

STARLITE

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



**G6OI
G6SRS**



ISSUE NUMBER: APRIL 2018



G4CVK

**STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY
INCORPORATING
OLD SWINFORD HOSPITAL SCHOOL RADIO CLUB**

MEETINGS HELD AT

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

VISITORS ALWAYS WELCOME

**THE SOCIETY HOLDS ITS FULL MEETINGS
ON THE 1ST AND 3RD MONDAYS EACH MONTH**

80TH ANNIVERSARY YEAR

[MARCH 2018 - MARCH 2019]

RSGB AFFILIATED SOCIETY

STARLITE

Telephone Enquiries to:-

Hon. Secretary
John Clarke M1EJG
[01562] 700513

Or by Email to:-
honsec@g6oi.org.uk

StARS Website URLs:-
www.g6oi.org.uk
<http://g6oi.ross-lewis.co.uk/index.html>

StARS Facebook Page:-
<https://www.facebook.com/groups/stourbridge.ars/>

All correspondence/enquiries should
be addressed to the Hon. Secretary at:-

StARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND

Forthcoming Meetings

April 2 nd	On Air. Informal. Digi Modes Group.
April 9 th	On Air. Informal. Digi Modes Group.
April 16 th	Main Meeting John Bills G3KZG : Test Equipment Evening
April 23 rd	On Air. Informal. Digi Modes Group.
May 7 th	On Air. Informal. Digi Modes Group.
May 14 th	On Air. Informal. Digi Modes Group.
May 21 st	Main Meeting – Subject tba.
May 28 th	On Air. Informal. Digi Modes Group.
June 4 th	On Air. Informal. Digi Modes Group.
June 11 th	On Air. Informal. Digi Modes Group.
June 18 th	Main Meeting – Club BBQ @ The Sheepwalks ?
June 25 th	On Air. Informal. Digi Modes Group.
July 2 nd	On Air. Informal. Digi Modes Group.
July 9 th	On Air. Informal. Digi Modes Group.
July 16 th	Main Meeting – Subject tba.

Editor's Notes

The **Annual General Meeting** was attended by 13 members [that's more than 50% of the membership!].

John G8UAE [*Hon. Treasurer*] reported that the Society is still financially healthy.

John M1EJG [*Hon. Secretary*] stated that, even though events of the past year were slow, we still had a good year. John, also, stated that, due to problems with the aerial farm, we were unable to have the Club stations on air, but due to improving weather, the aerial maintenance team should be able to rectify these issues.

Tim G7TAC [*President*] gave his valedictory address, reiterating some of the Secretary's points, but adding that in our 80th year, perhaps we could operate a station using some equipment built to an appropriate 80 year old design or borrowed from somewhere [anyone have any contacts to try scrounging something?]. Tim, also, suggested that maybe we could investigate the possibility of obtaining a special event callsign in the form of GB80xxx to commemorate this 80th anniversary year. There was a reminder that someone had proposed each Committee member should submit a short profile for inclusion in *Starlite*. [*I look forward to receiving all 9 profiles in due course. Editor.*]

Next came the Awards Presentation, which were as follows:

Constructors' Cup was awarded to **Tony M6AHW** for his 70cms quad aerial constructed from "junk box" materials.

G8GF Rose Bowl was awarded to **Bob G4XOM** for producing *Starlite*. It is the third time I've received this, the previous years being 1983 & 1989 and for the same reason.

The **Election of Officers and Committee** came next and, as expected, there was no change in any position. They can all be seen on the last page of each issue.

The **Trustees** of the Society were confirmed as **James G7HEZ** and **Bob G4VPE**.

The meeting was closed at about 21:30 hours.



Continued on page 7 >>>>>>>

Here is an item from **Jim G4WAO** and his usual source VK2MB. Jim wrote: *"I'm not sure about this one, but Mal mentioned in the mail is one of the oz club members and is from NZ and is a very technical bloke. Not sure what, if anything, he had to do with this, but looking at the website it's quite interesting and tracks this star giving visibility times from Stourbridge that's +/- the usual cloud cover of course."*

Mal's satellite we saw last night

<https://www.newsroom.co.nz/2018/01/25/78381/nz-satellite-to-light-up-night-sky>

NZ satellite to light up night sky

Look into the night sky at the right time and you might see what seems like a disco ball shimmering and glinting back.

The founder of the company that launched the first rocket into orbit from New Zealand this week said this week he deployed a secret satellite he believes will be the brightest

object in the night sky and which he hopes will remind people of their precarious place in a vast universe.



Peter Beck, the New Zealander who founded California-based Rocket Lab, says he used most of the space aboard his test Electron rocket to house an object he has named the "Humanity Star". The rocket successfully reached orbit on Sunday.

The satellite, not much bigger than a large beach ball, is a geodesic sphere made from carbon-fibre with 65 reflective panels. It is designed to spin rapidly and reflect the sun's light to Earth. It's expected to orbit the Earth every 90 minutes in an elliptical pattern, travelling at 27 times the speed of sound.

"The goal is, make people look up and realise they are on a rock in a giant universe," Beck said.

He has lofty ambitions for his experiment. He hopes the satellite will become a focal point for humanity, and will serve as a reminder for people to look past their daily concerns and to face larger challenges like climate change and resource shortages.

That's why Beck said he resisted the comparison to a disco ball, because he wants it to be about something more serious.

"But in all honesty, yes, it's a giant mirror ball," he said.

Beck said the object should be noticeable but will not be much brighter than other stars and satellites and shouldn't be distracting to aviators or stargazers.

The Humanity Star is expected to orbit the Earth for about nine months before it is pulled back into Earth's gravity and burned upon re-entry into the atmosphere. Beck said he is hoping to launch future Humanity Stars, but said the project is his own particular passion and he'll have to wait to see how other people react and also consider whether it's financially viable.

Following the successful test launch, Rocket Lab hopes to begin commercial satellite launches soon.

The company says the Humanity Star will be best seen in New Zealand after February and in the US from March due to its changing orbital position.

It can be tracked at: www.thehumanitystar.com

Here is another one from **Jim G4WAO**, concerning the **VK3KQ Contest Station** and writes: *"Could be of interest to anyone interested in contesting. Looks a very nice portable station setup. If only?? YouTube videos are quite short, so won't take up a great deal of time."*

Video 1: Ralph VK3LL goes on a walk through and explains the setup of the VK3KQ VHF/UHF portable contest station.

<https://youtu.be/0wlaOIRQknc>

Video 2: A short video with Ralph operating showing the 2m station in operation. Also a short demo of the True North compass controller Android App.

<https://youtu.be/S9c0NP0TTnw>

Link for the True North Rotator Android App.

<https://play.google.com/store/apps/de>

How about this I found on You Tube. Jealous or makes you sick??

N9JIG Shack. A short tour of my ham and scanner shack.

<https://www.youtube.com/watch?v=bUK57xs9TE0>

Round Robin Membership Questions from Geoff G0KVK

1 When and how did you first gain an interest in Amateur Radio?

I was given a crystal set for Christmas when I was about 14. So, with a piece of wire from the bedroom window to the bottom of the garden, late at night several stations could be heard. Then I started reading the magazine *Practical Wireless*. This gave me a couple of circuits to improve said crystal set. Two transistors were purchased. One red spot for audio frequencies and one white spot for radio frequencies. I went to see a film at the Savoy Picture House in Stourbridge and in the foyer was a Mr Swingewood (G4CVU) with an army WS19. This was the first time I heard Morse code on top band and AM amateur signals.

2 What was taking your course and exam like?

I joined Dudley Amateur Radio Club, which was held at Dudley Library, where I was told a radio amateur course was running at Wombourne College. I enrolled in the September and took the course. At the end of the course the exam consisted of 10 written questions. The first 2 were about the licence law which had to be written in the same way as set out in the book. This needed to be learnt by heart. You then had to answer 6 more questions from a choice of 8. These were then sent to the City and Guilds. The resultant certificate was then posted back to you. This certificate was sent to the RSGB and I received the call sign G8KVK. This was the year 1975.

3 What has been your most interesting work or job?

Being as I have only ever had the one job, I think the best time was the early days when rigging the old BBC1 and ITV aerials, where there was no hassle. If it got done today, okay; if not, do it tomorrow.

4 Most memorable radio contact?

None really. The farthest was in to the USA as I prefer to make things.

5 The most frustrating electronic piece of equipment you have owned or operated?

A very old valve Cossor Oscilloscope, which would never lock on to a signal.

6 What other hobbies?

In my early years it used to be making and flying balsa wood model aeroplanes.

7 If you won £2,000 on the Lottery what would you purchase technology wise with it?

A 30 foot wind up tower with a 3 element beam.

8 What event/activity/talk/visit from your membership of STARS is most memorable?

The first time I was out operating SSB field day.

9 Which member of STARS (past or present) has been the most influential in your amateur radio life?

As I have not been a member of the club for very long, it is hard to single any particular person out, as everybody has been very friendly and helpful.

10 What has been your most useful tool/test equipment you own?

A double beam Oscilloscope.

I nominate Ross M6RLZ to answer next month. I remove question 7 and replace it with :-

What is the next piece of amateur equipment you would buy?

Editor's Notes [continued]

With a couple of proposed contests this year, I make no apologies for including, in this issue, an article entitled *3 TIPS FROM HAM RADIO CONTEST WINNERS*. Hopefully it will give us all some inspiration to make more contacts and, ultimately, improve our position in the results table[s].

I suggested that we enter the 144MHz May Contest, 1400-1400GMT on Saturday 19th – Sunday 20th May. The multipliers are countries and postcodes. It's not necessary to do the 24 hours, but wouldn't it be good to get G6OI/P on air once again?? I have a couple of 2m multi-mode radios and a linear amp for each, which could be made available. Would have to sort out a power supply and an aerial [although I do have a dual-bander which could be used]. Oh, and an operating site may be beneficial, too!! So, what do you think about this?? We'll see how things pan out for now.

As it's our **80th year**, wouldn't it, also, be good for us to come out of the doldrums and arrange some Special Event Stations, either with GB calls or using GX6OI & GX6SRS. I ask this simply to get us "out there" and promote the Society. After all, we are stuck in a rut with little, or no, radio communication taking place; strange thing for a radio communication hobby! I know the aerial maintenance team will do a superb job at rectifying the aerial problems and, therefore, we should be back in business. So, given this scenario, there will be no reason for us *NOT* to be QRV on a regular basis.

So it's over to you. Comments, ideas, etc., please send to rob4xom@outlook.com

Bob G4XOM says: *"I would like to take this opportunity to thank the contributors to these pages, since I took it upon myself to volunteer as editor last October.*

I still need more input from you, so please send your items to rob4xom@outlook.com using Word .doc or Open Office .odt formats."

DMR Corner

Jim G4WAO, once again, writes: "Perhaps the DMR group members may be interested in this from the OZ club."

There seems to be a number of members who are now taking the plunge into DMR and some others that may need a bit of convincing! Hi Hi!

In Australia there seems to be a bit of a lack of a central place to get information or ask questions, so as I find useful stuff I will pass it on.

I found this website. which has some really good info for those that are new to DMR and the world of commercial networks.

<http://www.ccc.ve6hams.com/>

I would especially recommend the articles on "*DMR Demystified*" and "*Operating your DMR radio*".

Since obtaining a DMR radio, I can honestly say the versatility of these things are awesome, all for around \$100. In the past I have been very vocal in the P25 vs D-Star conversations, but I foresee my P25 gear going on eBay in the near future.

Now we just need a DMR repeater and we will be set .

Greg VK2ZY

Your Editor asks: Did you find this of interest? I'm sure Jim would appreciate some feedback, too!

If you want some amateur radio resources to look at, point your mouse to:

<http://www.k8zt.com/home>

It's quite interesting.

3 TIPS FROM HAM RADIO CONTEST WINNERS

After you've participated a few ham radio contests, you may feel that the top scores are out of your reach. How do the contest winners achieve them? They'll tell you that no magic is involved: Winning contests comes down to perseverance and patient practice.

HOW TO CALL CQ IN A CONTEST

To make a lot of contacts, you have to call CQ. In any contest, more stations are tuning than calling. You can turn those numbers to your advantage. Find a clear frequency, and when you're sure that it's not in use, fire away.

Following are a few examples of appropriate ways to call CQ in a contest. (Replace *Contest* with the name of the contest or an abbreviation of the name.)

- Voice transmissions:** CQ Contest CQ Contest from Whiskey One Alpha Whiskey, Whiskey One Alfa Whiskey, Contest.
- Morse code or digital modes:** CQ CQ TEST DE W1AW W1AW TEST.
- VHF/UHF transmissions:** CQ Contest from W1AW grid FN31.

Keep transmissions short, and call at a speed at which you feel comfortable receiving a reply. Pause for two or three seconds between CQs before calling again. Other stations are tuning the band and can miss your call if you leave too much time between CQs.

When you get a stream of callers going, keep things moving steadily. Try to send the exchange the same way every time. On voice, don't say "uh" or "um." Take a breath before the exchange, and say everything in one smooth sentence. As you make more contacts, your confidence builds. An efficient rhythm increases your *rate* — the number of contacts per minute.

Contesting being what it is, you'll eventually encounter interference or a station that begins calling CQ on your frequency. You have two options: stick it out or move. Sometimes, sending a simple "The frequency is in use, CQ contest . . ." or "PSE QSY" (which means "Please change your frequency") on CW and digital modes does the trick.

Otherwise, unless you're confident that you have a strong signal and good technique, finding a new frequency may be more effective. The high end of the bands is often less crowded, and you may be able to hold a frequency longer.

SEARCH AND POUNCE

Searching and pouncing (S&P) is usually accomplished by tuning across the band and finding stations manually. Another popular method is to connect to the spotting network and use logging software to create a list of stations and their frequencies, called a *band map*. If your logging software can control your radio, all you have to do is click the call signs to jump right to their frequencies.

If you call and get through right away, terrific. Sometimes, though, you won't get through right away. Use your radio's memories or alternate variable-frequency oscillator (VFO). By saving the frequencies of two or three stations, you can bounce back and forth among several pileups and dramatically improve your rate.

Many stations use the spotting networks to find rare or needed stations in a contest. Be aware that using such information usually requires you to enter in an assisted or multiple-operator category. Know the rules of the contest regarding spotting information, and be sure to submit your score and log in the proper category.

BE POLITE

Large contests can fill up most or all of an HF band, particularly during voice-mode contests, and often cause friction with non-contest operators. As in most conflicts, each side needs to engage in some give-and-take to keep the peace.

If you're participating in a contest, be courteous, and make reasonable accommodations for non-contesters. If you're not contesting, recognize that large competitive events are legitimate activities and that you need to be flexible in your operating expectations.

That said, how can you get along with everyone? Here are a few tips:

- Make sure that your signal is clean.** *Clean*, in this context, means not generating key clicks or splatter from over modulation. (You may hear about such problems from stations operating near you.) A distorted signal's intelligibility is greatly reduced. A clean signal gets more callers every time and occupies less bandwidth.

- Make sure that your receiver isn't overloaded.** Keep your noise blanker and preamp off (read about these devices in your radio's operating manual), and use every receiver adjustment on the front panel, including the front-end attenuator.

- Listen before you leap.** Non-contest contacts are relaxed, with long pauses, so a couple of seconds of dead air don't mean that the frequency is clear. Asking "Is the frequency in use?" (QRL? in Morse code) before calling CQ is the right thing to do, whether you're in a contest or not.

If a Morse code contact is ongoing, the response to your query may be a dit (meaning "Yes, it's busy") if the other operator is in the middle of trying to copy an exchange from a different station.

- Avoid major net frequencies.** Examples include the Maritime Service Net on 14.300 MHz. Also, be aware of any emergency communications declarations or locations where regional emergency nets meet, and give those frequencies a wide berth. Those frequencies are often busy with non-contest activity.

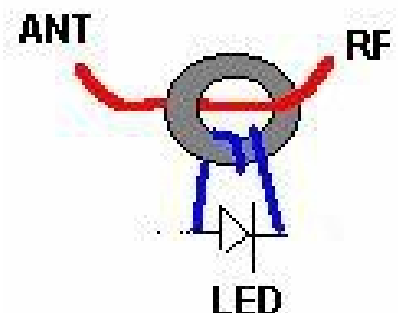
As we have no projects under way, I will occasionally include something which may be of interest, simply to fill an empty space on a page. So, to begin, we have

A SIMPLE RF INDICATOR

The simple circuit shown can be used to indicate RF in any home-brew rig, the presence of which causes the LED to illuminate.

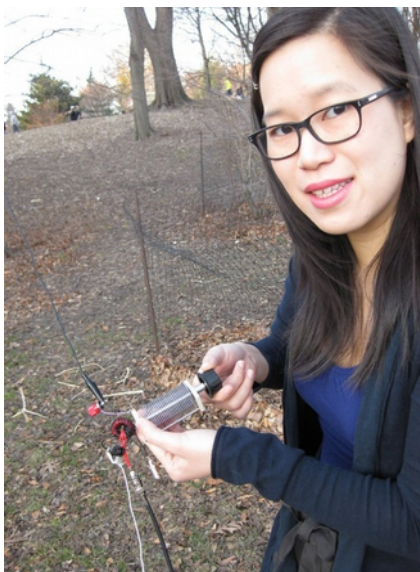
The centre of the coax to the antenna socket passes through a small ferrite ring and two or three turns of stiff wire go to a panel mounted LED.

Simple but useful, especially when there is no room for a meter.



Make a Multi-band EFHWA for Amateur Radio

By Diana Eng KC2UHB



For portable radio operation, I like End-Fed Half-Wavelength Antennas (EFHWA, pronounced “EF-WAH”).

This type of antenna is similar to the common half-wavelength dipole, but with one significant advantage.

A dipole has its feed point (where it connects to the radio) in the middle of the antenna, but an EFHWA's feed point is at one end. This makes it very convenient to throw the antenna up in a tree and connect the bottom of it to your radio.

Here are instructions for making a multi-band end-fed half-wavelength antenna that works on 17, 20, 30, and 40-meter bands.

Materials (pictured)

A/B. Solid Core Wire (two colours, 24-gauge recommended)

C. 5000-ohm resistor (recommended for testing)

D. 2 Binding posts

E. 2 [BNC](#) connectors

F. T94-2 iron powder toroidal core

G. 4 jumper wires with alligator clips (you may need more)

H. Air variable capacitor, ~10-200pf (e.g. MFJ 282-2005)

I. 200 feet of antenna wire.

J. Coaxial cable

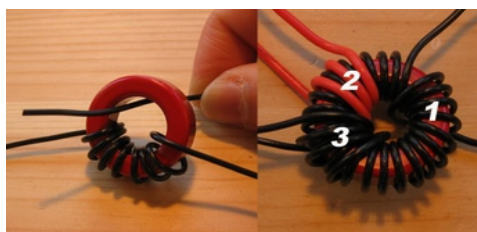
K. Radio (I use the Yaesu FT817)



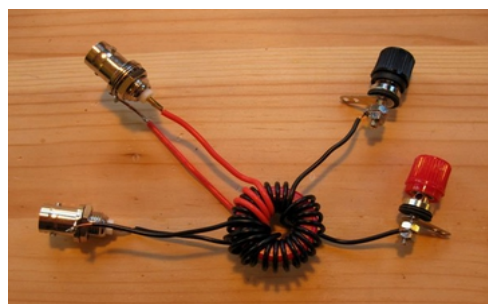
Tools (not pictured)

Soldering iron Solder Helping hands Wire cutter Wire stripper

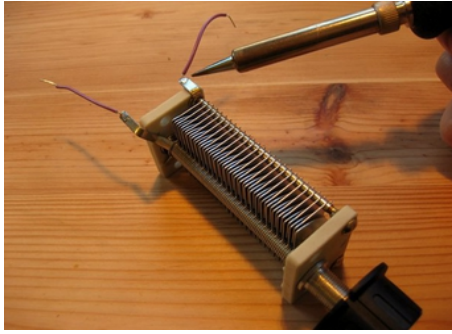
Antenna analyser (recommended, but not necessary. I use a MiniVNA)



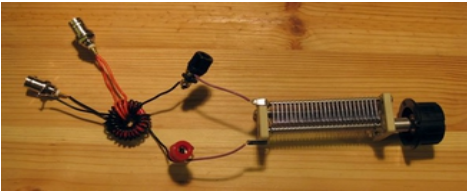
1. Start by wrapping the wire around the toroid. Wrap the first wire around the toroid 27 times (I used a black wire for this). Make sure the first wire is wrapped evenly around the whole toroid. On top of the first wire, wrap a second one around the toroid three times (I used a red wire for this). Also on top of the first wire, wrap a third wire around the toroid four times (I used a black wire for this).



2. Connect a binding post to each end of wire 1 (these are not polarized, so it doesn't matter which connector is connected to each wire). Connect wires 2 and 3 to the BNC connectors.

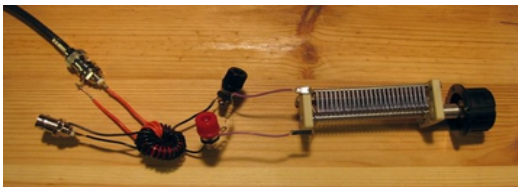


3. Solder two short pieces of wire to the terminals of the air variable capacitor.



4. Connect the air variable capacitor to the binding posts. Once again, these are not polarized, so it doesn't matter which binding post is connected to which terminal.

5. Cut your half-wavelength antenna wire(s). To determine the wire length, use the formula $468/\text{frequency}$. Choose a frequency that's in the middle of the band you wish to operate on. For example: The 20-meter band covers 14.0 to 14.35 MHz. 14.2 is a frequency approximately in the middle of the band, which gives a length of $468/14.2 = 33$ feet.



6. If you have an antenna analyser, you can test the antenna at your workbench to check that everything is properly connected before going out into the field. Connect the 5000-ohm resistor across the binding posts. This will simulate the impedance of a vertical antenna. Connect the antenna analyser to the red wire BNC connector. Adjust the air variable capacitor to get the **SWR** to be as low as possible at your desired operating frequency. This should be about 1:1 in the middle of the band, and 1.5:1 at the ends of the band. If you're not able to get this, check your connections.

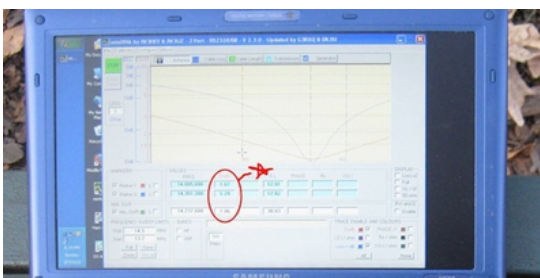


7. Now you're ready to go out into the field. Attach one end of your antenna wire to one of the binding posts, either directly or using a jumper wire. Using the technique of your choice, support the other end from a tree or other tall support. Be careful of power lines and other hazards!

8. Next, create the counterpoise. How to create a counterpoise for an EFHW antenna is hotly debated. Different sources tell you to make the counterpoise wire different lengths, some even say that you don't need a counterpoise. I decided to just use a few jumper wires chained together to create a counterpoise, with a total length

of about four feet.

9. Connect the antenna analyser or radio to the red BNC connector.



10. Tune the antenna by adjusting the air variable capacitor. If you don't have an analyser, you should put your radio on the lowest possible power setting and transmit a **CW tone** while monitoring the SWR meter (following proper procedures for identifying your transmissions and avoiding causing interference to other

stations). You want to get the lowest SWR possible on your operating frequency. Make sure not to transmit when you're touching any part of the antenna or the matching network, or you could get an RF (Radio Frequency) burn.

11. If you couldn't get the SWR down to 1:1, try connecting the antenna tuner/radio to the other BNC connector and repeat the previous step. Your radio expects a 50-ohm impedance, but the impedance of an end-fed wire is much higher, on the order of thousands of ohms. The exact value can depend on many factors and will change depending on how and where you've hung the wire. The toroidal transformer's job is to reduce the impedance, and the two BNC connectors on it give you some flexibility in finding a good match in the field. The red connector has a turns ratio of 9:1 (27 to 3), which corresponds to an impedance reduction of 81:1. This would be ideal for an antenna with an impedance of ~4000 ohms. The black connector has a turns ratio of 6.75:1 (27 to 4), giving an impedance reduction of 45:1, ideal for an antenna impedance of ~2000 ohms. One of these options should be good enough for most configurations.

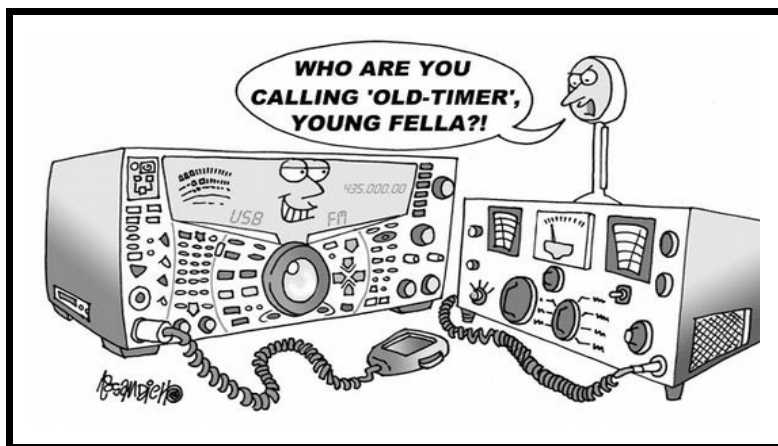
12. If you're still not able to get a good SWR, try adjusting the length of the counterpoise by adding and removing jumper wires, then repeat the previous two steps. When you've found a good length, you can replace the jumpers with a piece of antenna wire cut to the same length.

13. When you have your antenna tuned and working, put the tuner in a housing (like a Tupperware container).

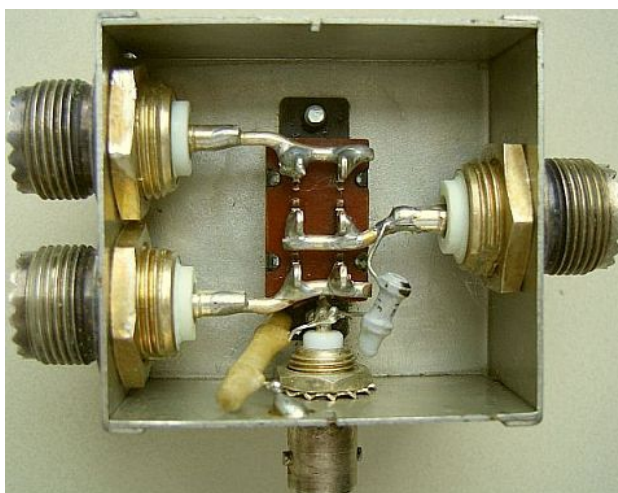
Setting up my antenna for 20m the first time took about half an hour, and I was able to get very close to 1:1 SWR using the 9:1 input with a vertical wire supported by a tree. Over the next hour or so, operating from a park bench in Brooklyn, using 5 watts on side-band, I made contact with stations in the US, Europe, South America, the Caribbean, and Hawaii. The furthest station was about 5000 miles away, which means I was getting 1000 miles per watt out of this setup. I'm sure it was a big **contest station** and not another **QRP** operator sitting on a park bench with a wire antenna, but it was still fun.



< < < Baofeng quick charger?



A Coax Switch



Cheap slide switch in a standard 54 × 50 × 26 mm box.

THE SWITCH

Fig » shows a proven inexpensive home-made antenna selection switch. If you question the use of a cheap slide switch and SO239 coax sockets, read on. Measurements in a physics lab showed there to be practically no reflection on HF and even on 70 cm the SWR was below 1.3 : 1! That is explained as follows:



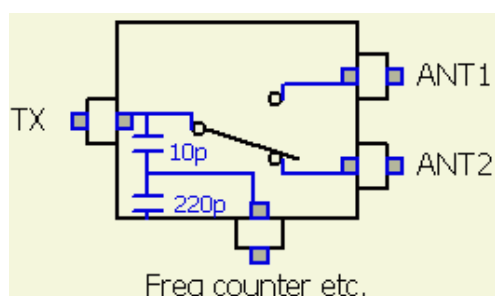
The contacts in the slide switch have larger contact surfaces than many a bought coaxial switch.

The wiring and switch contacts, between the top and bottom of the metal case, act as the centre conductor of a coax of near 50 Ω.

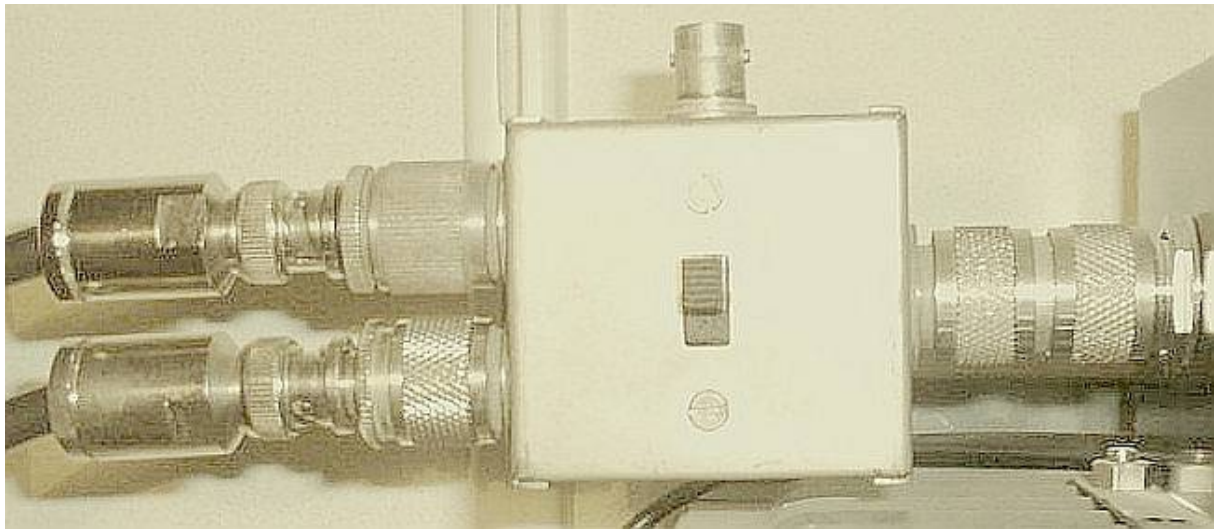
It is a standard box measuring 54 × 50 × 26 mm (l × w × h) and the wiring between the switch and the coax sockets is done in 2 mm silver plated wire.

POWER HANDLING CAPABILITY

If the switching is done with power off, the switch can stand 800 W. I have used this switch for more than 15 years and even with 1500 W there have been no problems.



While building this switch, you might as well add a test point, e.g. to connect a 'scope' or frequency counter. The capacitors of 10 and 220 pF make a capacitive voltage divider and the extra loading, 9.6 pF, does not affect performance on HF. In fact, on 10 m it improves the SWR as the extra capacity, in combination with the wiring it makes a filter which favours that frequency.



This shows how the switch is used in my station at PA0FRI



Coming next month: The Coke Loop

This space left intentionally blank for your contribution.

The Editor is working furiously to get the next issue ready for distribution.

Memories, photos, projects, general chit-chat, etc., would all be very welcome.

Send input to: robq4xom@outlook.com



YOUR COMMITTEE



PRESIDENT

Tim Childe

G7TAC

VICE PRESIDENT

Nick Moss

G6DQN

SECRETARY

John Clarke

M1EJG

TREASURER

John Scott

G8UAE

COMMITTEE MEMBERS

Wayne Mocroft

M5LLT

Geoff Cooper

G0KVK

Mark Cadman

M0TCG

Keith Dixon

M0HPY

Ross Lewis

M6RLZ

STARLITE EDITOR

Bob Egan

G4XOM

Email: robg4xom@outlook.com