 International Marconi Day preparations. (Tywyn site Sat. April 24) Also TDARS contest planning 2010 season*

March 24 *"Understanding your Operating Position : the geology of your location" guest speaker Andrew Jenkinson who is Projects officer for the Shropshire Geological Society. (www.shropshiregeology.org.uk)*

March 31 *ANNUAL GENERAL MEETING. Agenda on Pg. 3*

April 7 *First—in—the—Month: Committee meeting. HQ not available.*

April 14 *Club Equipment Update. Look what we've got !*

April 21, 28 *TBA*

April 24 (Sat) *International Marconi Day Expedition to Tywyn, mid Wales.*

April 28 (daytime) *Visit to RAF Shawbury.* Meeting 12:30 pm *opposite entrance gates*

(details: see Pg 4)

For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)

For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.

For Equipment Loans & Returns Kevin G8UPF or M0RLY

Editorial

I suspect that quite a few TDARS Members are not aware that we have a special call-sign available for use by Members in certain circumstances. The special call is G3Z, and we were allocated it in 2005, prior to our visit to N. Ireland for use in the RSGB 50 MHz Trophy contest in June that year. We operated from the summit of Slieve Croob (IO74AI) for several days, making a couple of "firsts" on the 5.7 GHz band as well as giving 6m a real whacking.

We came 5th overall in the 50MHz Trophy contest that year, with a creditable 26,910,184 points from 294 QSOs, up against hardened contest groups like the Northern Lights, Bristol, Cochenzie and Blacksheep mafia ! In my opinion, it was one of our best ever portable expeditions, which took a lot of planning, as well as quite a few ££££s. It's a pity that ferry costs have gone up so much in the last few years, otherwise a return visit would be on the cards.

Anyway, back to the G3Z topic. The special call expires at the end of this year, and I'm wondering if a member, or group of members, would like to use it once again for a serious contest entry. It is ONLY allowed to be used for certain contests (OfCOM rules). There are about 26 possibilities, including the international ARRL HF contest series, the CQ World Wide series, the IARU HF Championships, IOTA, WAE DX series, Trophy contests for 50 MHz, 144 MHz and 432 MHz, and the 432MHz-248 GHz microwave contest in May; also the Marconi 144MHz CW contest in November. The full list is printed in every recent RSGB Year Book, as well as the RSGB Website. It does NOT, unfortunately, cover the contests which TDARS has undertaken in recent years, such as VHF NFD, 160m Club Calls and the Backpackers series. So, is there someone out there who is attracted to the idea of using the G3Z callsign and would like to have a real go before the special call expires ? After all, there's not much point in renewing the NoV if it's never used !

Finally, my comments last Newsletter about a docile sun seem to have done the trick….. at long last the solar disc has started to come alive, with the solar flux currently hovering in the nineties. Propagation above 20 MHz or so should start to respond as the year progresses. Get those antenna books out and dust off the 24, 28 and 50 MHz buttons on your transceivers !

MIV

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Information and pictures Web Site **www.tdars.org**

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VICE-CHAIRMAN: Martyn Vincent (01952 255416)
SECRETARY: Mike Street G3JKX (01952 299677)
TREASURER: Jim Wakenell G8UGL (01952 684173)
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NEWSLETTER EDITOR: Martyn Vincent G3UKV (01952 255416)

Committee: Richard M1RKH;Mike G4NKC;Simon G0UFE;Chris M0ECM;
Martin 2E0TRO; Tony M0TAW; Dave M6DTB; Kevin G8UPF
Trophies/Certs: G3UKV, M1RKH. QSL Manager David M0EMM
Assistant Curator: Richard M0RKY (07947 351980: text preferred)

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THANKS to Mike G3JKX, Derek G0EYX, Phil G0VSJ, Richy M0RLY for Newsletter input.
Next publication deadline #240 end March or early April. Input VERY welcome !
Several short items are being held over until next time. Thanks again.

QTC? News & Information

TELFORD & DISTRICT ANNUAL GENERAL MEETING 31st MARCH 2010

AGENDA:

1) Apologies
2) Chairman's opening remarks & report
3) Minutes of TDARS AGM 25 March 2009
4) Matters Arising
5) Treasurer's Report & Matters Arising
6) Election of 2010-11 Committee
7) Presentation of Trophies

Any relevant items for inclusion in the Agenda must be received by the Hon. Sec (Mike, G3JKX) at least 7 days prior to the AGM. (ie by March 24th)

The first **Wednesday TDARS meeting** of alternate months have had to be held at a venue other than the Village Hall itself. This slightly quaint arrangement has been necessitated by the LW Village Hall Committee who insist that Monday evening is inconvenient to some of their members, and that their alternate monthly meetings will be held on a Wednesday in the room which we normally occupy. Until late last year, this was not a great problem, and the committee, and anyone else who wanted to have a natter, met in the Huntsman Inn across the road. However, now that the pub is closed until (if ?) a buyer comes along, these alternate first-in-the-month meetings (starting with February) will have to take place elsewhere. The /A venue has not yet been finalised, although a likely QTH has been identified.

These words were at the bottom page last Newsletter :-
"And then there's the TDARS **40th anniversary mugs** … 2009 may have to be extended : " Well, calendars didn't have to be re-printed, as the said mugs (and the mugs that put their money down) turned up the very next day, thanks to Richard's 'RKH efforts. Very nice too. There may just be a spare or two left over if required by anyone—ask Richard.

Over 30 TDARS Members and their accomplices came to the annual **Christmas Dinner** at The Duck at Allscott in December. Here are a few pictures….Well, I know they're small, but if you select this page on the club website, you can zoom-in and view them any size you like. Great saving in space and printer ink (a full set of inks cost over £240, but last a lot of copies)






Which THREE members appear to be asleep ? ? ?

The team who won the **mini construction competition** in December were Martin 2E0TRO, Rob 2E0RAV and Peter 2E0ZSU. They correctly calculated the required value of 'L' and wound an air cored inductor, with parallel 100pF 'C', which resonated within just 12 KHz of the target frequency of 7.100 MHz. All contestants (there were 11 + many onlookers) correctly did the standard calculation to find 'L', and wound coils within 800 KHz of the required frequency. Simon, 'UFE, who supplied most of the materials, is now wondering how to incorporate a box full of ~5.025 uH inductors into his next electrical installation ; ideas ?

It had been hoped to visit various places within the **RAF Shawbury camp** one Wednesday evening in the spring. However, this was ruled out as the Community Relations Officer (Sq.Ldr Neil Hope) said visits can only take place during the working week. So, we've settled for **Wed. 28 April,** meeting up in the car park opposite the main entrance gates at **12:30 pm**. Obviously this makes it tricky for many working members, but perhaps with this much prior notice, many will be able to come along. Please be prompt as we must enter the site as a group, accompanied by Neil. I'm told it's a fascinating trip by one of the flying instructors who works at the base. (flying simulators, hardware, helicopters, systems etc.)

Last Autumn, the possibility of a **budget microwave receiver for 10GHz** was put forward at a Club meeting, and several members expressed an interest in building it. However, the author of the project (Bernie, G4HJW) was not in a position to put kits together at that time. For about £35, you can now order one of his kits, that is based around a surplus Satellite TV LNB and dish. If required, a drilled diecast box (about £10) can also probably be provided, or you can supply your own—it's not critical. So far, I have received orders from M1RKH, G8VZT, G8UGL, G1OAR, M0TAW, 2E0RAV and G0ASP. If there are any others interested, please let me know by **Wed. 27 January**. Further information can be found on Bernie's webpage **http://www.g4hjw.metahusky.net/** (then click on "Quasi high LNB LO frequency stability—with no modification to LNB !", and the next title down too). As stated, you don't have to delve into the micro-circuits of a commercial LNB, but basically build a separate straightforward local oscillator board, which has an output probe that sits at the front of a surplus satellite dish. This is the provided kit. Several club members can advise and help in the construction of this fascinating (and very cheap for what it is) project. The receive sensitivity and noise figure are on a par with current 3cm amateur band equipment. There is even a suggested development that would let you make a QRP transmit version on his website.

At the recent **radio exam session** in November, all 7 entrants passed, and have now received their call-signs. I do not have a list of all the participants, but the photo tells its own tale, and several club members are recognisable, plus trainers Mike 'JKX and Eric 'KZB.

Photo: Richy M0RLY

A **further Foundation exam** took place in December, and again a full set of passes—including John Cooper of Madeley, Darren Cadet of Ludlow, Alastair Hopkins from Penn, Richard Bethell and Alan Mullinder from Telford. Well done to all these guys, and thanks to the trainers involved. As Mike said, we must be doing something right !

Quite a while since I published the **TDARS radio nets**. The Sunday evening net is at 9:00 pm local, on 144.600 MHz.(+/- QRM). Very quiet in recent times. On Monday and Friday mornings there is a regular get-together around 3657 KHz (+/- QRM) from about 9:00 am local; not really a TDARS net, but a good many members come on at that time and frequency. Likewise, a number of members congregate on GB3TF on Friday afternoon—around 3pm, I believe.

Talking of **GB3TF** , the new logic boards are due to arrive very shortly. The two intermittent transmitter faults (yes, Murphy has been rummaging in the LWVH loft area) have been found and fixed by Sherlock Wakenell (aka G8UGL). The first was a cracked SMD capacitor in the P.A. stage, and the second was a bad connection in a pre-driver transistor stage. A bit of co-channel QRM has been reported from the Edgehill Repeater GB3EH in Warwickshire, but this happens from time to time, especially when there is enhanced propagation, as has occurred recently. (and yes, I got a phone call…)
Finally, a notch filter has been added to the RX, which appears to have reduced "de-sensing"

More tools have arrived as a result of the £5000 Council **Grass Roots award** last year, and a special Elmo projector (similar to an epidiascope) and USB/Oscilloscope adaptor are due to be ordered. These and other Society equipment will be on display at the TDARS meeting planned for Apr.14th. A drop-down projector screen is also planned for our meeting room.

We have been asked by the Village Hall Committee to **only park our vehicles on the marked bays of the car park.** Once these are full, we should park on the road outside the premises ("High Point"), where it is safe to do so. A lay-by that used to serve the ex-village shop on this road is ideal for a few cars. This situation has arisen since one or two members of the Indoor Bowling Club who meet from 7-9 pm on Wednesdays complained that some TDARS members' cars were blocking their exit, and on another occasion the pedestrian entrance off 'High Point' was also blocked. My only comment would be that we had a fine informal arrangement whereby the Bowling club used the L/H (larger) end of the car park, and we would try to confine our vehicles to the R/H end, which unavoidably led to our cars being double or treble parked at times. This arrangement was quite acceptable as we usually leave as a group just before 10 o'clock. There was no H&S issue (which had also been raised) since emergency vehicles do not enter car parks such as LWVH, but always safely operate from just outside the boundaries. One suspects the Bowling Club may live to regret their actions when TDARS members fill up both ends of the car park, and we report them for parking outside of marked bays (as if we would …..!).

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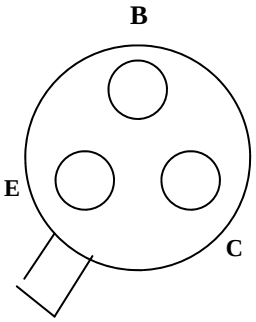
TELFORD & DISTRICT AMATEUR RADIO SOCIETY.

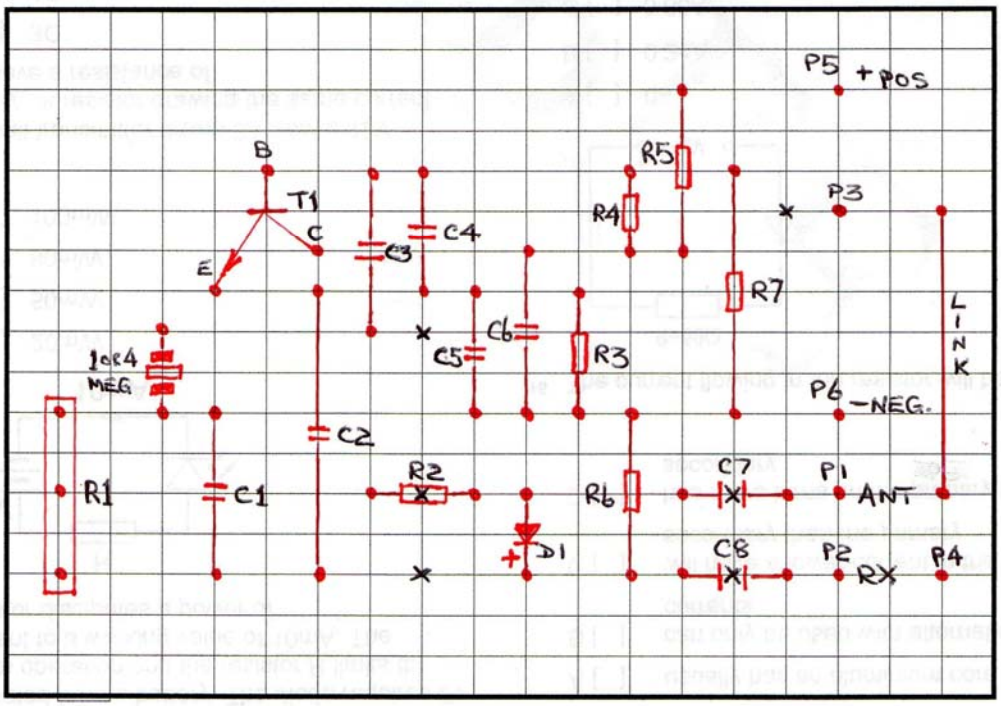
MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM. MEETINGS USUALLY COMMENCE AT 8PM

REMINDER: Paid up Members are welcome to borrow items of Club Equipment, so long as they're returned the following week and the usual "signing out" process is followed. That's a privilege of TDARS Membership. If you can't return it on time, please find some-one else who can, or don't borrow it that week! Curator Kevin G8UPF or Richy M0RLY

FREQUENCY OFFSET AND ATTENUATOR FOR 2metre DIRECTION FINDING



BC 108
View from beneath



Notes & photos provided by Derek G0EYX (Circuit previously provided or available from TDARS website.)

View of Component side & track orientation

'X' denotes breaks (6) in copper track underneath

Drill sizes for Aluminium Box

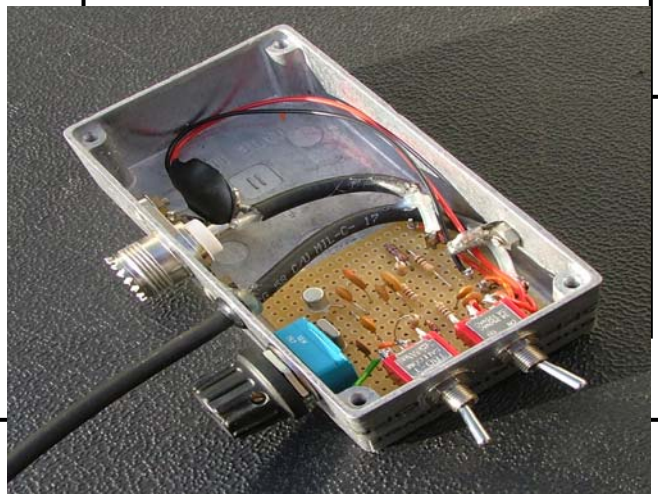
SO 239 - Body, 16mm
SO 239 - Mounting holes, 3mm
10K Potentiometer - 10mm
Grommet - 6.5mm
Switches - 6mm

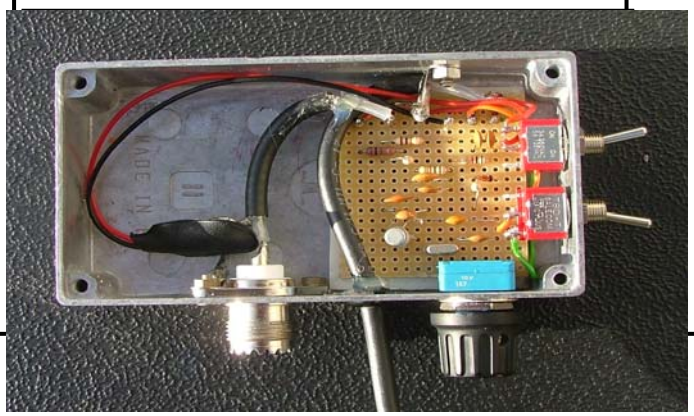
Notes to construction

1) Shoulders of potentiometer must be filed down to enable body to fit flush on perforated board.
2) Place insulation under circuit board.
3)Coax to Rcvr. held in place by using 'hot glue'
P1/P2 to switch.
P3 To SO239.
P4 To Receiver.
P5 To 9v battery (pos) via switch.
P6 To 9v battery (neg).
Resistors R2 & R4 mounted vertically.

Components and Accessories

R5, 100R
R2, R3, R6 - 1k
R4, R7 - 10k
R1 - 10k Linear variable pot.
C4 - 82pf
C1, C5, C7, C8 - 100pf
C2, C3 - 1000pf
C6 - 0.01µf
D1 - 1N4148 Diode
TR1 - BC108 or similar
Crystal - Depends on Rx. parameters
SO 239 Chassis Mount
PP3 Battery clip
SPST Toggle switch
DPDT Toggle switch
Di-Cast Aluminium enclosure
1 Grommet
2 - 3mm Bolts, nuts & washers
Perforated board 16*18 holes





RECEIVING AMATEUR STATIONS ON THE EXPERIMENTAL 600 METRE BAND

By Phil G0VSJ

From time to time I build a few pieces of radio gear.
As you may know, an experimental band has been introduced for a couple of years now, and is limited between 501 and 504 KHz - just 3 KHz wide.

Richard G0VXG thought it might be a good idea for those members who may be interested in receiving stations on this band to have some constructional details to enable them to do so, and I agreed with him.

For receiving purposes only (this is not a transmitting loop) it is preferable to use a wound loop and a pre-amp. Most transceivers and general coverage receivers are a little deaf below HF, hence the pre-amp to perk up the front end.

Construction of the loop is pretty simple, requiring a few tools and a little time over a weekend. Most of the materials are available from B & Q and Maplins, or from the junk box. However the variable capacitor makes tuning easier if it is geared down, or has a somewhat larger than average tuning knob, for a peak is very sharp.
At the time I built mine, J Birkett (Lincoln) had some dual ganged units for sale.

The construction of the pre-amp can be of your own preferred method. I use a few strips of Veroboard and housed it with the variable capacitor in an ABS box, which can be mounted on one of the cross members.
In operation the output from the pre-amp is taken via 50 ohm coax to the receiver. The 'S' meter is carefully watched for a peak as you turn and tune the loop—the noise level will rise—aim for a maximum peak. Propagation conditions will have some effect on this, but I can reach about S5 on an Icom 71 receiver.

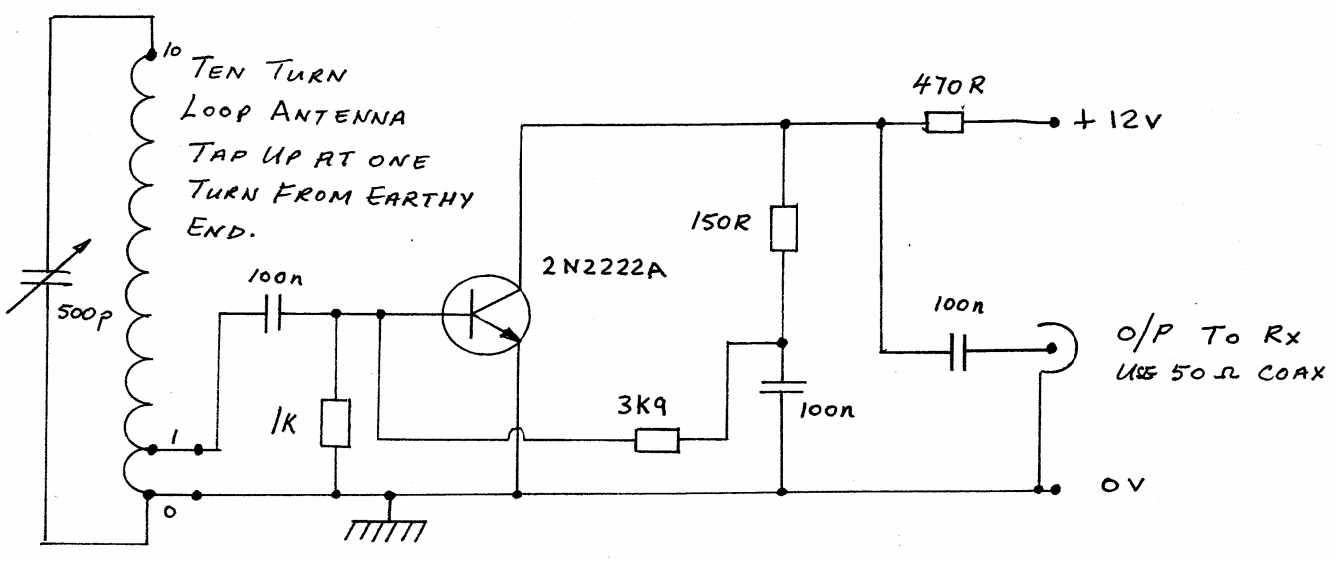
As this band is experimental, there are not a host of stations to be received in normal CW mode, but rather in QRSS CW (extremely slow morse code—Ed.)
QRSS allows a very narrow band width to be used, around 10 Hz, and with the aid of computer programs allows signals to be resolved from below the noise.
However, there are still stations that can be heard in normal CW (morse) mode. It does require patience and careful listening, but they are out there. If you have a filter switch on your receiver, so much the better as the band does suffer from QRN (natural noises like static) and QSB (fading).

I have been transmitting as a test station for several months now, just 5 watts of ERP power. I endeavour to transmit most weekends at 10:00-11:00 hours and 19:00-20:00 hours UTC, on a frequency of 503.3 KHz.
I also believe Richard 'VXG will be up and running soon. So there will be two local stations for you to listen out for, and test your loop and pre-amp.

My latest station to be received is SK6RUD beacon running just 3 watts ERP. You can give a report and print off a QSL should you so desire.
NOTE: To **transmit** on this experimental band requires an additional special research permit (NoV) for which you apply to OfCOM.

So, do have a go at this little project; you may be surprised as to what you may hear.

Loop size 900mm square. 0.5mm single conductor wire, ten turns. (~40 metres length total.)
Full construction details next Newsletter. Circuit diagram of loop/pre-amp below:



Mike's Piece

Did you know that there are several reasons for moving coil meters having two hairsprings on the spindle carrying the moving coil ? These are to:

1) Carry the DC current into the moving coil which creates a magnetic field. This field interacts with the magnetic field from the fixed magnets round the coil causing it to rotate, just as in an electric motor. The needle attached to the coil moves with it of course.
2) Act as a calibrated resistance to the coil movement so that the needle position, when it comes to rest, becomes meaningful. As the input current increases, the coil and its needle rotates more but against the ever increasing tension of the hairsprings as they 'wind up'. The accuracy of the meter scale is therefore mainly determined by the manufacturing quality of these two hairsprings. The maximum current the meter will take is governed by the number of turns and wire diameter on the moving coil and by the stiffness of the two coil-springs.
3) Return the needle back to 'zero' again when the current is removed caused by the two hairsprings unwinding again.

These springs have to have a mechanical adjustment to set the zero end of the scale accurately. This is the small slot at the bottom of the front of the bezel.

Moving coil meters are provided with a 'stop' on the right hand end of the scale in case too much current is applied to the coil. This is to prevent the needle from going too far and, in so doing, stops the moving coil over-rotating and the hairsprings from being over-wound! It is important that, when using a moving coil meter, you always start by using the highest range available and then switch down to increasingly lower ranges. This will avoid unnecessary damage to your meter. Try to get a reading the middle of a scale where the meter is most accurate.

Mike G3JKX

Another piece by Mike

And now for something completely different. Those of you who are not members of the GQRP club, really ought to be as there's always a lot of interesting stuff to read in the quarterly magazine, SPRAT. (especially aerial hints and tips). In the Autumn issue, however, following on from the recent GØCER/M1RKH presentation, an article on a new mode has appeared called 'Whisper', WSPR = Weak Signal Propagation Reporting. This is a very new software program by the Nobel Prize winning physicist, Joe Taylor, K1JT which, like PSK31, produces a waterfall display and it can decode and display *extremely* weak signals, even well below the noise level, which you might not be able to even hear. Reception reports are automatically sent to the sender via its Internet database. You can use it to have weak signal QSOs of course. This also means that you can have a very low power personal beacon and get reception reports back from DX Rx stations automatically. Whisper uses a **6Hz** wide PSK signal, which transmits for 54 seconds and includes your Tx power(in dBm), Callsign and QTH data The whole WSPR system only uses a **200Hz** bandwidth so 30+ stations can use it at the same time. To get it to work properly it is essential to set your computer clock accurately against a time standard. It tells you on-screen where to set your rig's band and frequency readout. Another bit of software produces a Band Map which shows the locations and call-signs of the signals decoded! To use WSPR you will need an identical rig set-up as for PSK31. I can see Whisper really catching on for weak signal V/UHF, microwaves and moon bounce!

Software downloads are available from:
www.physics.princeton.edu/pulsar/K1JT/wspr.html
www.g4ilo.com/wspr.html
www.wsprnet.org/meptspots.php

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