

READING & DISTRICT AMATEUR RADIO CLUB

NEWSLETTER NOVEMBER 2004

Hi All,

As I am the club publicity officer and my name appears in the Rad Comm, I had a call earlier in the year, asking if we could help clear this chaps house of radio gear etc. I dropped an e-mail to the committee asking for respondees to help out. Chris being Chris took up the challenge! This is what he found.

Pete Milton G8FRC.

To Committee,

I HOPE YOU SEE THE FUNNY SIDE LIKE I DID

THE STORY

Being a doer not a talker I took the car to London (instead of the motorcycle) and dropped into West Drayton on the way home. I had no idea what I was letting myself in for. The 83 year old gentleman had a spare room full of junk. No order, no sorting, no room to move. I spent 3 hours walking up and down his stairs. We had to start at the door and work back. What took the time was looking at each thing in time to decide 'what it was' and 'whether it could go in my car'. After that we had to look through the pile of manuals and determine them. To read the inscriptions you had to blow the dust off first. It was an asomatic nightmare. Everything was covered. I was beginning to see the light at the end of the tunnel, when he said we had not started on the roof yet. My car springs were already down.

I missed my lunch and had no drink since morning. I investigated the attic and pulled some radios out. I left a load more home brew up there to rot. We had a cup of tea and a chat like old friends and I left. I was there over four hours total. The visit finished with a tour of his garage. I was filthy dirty and hungry.

THE LOOT

Basically there is nothing under 30 years old. It is all radio stuff but I doubt any of it works (he was a homebrew horder).

It is all covered in dust (but I do have the manuals, I tried to find the mains leads but that was a laugh). I think Robin should have gone instead of me (I found it hard to comprehend all the valve talk).

RECOMMENDATION

Robin should get round my house Thursday to inspect the junk (allow a few hours, I will lend you a damp cloth). It is a pity we have to wait a year until the next junk sale because there are boxes and boxes of switches, valves, caps, resistors, ATUs.... (none newer than 30 years remember and all dusty). There is no way I can store this lot, I would need a shed, the rigs are in the garage but the junk will have to live in the car until something can be worked out. Anyone is welcome to come and have an inspection (at no extra charge I could just drive round your house like a mobile library). I don't regret the day. I wish I had had some lunch and a drink first instead of trying to dash and get home early. After an hour and a half of sorting I went into a sort of trance until the

job was done. The tea at the end brought me back to life.

Hope you enjoyed the story Chris, M1CYE

Return to Ham Radio – G0JTN Chris Smith

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To all those hams that know me Hi. And to those who don't read on I am sure it will bring back some memories of your own entry into "Ham Radio".

G6ZAQ The Early Years

I started work as an apprentice electrician at AWRE Aldermaston and served 5 years before being let out on my own. A further 2 years saw me leaving Aldermaston bound for the university as a young newly married maintenance electrician.

My interest in ham radio was kicked off in the days of illegal AM/SSB CB radio. I had one of those COBRA 148 GTL DX radios that went all over the 11 metre band (literally sometimes with the Zegatti 100 watt so called linear amplifier that I used) and well into the 10 metre ham band...lunchtimes at the university were spent DX'ing from my Cortina MK 2 (which incidentally, I still have, but that's another story). With my "Firestick" on the roof I was able to talk to truckers and breakers in the US. Night time operation from my home in Tilehurst was always of the covert variety with the Silver Rod antenna being put up on the bracket each night in case "Busby visited. The neighbours never did work out where all the interference to their TV's was coming from.

It was at this time I met Taff G3XNI who I found one night at the top end of my Cobra 148s range on what was known as the naughty 40s or High-highs as they were called, I now know that this is the 10 metre CW amateur band. No wonder they didn't like me operating SSB on this part of the band. Taff invited me round (he lived about 100 yards away) to his shack to try and tame this wild CB'er who was infiltrating his band causing QRM all over the neighbourhood. We put up a bit of wire and contacted W stations with ease on 20metres. The bug bit and Taff and a couple of other local hams were soon running the RAE course for a group of us from the local CB club "The Biscuit Town Breakers. We all joined the Reading and District Amateur Radio Club over at the Black Horses in Emmer Green and the RSGB.

We all passed the RAE and in 1982, I was licensed as G6ZAQ and at the same time I had moved from Tilehurst to Earley. The next thing I needed was a 2-metre rig. Not wanting to do anything the easy way I set about building one. The CB rig was put up for sale, and at this time Wood and Douglas were

READING & DISTRICT AMATEUR RADIO CLUB NEWSLETTER NOVEMBER 2004

advertising their 2 meter synthesised kit in RADCOM. So with £25 cash in hand from the sale of the Cobra to a local CB user that didn't know any better (poor soul, perhaps he is now licensed) a visit was made to the factory at Aldermaston. The receiver was assembled over the next two months and the synthesiser set up. For two weeks I was amazed that I could actually hear real live hams on my radio with a bit of bell wire stretched out into a make shift dipole around the door frame of my shack. I later found these local lads to be members of the Arborfield net, transmitting from around the REME HQ. I was eager to talk to them so the next week was spent building the transmitter. Late one Friday night with the radio spread all over the bench in front of me I waited for a lull in the net and touched the two wires together (that was the PPT I didn't have a switch at that time). "Break" I called just as I had observed they did when they wanted to join the net. "Go ahead the breaker" came the reply. I was on the air.....

The next few years saw G0ZQA building QQ-VO-6-40 Amplifiers to get louder, beam aerials (metalwork, a chance to do more of my other hobby, details later) and then on to 2 metre SSB. About this time an addition to the family came along in the form of my daughter Wendy who as she got older loved to sit on dad's knee in the radio shack. Most Saturday mornings were spent talking to Jozef ON4ALO in Waregem Belgium on 144.250 using the 9-element home made antenna and a QQ-VO-6-40 valve amplifier, most of the bits stolen from Taff's old PYE Westminster during one of the visits to his shack. As luck would have it Taff had moved to Earley at the same time as we did so he was always on hand to offer advice when needed. The prime mover in the ZAQ shack at this time was an old Belcom Liner 2, just sold recently to Tom G0VQR at the last junk sale. Look after it, as that is a rare piece of ZAQ history mate!

The next local ham friend I met up with was Peter G6ZYT then (now G0PUB). He lived further down Silverdale Road and was going off to Brunell University to study computing. We kept in touch from his room at Brunell to the ZAQ shack on 70 cms and we even used to have our own calling channel 439.000. We always attribute ourselves as being some of the first people to send computer data over the air. When Peter was home we were again only about 100 metres apart, and using our BBC micros found that if we connected the TV antennas on the roof of the houses to the UHF modulator outputs on the back of the BBC's we could send 1K screen dumps to each other. We then started to do this over 2 metres and carried on having fun, until one day after having been on holiday for two weeks only to be told by a very irate local amateur (not Taff this time) that the frequency we were on was now reserved for some new mode called packet radio and it was only for sending data on...

1985 saw me leaving the University to work for a company called Sondex. This company manufactures Oilwell logging tools to monitor pressure and temperature and all sort of things down the holes that they have drilled. (Vin G4JTR knows about this sort of thing if you need to ask).

I was now working as a mechanical engineer (Production Manager) (you may remember I started in the electrical industry as an electrician) so hey, I have always been interested in engineering, especially steam and anything to do with it. Many years before, about the time I was licensed as G6ZQA I started building an 0-6-0 Caladonian Dock Tank Engine in 3.5 inch gauge. The loco is coal fired and will pull 3 adults when completed. I had my own machine shop at home in the other end of the garage, equipped with an old lathe and drilling machine and bench. Moving to Sondex brought many bonuses not only financial, I was put in charge of the purchasing of all the machine tools and running the workshop. This meant trips to auctions to buy machines and time after work to use the machinery that was much better than mine at home. Progress on the loco leapt ahead, but the amateur radio suffered.

Towards the end of my stay at Sondex I was completing a small lunchtime project, a Morse key, or more accurately a clone of Taff's old Post Office No 8A, when I was approached by a new face in the factory. "What you making lad" said the stranger. "Normans the name" "I used to use one of them in the RAF. Norman it transpired was an ex RAF radio operator who last used a key 25 years ago. "Does it work he asked" "well it should" I replied. Thereafter every lunchtime was spent with Norman sat reading the paper, eating his sandwiches, sending Morse as 20 WPM. I on the other hand was struggling to copy the odd word. Norman seemed to think this was all dull stuff and had problems keeping the speed below 30 WPM most of the time. Gradually my speed went up and I sat the 12 WPM Morse test under the watchful eyes of Eric G3PGM now sadly silent key.

G0JTN The Early Years

This new skill meant I received my amateur Radio Certificate from the Department of Trade and Industry and along with it a brand new G0JTN call sign. I was now on HF and active on 20 metres when ever I could, completing one logbook in the first year.

The stay at Sondex was suddenly cut short by an offer to return to the University, but this time as part of the management team running the Engineering Maintenance Section. Another addition to the family and an extensive refurbishment project on the house including the building of an extension rather curtailed the G0JTN lifestyle. Ham radio and model engineering had to take a back seat for a few years. The shack and work shop were demolished to make way for the new kitchen. The shack moved to the loft and the contents of the workshop to a lock up garage back at my mother's in Tilehurst for 2 years.

Although the shack was operational in its basic form very little operation actually took place. Attendance of RADARC meetings had been impossible as Linda was out on Thursdays at aerobics and so membership lapsed. At this time I started talking to Tom Cannon a "Modern CB'er" working in the carpentry section at the university. Engineers don't normally

READING & DISTRICT AMATEUR RADIO CLUB NEWSLETTER NOVEMBER 2004

talk to builders so this was considered novel, especially about technical things like radio. He was interested in CB radio and wanted to do more. He booked himself on an RAE course and well you know the story....the CW contest king.

G0JTN - Present

Last year Tom G0VQR came into my office one morning and said that he had just brought a 4-metre rig from the club. My thoughts went lovingly back to my old Low Band PYE Olympic and the heap of PF1, 5, and 7 hand portables I had returned and modified over those active ZAQ/JTN years. "Twenty quid I paid for it", Tom said "and they're twenty-five for non-members". "I'll have one, can you get it for me please" I said. The bug was back, I had been bitten again! But again it wasn't a brand new FT1000 rig it was an old ASCOM rig that did it.

A visit to Vin G4JTR whom I hadn't seen for 10 years or more produced a nice modern PMR ASCOM with lots of buttons on the front to play with freshly tuned up by Dennis G4KWT. Vin also showed me his slide copier he had made for the digital camera. This was extremely interesting as I was just trying to copy 2000 slides myself. We spent the rest of the evening talking about digital photography and Vin gave me a tour of his shack.

I now needed an aerial for 4 meters. All the VHF antenna arrays, rotators and verticals that used to look like a porcupine at the G0JTN QTH had long been taken down. The old ex-ministry 10 metre high lattice tower at the bottom of the garden was now just an anchor point for the last remaining antenna the half size G5RV. Coincidentally at this time the university had just decommissioned it's low band PMR set and I noticed the antenna was being taken down. Negotiations with the contractor and the offer of the price of a pint produced a 5/8 wave low band vertical pole and a complete roll of new coax which Tom and I carried back to the workshop along with some strange comments from the students about our choice of fishing gear.. The frequency range was 72 - 86 megs just what I needed and it would give a bit of gain, useful as the coax run to the tower is over 35 metres. The weekend was spent pulling the coax through the ducting under the lawn and bolting the antenna to the tower stub mast. SWR checks showed the SWR as 1.5:1 across the 4 metre band.

Tom also indicated that there was a RADARC club junk sale on next Thursday and was I going to come along. Thoughts of PYE Olympics and Westminster's flooded back. This seemed a good time to rejoin and renew my membership with RADARC, especially as Robin informed me that it would be cheaper if I bought some junk if I was a member. Money paid up, I ended up bringing a box of junk away with me to fill the G0JTN shack.

The next few weeks saw me coming up on the club 4 metre net on Tuesday evenings chaired by Vin G4JTR. I had now started to realise how much amateur radio had changed over the past 5 years. Most people seemed to have computers in

their shacks and when you spoke to them they knew who you were, name address and even your picture. A quick check on the Internet revealed QRZ.com and a logging program called XM log. My personal page was quickly updated and a CD Rom ordered, new QSL cards printed by the QSL factory, ordered on line from Dave who was extremely helpful.

I have since spent 3 weeks typing all my G0JTN logbooks into the XM log program. This is where not being very active for all those years paid off, only 1350 contacts to enter. This has now been uploaded to eQSL.cc and now I am enjoying electronic QSLing with cards popping up from back as far as 1988. I now just upload the log once a week and an email tells me when there are cards to collect. I still use the RSGB bureau as well and new supplies of stamped addressed envelopes have been sent to my QSL manager.

Minor changes to the operating equipment have taken place. An FL2100 linear has been purchased along with a new power supply and ATU. The rig is still the trusty FT-707 at the moment but who knows what Father Christmas might bring in his sack to the G0JTN shack. The half size G5RV has been replaced with a full size one giving much better signals.

I am now enjoying my renewed interest in the hobby, and try to spend at least some time checking the DX each evening when I can.

I would like to thank all of you who encouraged me to get back on the air after a long break, especially Tom G0VQR and James G8XML. Thanks also go to others G0CCC, G8DOR, G4JTR and especially Ian G8NXJ to who helped me with radio tests whilst tuning up the PYE PF1's all those years ago.

What next....well whilst we were at the club presentation on Tesla coils James and I hatched out this plan (on paper, don't worry James I won't show them the drawing) for a small Tesla coil of our own. Many hours of head scratching have already taken place. Parts are being made in my machine shop and in James's shack. Ian G8NXJ has found us a big and I mean BIG triode valve 5KW I think and a transformer for the heaters, 40A @ 6 volts. James has raided the local tip for microwave ovens to get the transformers and Tesco for large quantities of plastic chopping boards. I have spent many hours in the workshop on the lathe and the mill making the valve base and anode cooler from 4 inch diameter aluminium.

It is hoped we can soon give the club a demonstration of the wonders of 5 million volt sparks. I think it will be very impressive to see it working.

What of the railway engine you may ask... well if there is enough interest I will bring it along to the club one evening for you all to see. Rob Roy is his name, but that's another story...

If you have any similar experiences in "Ham Radio" please tell us about it, I am sure the other club members would love to hear about it.

READING & DISTRICT AMATEUR RADIO CLUB NEWSLETTER NOVEMBER 2004



Making a 4 Metre Magnetic Mount Whip from an old CB Aerial

Having volunteered to attend the Christian Aid Walk, I was interested to note that there was going to be a backup/netter channel on 4 Metres as well as the usual 2 Metre operation. Like a lot of other club members, I am the proud owner of an Ascom Se550 transceiver – thanks to Denis, Vin and others.

I decided that I would take my Ascom along and join the 4 Metre action, however, I did not have a suitable antenna. I did a quick survey of my junk box and saw that I had a couple of old CB antennas, which could be modified. I also found an old magnetic mount base.

So, first some metal work was needed to mount the CB whip antenna on the magnetic mount base; some years ago I had modified the CB magnetic mount base to have a SO259 socket in place of the original bayonet fitting. So after some drilling, filing and tapping I managed to connect the base of an old 2M antenna PL259 screw base to the CB antenna. I had wrecked the 2 Metre antenna driving into a car park height barrier (forgot to take antenna off!!!!)

I tried to make use of the existing length of the CB antenna and the loading coil by adjusting the loading coil turns. The original CB antenna had 30 turns.

I initially halved the number of turns and tested the SWR using an SWR meter and the ASCOM. After about an hour of trials with various numbers of turns I gave up, as I could not make it resonate properly in the 4 metre band.

So, I then decided to make it a quarter wave antenna and forget about the loading coil.

Now a quarter wave antenna at 4 metres needs to be approximately a quarter of the wavelength.

First we need to work out the wavelength at 4 metres – it is obvious really as the 4 metre band clearly should have a wavelength of 4 metres!!

So the calculation is:

$$\text{Length} = \text{Speed of Light} / \text{Frequency}$$

I can never remember the speed of light, but I can remember that Radio 4 long wave used to be on 1500 metres, which was 200 KHz (Radio 4 long wave is now on 198 KHz since they moved to 9 KHz channel spacing in Europe). So if you multiply 1500 by 200,000 you get the speed of light!

So, the approx length is:

$$\text{Length} = (1500 \times 200,000) / 70,000,000 = 4.285 \text{ metres.}$$

Our antenna needs to be one quarter of this:

$$\text{Antenna Length} = 4.285 / 4 = 1.071 \text{ metres.}$$

Now, the nice thing about the old CB antenna is that you could adjust the length of the antenna easily. The vertical whip part is fixed in a hole in the loading coil part and was held by a screw. If you undo the screw the antenna can be moved up and down by about 100 mm.

I cut the whip part of the antenna such that the height of the antenna including the magnetic mount base and loading coil was 1.05 metres. This allowed an adjustment of ± 50 mm. I then removed the loading coil from the CB antenna and replaced it with some thick tinned copper wire (this becomes part of the antenna).

I then did some further SWR experiments and found that it resonated perfectly in the 4 metre band. Note that you should always carry out the SWR test with the antenna mounted in the final position – e.g. in my case on the car roof. I found that adjusting to antenna length to 1.075 meters gave me an SWR of 1:1 over the entire band (70.00 to 70.50 megs)

READING & DISTRICT AMATEUR RADIO CLUB NEWSLETTER NOVEMBER 2004

I also used a ferrite clamp on the cable to reduce any RF on the outside of the coaxial cable braid – I think this is probable superfluous.

I was surprised that the SWR was so flat, but the band is 500 KHz wide and this represents a small percentage frequency change at this frequency. We can work it out as follows:

1% of 70,000,000 Hz = $70,000,000 / 100 = 700,000$ Hz or 700 KHz

So, the 500 KHz is less than 1% frequency change.

Contrast this to the 3.5 MHz band.

The 3.5 MHz band is $(3,800,000 - 3,500,000) = 300,000$ Hz or 300 KHz wide
e.g. less than half the width of the 70 MHz band.

But if we express this as a percentage we see a different story (using the band centre frequency of 3,650,000 Hertz)

1% of 3,650,000 = $(3,650,000 / 100) = 36,500$ Hz or 36.5 KHz

So, the frequency change across of the band expressed as a percentage of the band centre frequency is:

$$300,000 / 36,500 = 8.2\%$$

So, this is why we have to retune our ATU when we move across the band.

(Note the “Virgin Records” polythene bag to prevent scratching the paintwork and that the CB loading coil turns have been removed)

So, did it work in a QSO?

I had a test QSO with Tom G0VQR, I was in Whitchurch Hill, and Tom was in Woodley and gave me the thumbs up. It would appear that the antenna worked fine. Thanks to Tom for helping out.

So, you can convert that old CB Mag Mount antenna into a useful 4 Metre antenna in a few hours.

73's de Jim - G0LHZ

Photographs as follows:-

Picture of un-modified antenna, this page top.

Picture of un-modified loading coil, this page bottom.

Picture of the Finished Antenna in the SWR Test Position, page 6 left.

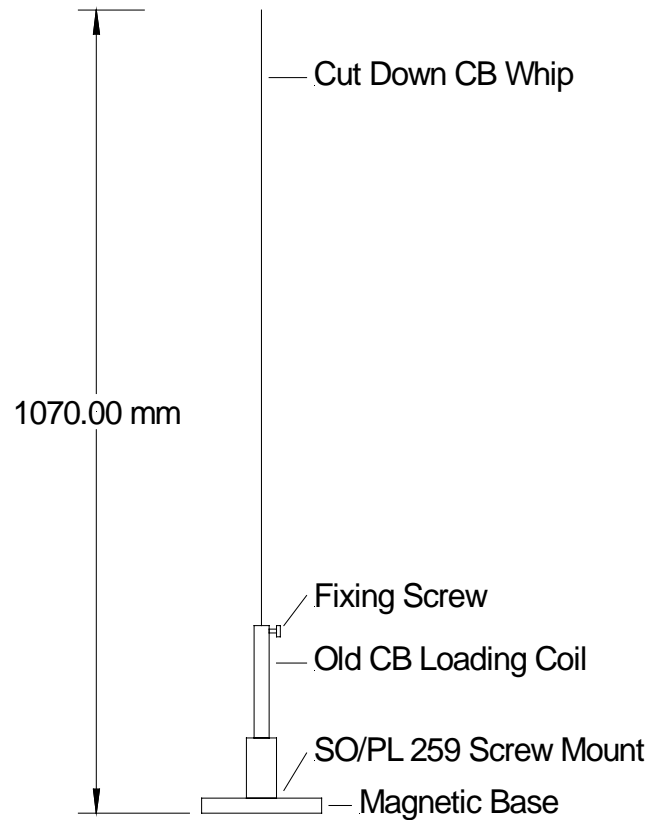
Antenna Dimensions, page 6 right.

Appologies for pictures being strange size and shape, hope it doesn't detract from the quality of Jims original article!

Pete g8frc



READING & DISTRICT AMATEUR RADIO CLUB
NEWSLETTER NOVEMBER 2004



CLUB MEETINGS

As you are probably aware the club reverted to 2 meetings per month for the autumnal/early winter period

Meetings held 2nd and 4th Thursday in each month except December. Coming attractions:-

14th October,
70th Anniversary, early days of wireless.

28th October,
Construction Contest.

11th November,
History of Wood & Douglas.

25th November,
BBC monitoring, Caversham.

9th December, AGM

The tea room at Woodford Park is booked for 2 monthly meetings for January through March. Currently April onwards will revert to 1 meeting per month. What did you think of this meeting programme? Of course you can voice your opinion to a committee member at any time, however the AGM is coming up shortly so get your comments in then.

**READING & DISTRICT AMATEUR RADIO CLUB
NEWSLETTER NOVEMBER 2004**

NEW FOUNDATION LICENCES

Following the first Foundation Licence Course being undertaken by RADARC, there are two new licences M3HKJ and M3HKL, Jim and Peter Baddo. As part of the inducement RADARC offers a free 1 year club membership on successful completion of the course and obtaining an M3 licence. Congratulations both, now's the time to put it all into practice! Work the "Dog X-Ray".

Another course soon to start in November will be underway shortly. Anybody interested or know of other people interested should contact Harry Hogg G3NGX, 01491 872919 or contact any Committee member via the web site www.radarc.org.

CONTEST COMPETITION

A very good turn out this year and some interesting gear. 10GHz, APRS, PIC application, HF homebrew transceiver, 2 off HF kit transceivers, Headphones (homebrew!) and replica Baird radio receiver designed to drive a 30 line televisor. The audience could award 4 points for their 1st choice, 3 points for 2nd choice 2 points for 3rd choice and 1 point for 4th choice. Hence there was 1st 2nd 3rd and 4th place.

In joint 1st place was:-

Colin Boys, G8BCO, 10GHz transceivers.
Mike Naylor, G4CDF, HF homebrew transceiver.

3rd place:-
Dave Honey, M0DHO., K2 HF transceiver kit.

4th place:-
Denis Pibworth, G4KWT, APRS, GPS linking to VHF transceiver position reporting system.

FINALLY

As you are all probably aware the club AGM is scheduled for Thursday 9th December 2004 and nominations are invited for committee membership, preferably in writing or e-mail to the Secretary, Chris M1CYE. Maybe you are interested in volunteering yourself, don't be shy put your name forward!

FINALLY FINALLY

What was last moisture and fungus proofed in September 1944, just over 60 years ago?

FINALLY FINALLY FINALLY

I need some more articles for the next edition, also let me know what you think. If you have any pictures, could you make them fit in one column width please.

PS

Sorry it's been so long in coming.....

73's Pete de g8frc. Is that in the right order?