



# March Meeting Report

## “Flying - Past and Present”

Terry, G4CDY, and Martin, G4FKK jointly presented the “G6MFM Memorial Lecture”, in memory of Derek Hills. The talk was attended by Derek’s sisters (Mary and Sheila) and niece Lucy, together with 15 CATS members and other guests.



Some of the audience (G8NNT photo)

The Terry and Martin show was both interesting and entertaining, with many anecdotes, of technical or human interest – once or twice taking on a pantomime-like “he’s behind you” air. One of Terry’s stories related to a return flight to Biggin Hill shortly before the annual air show. As Terry entered the approach pattern, the Tower confirmed that he was number 3 “behind the Spitfire and Hurricane” – a memorable moment for him.



Terry, G4CDY (G8NNT photo)

Terry’s talk covered his flying experiences, starting with gliding at Kenley, more gliding at Manchester and then flying lessons from Biggin. As his skills developed, his confidence grew and it wasn’t long before he was flying circuits solo. However, the most critical moment for him came when he flew solo away from the airfield and its relatively safe environment for the first time.

Year’s later, while visiting the Kennedy Space Centre in Florida, USA, he was introduced to the Apollo 8 astronaut, James Lovell. Over lunch, Mr Lovell described his experiences as commander of the first astronaut crew ever to leave earth orbit, when they fired their engine in a manoeuvre called “Trans Lunar Injection” or TLI to set course for the moon. Terry pointed out the similarity between that moment and the first time that a pilot flies solo away from his home airfield. Mr Lovell thought a moment and then replied, “Gee, you’re absolutely right – I never realised that before!”

After a break for refreshments, it was Martin’s turn.

Martin showed a video of an actual landing of his at Biggin, followed by a live and successful demonstration of the same landing using Microsoft Flight Simulator. He showed us aeronautical maps of scales 1:250,000 and 1:500,000, all of which contained a bewildering amount of information. He explained about no-go zones, flight plans, navigational beacons, and how he used GPS to maintain “situational awareness.”



Martin, G4FKK

Martin clearly enjoys the freedom of the air and although gaining his licence cost around £6,500 overall, it was well worth it as it had enabled him to supervise his 13 year-old son Alan piloting an aircraft – something that would have been illegal in a motor vehicle.

His training programme had in many ways followed a similar path to Terry's - often from the same airfield or in the same aircraft type. Both had found the knowledge of R/T procedures gained from amateur radio to be highly beneficial, and both had at some stage made the error of inadvertently using their amateur callsigns instead of their aeronautical ones. However, it was Martin who once went somewhat further by giving out his amateur callsign whilst presenting a programme on Jazz FM!

But Martin had also had a "he's behind you" moment – except that in his case the Spitfire was *behind* him when coming in to land at Biggin. The Tower told him to expedite his landing because the Spitfire was in danger of catching up with his aircraft which was pottering along at a mere 70 knots!

Overall, it was a thoroughly worthwhile evening, enjoyed by all.

*Andy, G8JAC, also announced that the Society had agreed to buy a trophy to be awarded to the winner of our annual direction finding (DF) hunt. Derek Hills was an enthusiastic and skilful DF'er and the trophy would be suitably engraved in his memory.*

## Membership Matters

**New Members:** We are pleased to welcome new member David, G6VMI, and to announce that Laurence Howell, G4DMA, has rejoined CATS. Other callsigns Laurence has used include: GM4DMA, VP8SB (Adelaide Island), KL1X and 9V1LF. He is currently operating from Costa Rica with the call TI3/KL1X.

**Subscriptions:** Just a gentle reminder that if you haven't paid your subscription yet Derek G1PGS is looking forward to hearing from you.

**Cats Fleeces:** Stuart, G6CJR, expects that these will cost no more than £25.00. To help him assess the likely demand, please contact him direct.

## CATS April Meeting

Our next meeting is a talk on DVB-T2 (Digital Video Broadcasting – Second Generation Terrestrial) and DRM (Digital Radio Mondiale) by Ollie Haffenden (ex-G0PVA), from the BBC's

Kingswood Warren Laboratories and is on 6<sup>th</sup> April to avoid clashing with Easter Monday.

Ollie writes, "Our current work is concentrated on DVB-T2, the next generation Digital Terrestrial TV system which will bring HDTV to the "Freeview" platform. On the DRM side I hope to bring some things to demonstrate, possibly including a real-time internet-based monitoring network that we have developed."

## CATS May Meeting

The plan is for this to be a DF hunt – albeit somewhat earlier in the year than last year's hunt which was in June. The event takes place on May 11<sup>th</sup>. Other details are being finalised.

## CATS June Meeting

The subject of the meeting on June 8<sup>th</sup> will be a talk by Jan Verduyn G0BBL entitled "Software Defined Radio." Jan has spoken widely on this topic at other clubs including those at Swindon and District, Trowbridge, and Yeovil and at the Kempton Park Rally in September 2008.

## Guides' World Thinking Day February 21st 2009



This year's event (previously called "Thinking Day On the Air") was supported by CATS members Dennis (M0NDJ), Jim (G4WYJ), Steve (G3WZK) and junior op Richard, and Stuart (G6CJR) and by S&CRS members Martin (M1MRB) and Tim (2E0TTA). Aerial erection began just after 8:00 on a pleasant, sunny, Saturday morning. It was cold – but not as frosty as in 2008 and the rigging crew were sustained then, and throughout the day, by a constant supply of hot drinks from the guide leaders.

As the guides began to arrive, we managed a test QSO on 20m with LY (Lithuania) after which activity concentrated on trying to contact other TDOTA stations in Alton, Liphook and Orpington.



Antenna Farm (Photo courtesy of G4WYJ)

There were two sectional masts: the smaller carried a tri-band collinear that was used mainly on 144 MHz, while the taller carried a 95 metre longwire antenna and provided QSOs on 80m, 40m and 20m. It was tuned against a counterpoise system. Although an earth spike could probably have been used, it would need to have been a shallow one as the site is directly over the Croydon Tramlink tunnel and quite close to the northern tunnel portal.

We had hoped to include photos of the guides on radios – but did not have parental clearance for this at the time of going to press so instead you're just going to have to look at more hams sitting in front of radios, again courtesy of Jim:



Tim, 2E0TTA (l) and Denis, M0NDJ (r)  
(Photo courtesy of G4WYJ)



Stuart G6CJR (l) and Steve G3WZK (r)  
(Photo courtesy of G4WYJ)

All the guides passed greetings messages but their activities were not limited to radio: they also made shelters in the centre's grounds, constructed "dream catchers" and were interviewed about the day by Martin, M1MRB's for his ICQ podcast. Visit <http://icqpodcast.com/index.php> to hear the results.

For more information on World Thinking Day, visit:

<http://www.guides-on-the-air.co.uk/>

## **Transponder Net**

*Or Letter From America...*

Mark, W6MW writes, "We had a record number of participants in this month's Transponder Net, perhaps due to the lack of contact last month. Thanks to all for getting involved. The CATS group was up on the ridge working Field Day and the CVRC members had just left their monthly Club Breakfast. Participants from the US included:

KD6TAV/Portable – Ed, AD6RJ/Portable – Ray  
AD6IZ/Mobile – Larry, K6POI/Portable – Tim  
KE6MMU – Leah, KE6URZ – Jim  
KE6ZRP – Mark, W6MW - Mark

"From the UK:

G8JAC/Portable – Andy, 2E0JXN/Mobile – Paul,  
G3ZMF/Portable – Frank, G4CDY – Terry

"Our next Net will be on April 4 at 9:15AM Pacific Time / 17:15 London Time. Please join us!"

73 de Mark

## Las Vacaciones De Miguel

Yes - Mike, G8AAI, is brushing up his Spanish for his forthcoming holiday at Los Gallardos, near Almeria in southern Spain. He will be there from Tuesday 28th April to Thursday 14th May 2009 and won't be neglecting the hobby while away. Mike plans to operate on 20 metres using the callsign EA7/G3OPB on a preferred frequency of 14.163 MHz  $\pm$  QRM with expected operating times around 10:30 or 14:30 BST. If you hear him, please do give him a call – but don't worry about speaking Spanish – Mike assures that all QSOs will be in English!

## URGENT: Kempton Park Rally 2009

A reminder that volunteers are urgently needed to help out on the CATS Bring and Buy stall at Kempton on Sunday April 19<sup>th</sup> – and gain free entry and early entry to the rally in the process. Please contact G8JAC if available at [secretary@catsradio.org](mailto:secretary@catsradio.org)

A further rally is planned for Sept 27<sup>th</sup> 2009.

## Brass Monkeys Contest

This event, the earliest in the CATS contest year, was always going to be a struggle, relying as it does on a dedicated band of operators sitting it out in often very wintry conditions. The exposed site (Nore Hill in Warlingham, Surrey) may well be a good one for VHF and UHF propagation, but boy does it catch the wind and this year was no exception!

So you have to be a bit mad to want to participate in this contest – a fact which Frank, G3ZMF, readily admits. Other operators this year included the CATS Contest Secretary, Andy G0KZT, Andy G8JAC and Paul 2E0JXN.

Support for antenna and tent erection, dismantling and transport, was kindly provided by Adam G7CRQ, Len G0GNQ, Ian M3IGP, Glenn G4FVL, Steve G3WZK with junior op Richard and Martin M6MAR.

Visitors to the site included Nick M0NAT with an SWL friend and ex-CATS member Cliff Groves G6FPQ. Cliff happened to be driving past and saw the tent and mast being erected. He now lives in deepest Sussex.



The complete CATS contest station

Although busy, CATS members on the site were still able to participate on the Saturday in the Transponder Net with the Crescenta Valley Radio Society in California at 17:15 and the Home Counties 10 m net at 21:00. On the Sunday, members joined the SRCC160 m net at 09:30 and the CATS 2 m net at 11:00.



The March 2009 site – during one of the calmer and sunnier moments

During the night it was extremely windy. Nevertheless, Frank G3ZMF struggled valiantly to increase the QSO rate on 432 MHz and achieved an admirable total of 22 out of the 24 hours continuously on the band.



Despite operating in the contest for 22 out of 24 hours, Frank G3ZMF, can't resist checking that GB3NS is still on air



Andy, G0KZT, on the 70 cm station

Kit used included an FT736R, two TS2000s. On 2m, we used a 160 watt linear but sadly this failed during the contest. The antenna farm consisted of 2x 20 element yagis for 70 cm and a single 13 element yagi for 2m. The 70 cm antenna used a new rotator, recently purchased by Stuart, G6CJR. It rotated the entire mast and antenna assembly. Guys were attached using a non-rotating adaptor. The new rotator performed admirably and quickly – always an asset in contest conditions. There was also a dual band 2 m/ 70 cm collinear mounted on a smaller mast.



Paul, 2E0JXN on the 2 metre station



The rotator used for the 70 cm antenna

The best DX overall was on two metres with a station in IN52 square (NW Spain.) Best DX on 70 cm was in JO32 square (Netherlands). Other countries worked during the contest included Belgium, France, Germany, Scotland and Wales. Overall we managed 105 QSOs on 2 metres and 48 on 70 cm. By comparison, last year we achieved 66 and 20 point-scoring QSOs respectively on the two bands, so allowing for some QSOs to be discounted during adjudication, it looks as though we should do a bit better this time.

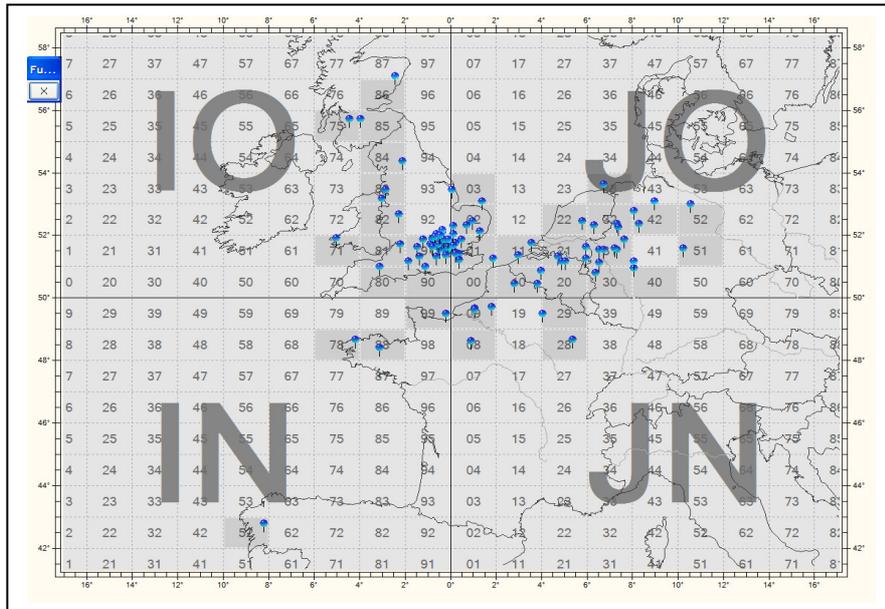
The QSO rate slowed down towards the end, and when the generator ran out of petrol with 20 minutes to go it was decided to dismantle the stations immediately. This proved to be a very wise decision as the weather then deteriorated dramatically. A sunny but cold afternoon rapidly turned into a storm, with rain, sleet and a ferociously cold biting wind. Finally, everything had been packed away and the CATS convoy began its retreat from the field. As it did so, the heavens opened with a short-lived torrential rain and hail storm. We had made it out just in time!

A detailed report by the CATS Contest Secretary, Andy G0KZT follows.

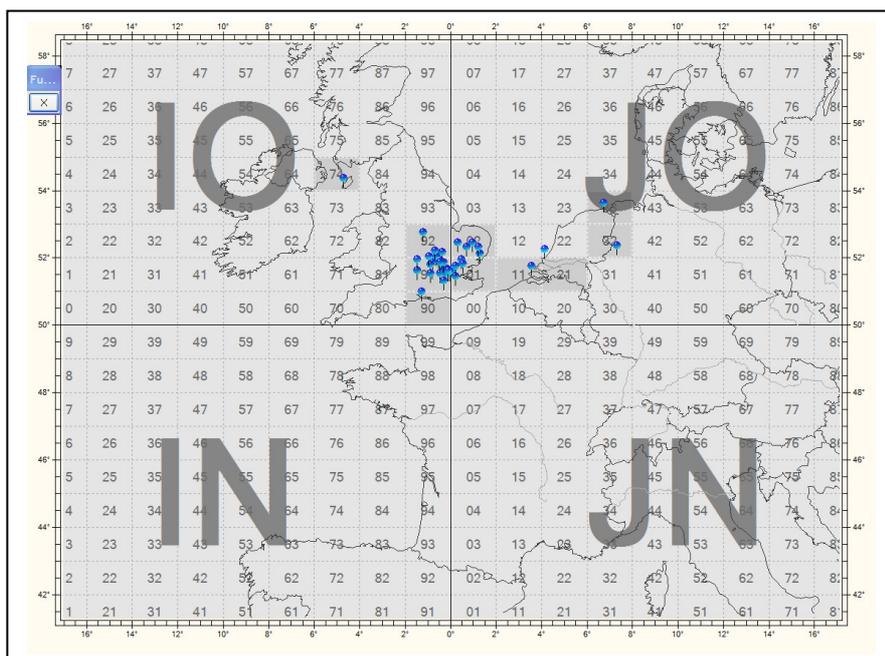
# March 144 & 432 MHz Contest – Classified Results

I would firstly like to express my apologies for not being able to attend the site for the bulk of the duration. After stirring you all up and, I'm pleased to say, mustering some members to brave the elements, I was scuppered by my employer making me work on the Saturday from 3.30pm until 3.30am on the Sunday! The logs have been checked for any glaring errors and have been submitted for adjudication.

**144 MHz:** Operated by Andy G8JAC, Paul 2E0JXN and Frank G3ZMF (in the small hours). Small hiccup with the amplifier that left the station running at just 25 watts (from 200 watts) for a period of time until the reserve Kenwood TS-2000 was put in place giving us 100 watts. A total of 105 contacts and the total combined distance was 23973 km (1 point per km and no multipliers) with our best DX with EE1URO in IN52VM, 1156 km. Station plot below:



**432 MHz:** Operated almost exclusively by Frank G3ZMF with a small token effort by yours truly in the last hour. Frank's Kenwood TS-2000 stood up to the task for the whole period running its maximum power of 50 watts. A total of 48 contacts and the total combined distance was 4111 (1 point per km and no multipliers) with our best DX with DF0MU in JO32PC, 513 km. Station plot below



# QSO Rate Analysis

	144 MHz				432 MHz		
	QSOs	Mults	Points		QSOs	Mults	Points
14:00 – 14:59	10	0	2468		2	0	115
15:00 – 15:59	11	0	2613		5	0	207
16:00 – 16:59	5	0	1794		0	0	0
17:00 – 17:59	1	0	513		0	0	0
18:00 - 18:59	6	0	1933		3	0	123
19:00 - 19:59	6	0	1938		7	0	281
20:00 - 20:59	4	0	687		3	0	218
21:00 - 21:59	5	0	1582		2	0	24
22:00 - 22:59	5	0	1102		5	0	1396
23:00 - 23:59	4	0	1002		1	0	12
00:00 - 00:59	4	0	917		1	0	249
01:00 - 01:59	0	0	0		0	0	0
02:00 - 02:59	0	0	0		0	0	0
03:00 - 03:59	1	0	532		0	0	0
04:00 - 04:49	0	0	0		0	0	0
05:00 - 05:59	3	0	195		0	0	0
06:00 - 06:59	0	0	0		0	0	0
07:00 - 07:59	8	0	1232		0	0	0
08:00 - 08:59	11	0	1968		3	0	275
09:00 - 09:59	5	0	1362		4	0	148
10:00 - 10:59	7	0	1154		7	0	404
11:00 - 11:59	4	0	107		2	0	475
12:00 - 12:59	4	0	738		2	0	159
13:00 - 13:59	1	0	136		1	0	25

**Overview:** Despite the weather and the expectant winds and low temperatures, I was pleased to see club members turning out. However, without the stalwarts, namely Andy G8JAC, Paul 2E0JXN and Frank G3ZMF, we could never even consider taking part. In addition, Len G0GNQ and Ian M3IGP, while not operating the station, still remained on site for the 24 hour period and provided a much needed supporting role. With the mix and match of both club and personal equipment, we were able to be relatively competitive. Our areas of weakness are mainly down to the lack of willing operators to keep the stations on the air continuously for the 24 hour period. For those quiet periods (see above), auto-callers would come into their own and give a much need break from repetitive “CQ” calling. As the results were submitted, I took a sneaky peak at the submitted/claimed scores and we don’t appear to have done too badly. We’ll have to wait and see what the final results are. For more photos, see the CATS website.

Comment, suggestions, criticisms etc are all welcome!

73 de Andy G0KZT

## **CATS Tours: My Trip** **Around the World by Prue** **G4RWW: Part 1 – G to ZL**

Prue, G4RWW, writes: "Monday, 2 February 2009: I woke up to 20cms of snow. No buses, no trams, no trains, no underground, no cabs, no mini-cabs. Disaster – no Heathrow! I spent a lot of time on the telephone re-scheduling my flights to 9V-land and ZL4.



Snow in Prue's Garden

"I spent the next morning shovelling a path from my front door to the pavement while waiting for confirmation of a flight with Singapore Airlines. This came through just before noon and I then had to leave home rather quickly. With plastic bags over my shoes, held in place with rubber bands, I began my adventure, walking cautiously in the road to the bus stop for East Croydon where I needed to catch the X26 bus to Heathrow. The tramlines were invisible so no wonder the trams were unable to run. Fortunately the X26 arrived exactly on time, so I was pleased I hadn't dawdled at home or I would have missed it. Once on the bus, all I had to do was get off at Heathrow. There was no sign of any snow at the airport, so I quickly took off my 'snow boots'.

"When I waited in the queue I soon realised many other passengers had been delayed by the bad weather - but from then on things started to get better. The flight to Changi Airport in Singapore took twelve hours, leaving me with four hours to look around.

"I went into the Butterfly Gardens and took some photographs (see below) and duly wandered around the airport building. It is a very colourful airport. I sat for a while alongside a marble pool and watched the koi fish swimming around. It was just as well there was plenty to do as my ongoing flight was delayed for a number of factors including the late arrival

of another flight from Heathrow. Overall, rather a long wait for my connection.



Butterflies at Changi Airport

"The flight to Christchurch was comfortable. I had a window seat by the exit so had plenty of legroom and arrived at 10:45hrs. What a wonderful approach flying over snow-capped mountains. Spectacular! I went through Customs all right and then on to New Zealand Airlines Customer Services Department to deal with my out-of-date ticket. There was no problem – I was on their computer. The lady I was speaking to also undertook to contact my friend in Alexandra to let her know I would be arriving that day. What a nice friendly welcome to New Zealand and it continued throughout my stay!

"I left Christchurch at 14:30hrs on Thursday, 5 February 2009 and flew to Queenstown on a little prop 'plane with tea or coffee and water served during the journey that only took approximately one hour. When I walked off the aircraft I looked to the windows of the airport building and there was my friend Pat looking for me. I also met Pat's friend and neighbour, Mary. Pat had received the telephone call from Air New Zealand in Christchurch - so it all worked out well in the end. There was no snow, only warm sunshine. The drive to Alexandra was just what the doctor ordered and I was delighted to be back down under after so many years.

"Many years ago Ron, G6LX, had been invited to visit Australia on business and in the run up to that occasion he had contacts with his radio amateur friends there so that we could meet up with them whilst in the country. During one of these QSOs Lloyd, ZL4BC, called in to say that we should not return home until we had visited New Zealand as well and he duly invited us to meet him and his wife Pat. Way back then we both had such a happy time together and we

have kept in touch on a regular basis. Sadly Lloyd, then Ron, became silent keys, but Pat still kept in touch with me exchanging letters over the years. In every letter I read from her there was always an invitation to visit New Zealand and now I have done just that. Another milestone was reached for both of us.

“The days just went by so quickly. We went to several different places, met many of Pat’s friends. On one sight-seeing trip we went high up the mountains overlooking Alexandra where we met a couple who were doing what we were doing – looking at the sky showing the smoke from the fires in Australia. It was 33 degrees that day! We went to Shaky Bridge Vineyard Café for a drink afterwards.

“I have seen Skinks! Not a lot of people know them, but I do – now. They are fed once a week and only eat one or two maggots each.



ZL/SK1NK

“One day we went out for a drive to see Russell, ZL4DJ and his wife Olive. Russ and I had a nice chat and, as you do, we ended up in his Shack. Pat was talking with Olive on quite a different subject.



“The garden was just a mass of long wires and beams. Well, you would expect that of any radio amateur, wouldn’t you? I certainly

enjoyed meeting both Russell and Olive and I have the QSL card to prove it.



Russell, ZL4DJ, in his shack

“One of the highlights, and there were many, was meeting up with a couple of ex-pats, Barbie and Nobby at their barbecue. They were originally from East London and at one time they were in Eastenders as the Pearly King and Queen of Walford and they still have the outfits. They still tread the boards from time to time and it was fascinating listening to them talking of their careers when they were King and Queen of Silvertown, London.

“Another highlight for me was revisiting Queenstown. There is nothing to better local knowledge so I had the ideal companion in Pat. We drove to Arrowtown and Pat recounted the time when we were last there with Lloyd and Ron. Arrowtown sprang up overnight with the discovery of gold in the Arrow River in 1862. A very pretty town and with time to spare we sat and chatted over a cup of coffee and a toasted sandwich before driving on. On arriving in Queenstown we checked into an hotel overlooking Lake Wakatipu and went for a walk to the nearby harbour. In dock was the steamer TSS Earnslaw - one of the last remaining coal-fired passenger carrying vessels operating in the southern hemisphere. On our last visit Ron and I took a trip on her and ended up at a sheep station to see the shearing being done.

“New Zealand, and especially the Central Otago region is world famous for producing some of the best fine wool in the world.

“On our way home to Alexandra we drove over the Crown Range to Wanaka. The mountains were very different, but just as awesome as The Remarkables at Frankton. The journey over the mountains was splendid, the sun was shining and every mile covered was a pleasure.”

Part 2 of Prue’s World Tour will be in the next issue of *CATS Whispers*.



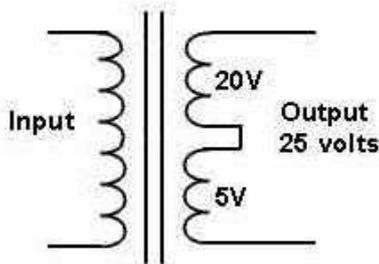
# SHAK NOWTZ BY "MAD" FRANK - G3ZNF

## SHAK NOWTZ No 3 - TRIX WITH TRANSFORMERS

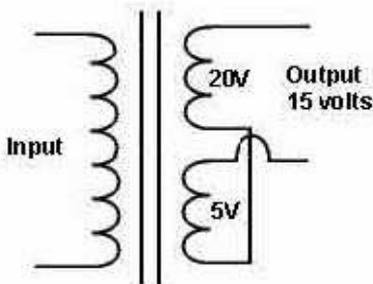
### 1 TRANSFORMER TRIX (LAMINATED METAL ONES)

If your transformer does not have the required voltage output, but does have a number of separate secondary windings, it may be possible to connect the windings, in **sum** or **difference mode**, to obtain the desired voltage. Remember however that the **maximum** current output is only the maximum current on the winding with the **lowest** rating. In other words, a 20 volt/ 5 amp winding plus a 5 volt/ 2 amp winding can only be used to a full load of 2 amps, the rating of the 5 volt winding.

On the other hand, you can now use this as a 25 volt/ 2 amp transformer, if the windings are joined additively (Sketch A) or, if you connect the winding in antiphase (see Sketch B) then you can end up with a subtractive arrangement and a 15 volt/ 2 amp transformer.



Sketch A - Additive connection (In Phase)



Sketch B - Subtractive Connection (Antiphase)

### 2 TRANSFORMER TRIX (TOROIDAL = BIG DOUGHNUTS)

Before I go into voltage changes, it is **very important** to remember that any metal passing through the centre of the toroid constitutes one turn of winding and must therefore **not** be allowed to form a completed turn around the outside of the core as this would then constitute a shorted turn. **Bang!!!**

However, a suitable clamp plate, securing nut and bolt, not forgetting insulating pads above and below the toroid, is fine. Actually this is a useful thing, as you can use an AC voltmeter to measure what you may think is a short circuit from clamp plate to chassis, but is actually one turn of a transformer.



With this in mind, look out for low voltage lighting transformers at the rallies, as most people are changing out heavy toroidal (linear) transformers for lightweight switched mode units. All very well to power a snazzy light in the galley – but often a source of QRM on the LF and HF bands.

**Problem:** 12 volt ceiling lights are usually fed with 11.75 volts, so when put through a bridge rectifier only give  $11.75 \times \sqrt{2} = 16.6$  volts peak and about 13 volts on full load.

16.6 volts is dangerously high for most "12 volt" rigs, but 13.0 volts is too low to regulate, even down to 12.0 volts, so more volts are required.

## SHAK NOWTZ No 3 - TRIX WITH TRANSFORMERS

**First:** Check the rating of the transformer ie 12V/ 50W or 11.75V 50 VA. 50VA is 50 voltamps ie 5 V x 10 A, 10V x 5A or, in this case, 11.75V x 4.25A. (VA is simply volts x amps, as used when specifying AC transformers, whereas watts refers to the current being **in phase**, or a purely resistive load.)

**Second:** Using a suitably rated **insulated** and flexible cable, pass five continuous turns through the centre of the toroid, strip the ends and screw them into a terminal block for ease and safety. Now apply mains voltage to the primary winding, recheck the original secondary winding voltage and then measure the new winding's voltage. Divide this voltage by 5 and that gives you the volts-per-turn used in the transformer's construction.

Let's say the transformer's original secondary output voltage was 12 volts and the new winding measures 1 volt, then 1 volt divided by 5 equals 0.2 volts per turn. In the same way, if the new winding reads 2.5 volts, then 2.5 volts divided by 5 equals 0.5 volts per turn. With this new information, you can either add (or subtract) the "new winding's" voltage to (or from) the original secondary voltage.

**But**...do not forget the power rating of the transformer – watts or voltamps – do **not** exceed it.

Recalculate the maximum output current from the transformer ie new winding is 4 volts, plus original 12 volts = 16 volts. For a transformer rated at 50 watts (50 VA) the new max current is 50 VA divided by 16 volts = 3.12 amps, **not** 4.25 amps!

This calculation **must** be applied whether adding or subtracting voltage, as all windings are carrying power and current!

Although this is the quick and easy way of getting the voltage you require, you may feel ambitious, as I have done in the past, and stripped the old secondary windings from the transformer, remembering to do an output voltage check, then remove 10 turns and recheck the new lower voltage to give you the "volts per turn" figure that you will need when you rewind the new winding(s). Most importantly, accurately measure the length of wire which constituted the "removed" 10 turns so you know how much wire you will need for the rewind.

Unless you have one of those wonderful winding machines for winding toroidal transformers, you need a big floor space and no kids or pets to tangle up your winding wire!!!

The following information is taken directly from the

British Standard Copper Wire Table as published on page 163 of the Radio Data Reference Book by our very own Terry G4CDY and George G6JP. (I'm never without it as a reference guide.... Thank you Terry and George)

Current rating is based upon 1,200 amps per square inch of copper, eg 0.1 sq in = 120 amps.

Alternatively use 1.86 amps per sq mm.

10 SWG = 3.25 mm diam = 15.4 amps

12 SWG = 2.64 mm diam = 10.2 amps

14 SWG = 2.03 mm diam = 6.0 amps

16 SWG = 1.63 mm diam = 3.8 amps

For higher currents, the windings become very difficult to handle. Don't attempt to wind two identical windings in parallel to double the current. It may be okay in theory, but I've never managed to make it work in practice. It's much better to get a transformer nearer the voltage you require.

There is of course another way to get more volts and that is to use two (or three) transformers of equal rating and connect the secondaries in series, but you must make sure that the transformers have adequate insulation to withstand the maximum working voltage of 3 x 250 volts AC = 750 volts AC. Look for BSEN60742, ENG60950 or BSEN60950 on toroidal transformers and for BS3535 for metal laminated ones. This specification indicates primary to secondary insulation of 3000 volts AC.

Otherwise, refer to previous "Shak Nowtz" for rectification, smoothing and regulation.

Have fun – and don't get bitten by volts.

Articles to come:

ATU ideas

Wire aeriels and earths

Little whips and big whips (not kinky ones)

Friggin' with the riggin' (knots and erections)

Beams and yagis

Basic Circuits

Basic AF amps and pre-amps

Basic RF amps

Rx and Tx mixers

Plus ... ? what do you want? Tell me and I'll write something

**See Yer !  
Mad Frank G3ZMF**

## The Foundation Course – A Trainer's Perspective

Part two of this item has been held over to the next issue.

## Contests Coming Soon

Apr 5: RoPoCo 1 (3.520-3.570 MHz)  
Apr 5: First 70 MHz Contest  
Apr 6: 80m Club Championship (CW)  
Apr 15: 80m Club Championship (SSB)  
Apr 19: First 50 MHz Contest  
Apr 23: 80m Club Championship (Data)  
May 2: 432 Trophy Contest  
May 2: 10 GHz Trophy Contest  
May 2/3: 432 MHz–248 GHz Contest  
May 4: 80m Club Championship (SSB)  
May 13: 80m Club Championship (Data)  
May 16/17: 144 MHz May Contest  
May 17: 1<sup>st</sup> 144 MHz Backpackers  
May 21: 80m club championship (CW)  
Jun 1: 80m Club Championship (Data)  
Jun 6/7: National Field Day (1.8 – 28 MHz)  
Jun 10: 80m Club Championship (CW)  
Jun 14: 2<sup>nd</sup> 144 MHz Backpackers  
Jun 18: 80m Club Championship (SSB)  
Jun 20/21: 50 MHz Trophy Contest  
Jun 21: 50 MHz Backpackers  
Jul 4/5: VHF NFD  
Jul 5: 3<sup>rd</sup> 144 MHz Backpackers  
Jul 6: 80m Club Championship (CW)  
Jul 15: 80m Club Championship (SSB)  
Jul 19: 4<sup>th</sup> 144 MHz Backpackers  
Jul 19: Low Power Field Day 3.5 & 7 MHz  
Jul 23: 80m Club Championship (Data)  
Jul 25/26: IOTA Contest 3.5-28 MHz  
Aug 1: 144 MHz Low Power Contest  
Aug 2: 432 MHz Low Power Contest  
Aug 2: RoPoCo 2 (3.520-3.570 MHz)  
Aug 13: 80m Club Sprint (CW)  
Aug 16: 70 MHz Trophy Contest  
Aug 26: 80m Club Sprint (SSB)  
Sep 5/6: SSB Field Day 3.5-28 MHz  
Sep 5/6: 144 MHz Trophy Contest  
Sep 6: 5<sup>th</sup> 144 MHz Backpackers  
Sep 10: 80m Club Sprint (SSB)  
Sep 13: Second 70 MHz Contest  
Sep 23: 80m Club Sprint (CW)  
Oct 3: 1.2 GHz Trophy/ 2.3 GHz Trophy  
Oct 3-4: 432 MHz – 248 GHz IARU  
Oct 4: 21/28 MHz Contest  
Oct 8: 80m Club Sprint (CW)  
Oct 11: Second 50 MHz Contest  
Oct 21: 80m Club Sprint (SSB)

Nov 7/8: 144 MHz CW Marconi  
Nov 12: 80m Club Sprint (SSB)  
Nov 14: Club Calls Contest (1.8 MHz)  
Nov 21/22: 2nd 1.8 MHz contest  
Nov 25: 80m Club Sprint (CW)  
Dec 6: 144 MHz AFS  
Dec 26-29: 50/70/144/432 Christmas  
Cumulatives Contest

## Local Rallies & Events

**19 April 2009**

### **West London Radio & Electronics Show**

Kempton Park Racecourse.

Open 10:00. Parking, trade stands, catering, disabled facilities. Contact

[info@radiofairs.co.uk](mailto:info@radiofairs.co.uk)

*NOTE: CATS involvement in this event.*

**25 April**

### **International Marconi Day**

See [www.gb4imd.org.uk](http://www.gb4imd.org.uk) for details

**21 June 2009**

### **Newbury Radio Rally & Boot Sale**

Newbury Showground, M4 J13.

Open 09:00. Free parking, trade stands, catering, disabled facilities. Contact

[rally@nadars.org.uk](mailto:rally@nadars.org.uk)

**12 July 2009**

### **McMichael Rally & Boot Sale**

Reading Rugby Club off A4 east of Reading

Open 09:00. Parking, trade stands, catering.

Contact [g0jms@radarc.org](mailto:g0jms@radarc.org)

**27 September 2009**

### **West London Radio & Electronics Show**

Kempton Park Racecourse.

Open 10:00. Parking, trade stands, catering, disabled facilities. Contact

[info@radiofairs.co.uk](mailto:info@radiofairs.co.uk)

*NOTE: CATS involvement in this event.*

## For Sale & Wanted

**WANTED** – Loan of simple to operate receiver (HF and/ or VHF/UHF) for very enthusiastic budding disabled amateur. Contact Steve on 01883 620730 or by email

[g3wzk@whenland.com](mailto:g3wzk@whenland.com)

## Other Club News & Contact Information

### **BROMLEY & DISTRICT ARS**

**Website:** [www.bdars.org.uk](http://www.bdars.org.uk)

**Email** [bdars-news@talk21.com](mailto:bdars-news@talk21.com)

**Meetings:** 3<sup>rd</sup> Tuesday of every month at Victory Social Club, Kechill Gardens, Hayes, Kent, 19:30 for 20:00.

### **CPREC (CRYSTAL PALACE)**

**Website:** [www.qsl.net/g30ou/](http://www.qsl.net/g30ou/) or

<http://www.g30ou.co.uk/>

**Club Net:** Wednesdays 20:00 on 145.525 MHz

**Meetings:** 1<sup>st</sup> Friday at All Saints Church Parish Rooms, Beulah Hill at 19:30

**Apr 3<sup>rd</sup>** - Building Your Own Power Supplies by Victor G1PKS and Don G3WDY

### **CRAWLEY ARC**

**Website:** [www.carc.org.uk](http://www.carc.org.uk)

**Club Nets:** Tuesdays 20:00 on 145.550 MHz and Fridays 19:00 on 1.970 MHz

**Meetings:** Every Wednesday at Hut 18, Tilgate Forest Recreational Centre, Tilgate Forest, Crawley from 19:30, and Sundays, 10:30 to 13.00.

**Apr 22<sup>nd</sup>** – Airborne Antennas – Roger Stafford G4ROJ

**May 27<sup>th</sup>** – ‘Adventures in D Star’ – David Lake G4ULF

**Jun** – TBA

### **CRAY VALLEY RS**

**Website:** [www.cvrs.org](http://www.cvrs.org)

**Contact:** Richard Perzyna, G8ITB (see website)

**Club Nets:** Wednesdays 21:00 on 145.500/QSY and 22:00 on 3.720 ± QRM, and Sundays 11:00 on 3.720 ± QRM

**Meetings:** 1<sup>st</sup> and 3<sup>rd</sup> Thursdays at Progress Hall, Admiral Seymour Road, Eltham, SE9 1SL.

**Apr 2<sup>nd</sup>:** PSK31 and Digipan

**Apr 19<sup>th</sup>:** AGM

### **DORKING & District RS**

**Website:** <http://www.ddrs.org.uk>

**Email:** [ddrs.secretary@yahoo.co.uk](mailto:ddrs.secretary@yahoo.co.uk)

**Contact:** David Smith, M0SXD, 07808579501

**Club Nets:** Sunday 08:15 on 3.770 MHz & 20:30 on 144.775 MHz

**Meetings:** Friends Meeting House, Butterhill, South Street Dorking at 19:30.

**28<sup>th</sup> Apr** – ‘Photonic band structures and broadband antennas’ by Dr David Jefferies G6GPR

**26<sup>th</sup> May** – Visit to Mullard Space Science Laboratory

**23<sup>rd</sup> Jun** – ‘Using the IBP and RSGB Board Consultation’ - Leslie Butterfields G0CIB

### **HORSHAM ARC**

**Website:** [www.harc.org.uk](http://www.harc.org.uk)

**Club Nets:** Saturdays 21:30 on 144.725MHz and Sundays 10:00 on 3.722 MHz

**Meetings:** 1<sup>st</sup> Thursday at The Guide Hall, Denne Road, Horsham, Sussex

**2<sup>nd</sup> Apr** - The History of Mr. Polley G3PYC part 3

**25<sup>th</sup>-26<sup>th</sup> Apr** - French Weekend

**7<sup>th</sup> May** - QRP/Homebrew plus other topics Hans Summers

**28<sup>th</sup> May** - Fox Hunt

**4<sup>th</sup> Jun** - TBA

### **MID SUSSEX ARS**

**Website:** [www.msars.org.uk](http://www.msars.org.uk)

**Club Nets:** Sundays 08:00 on 3.740 MHz and at 11:00 on 145.350 MHz, Wednesdays 20:00 on 145.350 MHz and Daily 13:30 on 21.330 MHz

**Meetings:** Every Friday at Cyprus Hall, Cyprus Road, Burgess Hill, West Sussex for 19:45

### **REIGATE ATS**

**Website:** [www.qsl.net/rats](http://www.qsl.net/rats)

**Email:** [rats@qsl.net](mailto:rats@qsl.net)

**Club Nets:** Thursdays 20:00 on 145.500 MHz and Sundays 20:00 on 3.740 – 3.760 MHz

**Meetings:** 3<sup>rd</sup> Thursday at RNIB, Redhill College, Philanthropic Road, Redhill for 19:30

### **SRCC**

**Website:** [www.g3src.org.uk](http://www.g3src.org.uk)

**Contact:** Ray Howells G4FFY 020 8644 7589

**Club Nets:** Sunday 09:30 on 1905 kHz

Daily natter channel – 144.215 MHz at 19.30.

**Meetings:** 1<sup>st</sup> & 3<sup>rd</sup> Mondays at Trinity School, Shirley Park, Croydon CR9 7AT 19:45 for 20:00

**6<sup>th</sup> Apr** – 69<sup>th</sup> AGM

**11<sup>th</sup> May** – SMD Master Class + Project Constructing

**1<sup>st</sup> Jun** - Construction Contest

### **SUTTON & CHEAM RS**

**Website:** [www.scrs.org.uk](http://www.scrs.org.uk)

**Contact:** John Puttock G0BWV 020 8644 9945

**Club Nets:** Monday 20.00 on 145.500 MHz

Saturday 11.00 on 145.500 MHz

**Meetings:** 3<sup>rd</sup> Thursday at Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton. 19:30 for 20:00

**16<sup>th</sup> Apr** – Talk & demonstration of Amateur TV, by Mike Sanders, G8LES

**21<sup>st</sup> May** – AGM and Construction Contest

**18<sup>th</sup> Jun** – ‘Frequency Standards’ by Mike O’Beirne, G8MOB

### **WIMBLEDON & DISTRICT ARS**

**Website:** [www.gx3wim.org.uk](http://www.gx3wim.org.uk)

**Club Net:** Mondays 20:45 on 145.500 MHz

**Meetings:** 2<sup>nd</sup> & last Friday of each month at Martin Way Methodist Church, Buckleigh Avenue, Merton Park SW20. 19:30 for 20:00

**24<sup>th</sup> Apr** – ‘Contesting’ by Jim Gale G4WYJ

**8<sup>th</sup> May** – DF Hunt

**29<sup>th</sup> May** - Members Evening TBA

**12<sup>th</sup> Jun** - Commercial Satellite Communications G1SHV

**26<sup>th</sup> Jun** - Construction Evening

CATS Whispers is published monthly by  
S J Beal G3WZK on behalf of the  
Coulsdon Amateur Transmitting Society. © C.A.T.S. 2009