

The story of a Heathkit Transistor Radio UXR-1

Described by Heathkit as a Two Wave-Band Transistor Portable Receiver, superbly styled and acknowledged to be excellent in performance and value. Heathkit boasted- easily built in 6 hours! Introduced in 1959 and priced at £12.11.00 including purchase tax, this equates to a jaw dropping £212 today.

This radio was found whilst clearing out Frank's shack and it appeared in good condition, with two totally "wrong" brown control knobs on from an earlier dated Murphy valve set. Inside was pristine and one would have thought it to be in full working order.

Designed around a real hide case with internal metal supporting framework, the majority of circuitry is on a single high quality printed circuit board. I say high quality as the component replacements were completed without any lifting of the tracks- try that today on the average pcb.

The construction was very neat and of a high standard, but I personally would question the 6 hours to build, especially for the more inexperienced constructor. The circuit is a 6 transistor and 1 diode line-up using Mullard Transistors throughout from the OC44,45 range for the RF/IF and OC81D driving two OC81 for the audio. Detection was done by the usual OA81 diode. All British components were used including the dreaded Hunts capacitors.



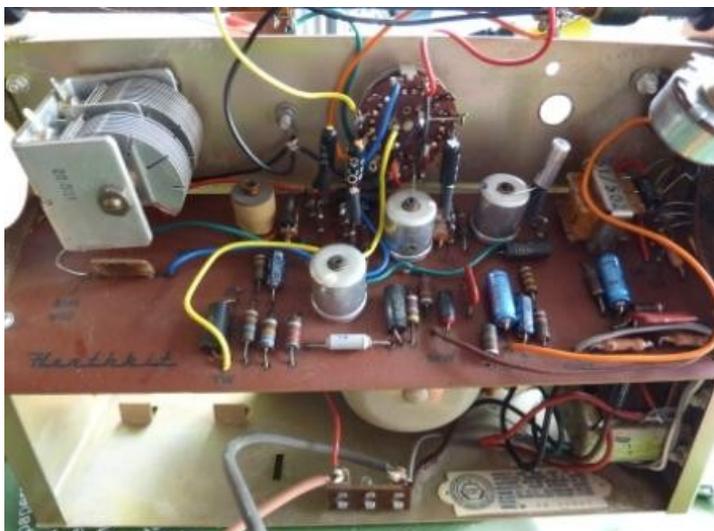
So what did it do when I connected a battery-well... basically not a lot. A very faint hiss could be heard in the speaker proving that the audio circuit was at least working. Increasing the volume made no difference to the level of hiss and so logical fault finding commenced.

My trusted transistor tester condemned the 1st IF transistor having an open circuit junction Base/Emitter. The 2nd IF was judged to be a diode with the Base connection open circuit, so we had two rather unusual failures to start with. Looking at the circuit diagram there are a total of 6 electrolytic capacitors,

mostly of 50uf value but two tiddlers of 10uf each. Experience has proved that small value electrolytics, especially this type, go virtually open circuit and so out they came and no surprise they were virtually open circuit.

Whilst thinking where I might find replacements/equivalents for the transistors, I set about checking a few more components. I found the only "wax covered" capacitor a 0.04uf Hunts was short circuit and thus was consigned to the bin and a replacement soldered in.

Amongst a pile of pcb's from scrapped tran-



The story of a Heathkit Transistor Radio UXR-1 cont'd

sistor radios, I salvaged two OC45 which tested OK and so in they went. With every confidence, I put everything back together and was greeted with ear bending instability that sounded like someone backfiring at 100 decibels after a can or two of beans. Completely unaffected by the volume control, it could only be the audio amp. Hmmm what had or rather hadn't I done. Seemed to be sensitive to movement- good clue I thought. I had previously taken off a tag strip with an earth connection and hadn't completely tightened its fixing bolt. Ah! peace restored but still no audio.

At this point I connected up my Heathkit signal tracer/audio amplifier and had a poke around. No audio (or very little) at the detector diode where you would normally expect a good demodulated audio signal but I did find audio with some instability at other points around the final IF stage.

There was no audio signal at the hot end of the volume control, indeed there was a short circuit reading across the control. Whilst waiting for inspiration, I decided to change the remaining electrolytic caps despite them measuring OK and carefully re-assembled everything. Ah you see they were duff, the ESR must have been up the spout, because all traces of instability had gone but still no audio.

Just to prove to myself that the audio stages were OK I connected one of the points where I had found audio to the base of the audio driver transistor and was rewarded by



lots of signal but a fair bit of distortion, didn't sound easy on the ear to me at all.

I had already changed the audio coupling capacitor and so there was not much left to check.

The picture shows the problem! The potentiometer case was shorting the "hot" end of the volume control to earth. Dead short = no audio. Easy!?! I do wonder if the set ever did work....

Lots of audio now but definitely distorted.

Hooked up my scope and compared the audio in from the volume control to the audio out from the speaker. The injected a sine wave was unrecognisable at the output!

The audio amp is a three transistor transformer coupled design and unfortunately all the components proved to be spot on in value.

In the end I had to alter the bias to the output transistors by trial and error, perhaps the output transistors were not that well matched- it was a "inexpensive" kit radio after all.

Sadly the tuning dial has lost its brass ring but with two cream control knobs, the set does look smart and who knows one day rummaging round the rallies, may find a complete tuning dial.

Ian

M0IDR



Xmas Contest Results

The club held its Annual Xmas Contest for the Reg Brown G7OJO Trophy from Christmas Eve until 8pm on New Year's Day. It was a tremendously successful event with some changes to the rules which made it even more challenging and a second section for those who only wanted to chase FM contacts on 2m. Here are some of the highlights:

- 65 callsigns were available to be worked (-8 on 2010)
- 41 callsigns were active during the contest. (+3 on 2010 – a new record)
- 30 logs were received for adjudication (+4 on 2010 – another new record!)
- 63.1% of all members were active (+11% on 2010)
- 46.2 % of the membership sent in a log (+10.2 % on 2010)
- 73.2% of those on air sent in a log (+5.2% on 2010)
- QSO serial numbers ended just shy of 200. (+ approx 50 on 2010)



Members going to extraordinary lengths to get on different bands & modes to get the new bonuses

Datamode QSOs being part of the event for the first time ever!

Broadway Tower activated several times by the "southerly contingent" with Ian M0IDR and Mark M0RKX actually meeting up there at one point!

And the winners were:

Chris G7DDN – winner of the G7OJO Trophy
Jim 2E0BLP - winner of the 144 MHz FM Trophy

This was a fantastic effort from everyone involved and a special thanks to the Contest Committee for organising, writing software and adjudicating. And a big thank you to one and all for taking part and making this year's event the best ever! ...for the fun and good humour shown throughout the contest... Please come back next year and make it even bigger and better!

And finally a little something from Stuart M0NYP to encapsulate the spirit of the contest...

Chris G7DDN

A number of members expressed their opinion of the contest, all of which were favourable;

What a brilliant, brilliant contest this year!"

"Everyone that took part was a winner, and the best part was the 'taking part'"

"I really enjoyed it. Great fun for all the family!"

"I enjoyed that!"

"...the best fun I've had (without taking my clothes off!) for a long time!" (We could have a naked section next year if you like!)

"I now realise what I've missed over the last couple of years..."

"A fun contest indeed!"

"...we shouldn't go quiet now the contest has finished..."

Some extra-ordinary activities by members to get points:

M0JMM/P making a whistle-stop tour of all the Midlands' high spots! At least 4 female members of the club on air...

The debut of the Bonus Points system for bands, modes and /P & /M CW contacts on at least 4 different bands

70 MHz (4m) activity for the first time ever in the contest

WYTHALL RADIO CLUB - CHRISTMAS CONTEST RESULTS 2011

OPEN SECTION											
POS	CALL	QSOs	BEST	MLTS	PTS	BAND	OP	MODE	BONUS	TOTAL	Adjudicated
1	G7DDN	180	118	37	4366	400	100	200	700	5066	1st
2	G4VPD	169	124	35	4340	400	100	200	700	5040	2nd
3	M0MCX	185	117	37	4329	400	100	200	700	5029	3rd
4	G0EYO	170	113	36	4068	400	100	200	700	4768	
5	M0GJM	159	103	36	3708	300	100	200	600	4308	
6	2E0SDD	145	100	34	3400	350	100	100	550	3950	
7	G0NES	117	99	33	3267	300	100	150	550	3817	
8	M6FAB	100	100	33	3300	200	50	100	350	3650	Leading Foundation
9	M0JMM	100	81	32	2592	350	100	150	600	3192	
10	G0ICJ	85	85	31	2635	200	0	100	300	2935	
11	M5DUO	140	94	29	2726	100	0	100	200	2926	
12	G0MTN	90	79	27	2133	200	0	200	400	2533	
13	M0COP	68	51	23	1173	300	100	200	600	1773	
14	M6STJ	61	57	22	1254	100	100	100	300	1554	
15	G4TVR	48	48	22	1056	100	0	100	200	1256	
16	M0RKX	34	34	19	646	250	100	100	450	1096	
17	MW5HOC	33	30	14	420	50	0	100	150	570	"Out of town" certificate
18	MW6YDP	22	22	11	242	50	0	50	100	342	
19	G3YXM	5	5	5	25	100	50	100	250	275	
20	MW3YKL	14	14	10	140	50	0	50	100	240	
2M FM SECTION											
POS	CALL	QSOs	BEST	MLTS	PTS	BAND	OP	MODE	BONUS	TOTAL	Adjudicated
1	2E0BLP	195	118	37	4366	50	100	50	200	4566	1st
2	M0NYP	192	121	36	4356	50	100	50	200	4556	2nd
3	G6ZDQ	173	112	34	3808	50	100	50	200	4008	3rd
4	M0IDR	152	100	32	3200	50	100	50	200	3400	
5	2E0XTV	113	94	30	2820	50	100	50	200	3020	
6	M0GRO	106	87	29	2523	50	100	50	200	2723	
7	G1VLT	104	77	25	1925	50	0	50	100	2025	
8	M3SSP	62	61	21	1281	50	0	50	100	1381	Leading Foundation
9	2E0WTH	43	43	24	1032	50	0	50	100	1132	
10	M0AEJ	40	40	20	800	50	50	50	150	950	

Xmas Contest Results cont'd



Pictures clockwise of the Awards Ceremony: Chris G7DDN 1st open section: Barry M0DGQ receiving 1st FM section on behalf of Jim 2E0BLP; Mike G4VPD 2nd open; Sylwia M0SSP top Foundation FM section; Stew M0NYP 2nd FM section' Lynne M6FAB top Foundation Open section; Callum M0MCX 3rd Open section; Certificates presented by Mike G4VPD Chairman of the Contest Committee.



Lew Williams Morse Trophy

This is a Wythall Radio Club operating event, open to all club members, to promote the use of Morse Code on the amateur bands and to remember past club President and morse aficionado Lew Williams.

It is not a contest in the traditional fashion, but a month long activity event, when on-air morse activity will be encouraged. The Lew Williams Trophy will be awarded to the Wythall club member who has shown the biggest contribution to the event, and/or shown the greatest improvement in morse code skills. Other certificates may be awarded by the contest committee.

Contacting other Wythall Club members using morse code will count very favourably. Contacting other non-club members is allowed and encouraged. The event period overlaps with a number of HF CW contests which can be used to practice and use CW on air. (RSGB 80m Club Championship CW, King of Spain CW, Baltic Contest, and CQ WPX CW Contest.) Regular 'ragchew' contacts are equally valid – the quantity of contacts is not the most impor-

tant factor. Please announce schedules on the email reflector.

The winner will be judged by a small group including Mike G4VPD, Chris G7DDN, and Lee G0MTN, who will all be ineligible to win. Log submissions, and personal statements will be used in the judging process. Some suggested examples: "First live CW QSOs on HF", or "First CW QSOs not using an automatic reader / sender", "First ever CW QSOs, but did use receive assistance", "Log shows 20 Wythall club members contacted using CW", "Log shows 30 countries worked during the week." As a fun, friendly event, it is hoped that club members would recognize improvement in their fellow club members and submit feedback and nominations for them. Like the Oscars and Bafta awards, the awards can be largely decided by your peers. Activity on all days is not necessary – there are no maximum or minimum operating times.

Dates: The whole of May 2012
Modes: CW, of course! The use of automatic sending and receiving is permitted.
Bands: DC to light amateur bands.
Logs: Please record contact details, if any

sending or receiving assistance was used. Send logs, and also comments about the contest and any nominations for awards for other club members to Lee G0MTN to g0mtn1@gmail.com via email. Paper logs can handed in at the club on Tuesday 5th June or Friday 8th June to Lee at the club by Friday 8th June. Results will be announced at the June committee meeting on June 12th.

The Contest Committee



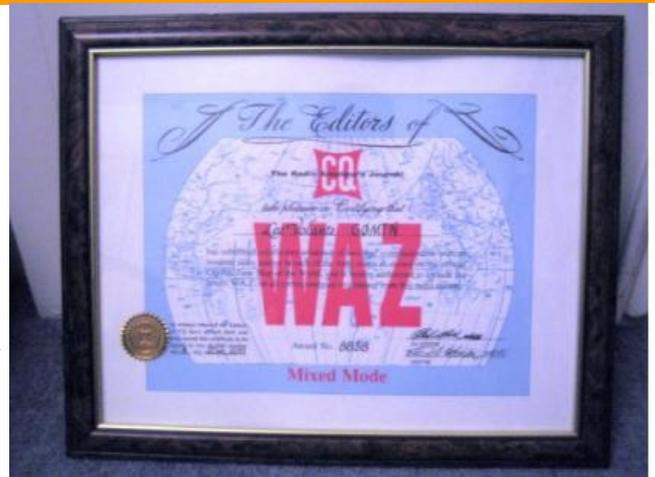
Awards the Easy Way

There are two major online 'electronic logbooks', ARRL's Logbook of the World, and the eQSL system. There are a number of important differences between the two, but essentially they both allow you to upload electronic logs over the Internet, and qualify for awards.

The eQSL system has recently added support for CQ Magazine's award programmes, including the Worked All Zones (WAZ) award. The world is divided into 40 zones, and will be known to most people in the CQ WW contest, where the CQ Zone is the exchange and in the UK we exchange 59 14. Work a station in each of the 40 zones and get proof

of contact to qualify.

All zones can be worked over a big contest weekend if you try, but not all will use eQSL. After a long wait I managed to work a Mongolian station last year who did use the eQSL system for my last zone. Then it was a simple case of pressing the button to apply for the award, pay on-line using PayPal, and wait for the award to arrive. Collecting QSL



cards and sending them away is still an option, but this 'all electronic' option was very simple.

If you use logging software, it will probably support electronic QSLing. We could also use our Internet-enabled club shack to start collecting credits toward some awards. The ARRL system supports the DXCC and Worked All States awards, and EQSL has its own awards as well as the CQ Magazine ones. Maybe electronic QSLing could be an interesting club talk for later in the year.

Lee G0MTN

Frank G3MZU SK

Cont'd from page 1

after his wife Joan who unfortunately was confined to a wheel chair. He took a great interest in the club during its early years, helping out at field days, social events and of course the big project of installing the mast at the back of Wythall House. I well remember several Saturday's spent digging out the foundations with Frank and others.

His radio interests were very broad. He liked satellite communications, all forms of data transmission, 10GHz microwaves, weather satellites etc. He had equipment for HF and VHF and his garden had several antennas. His shack and loft were evidence of nothing ever having been thrown away in the past 50 years. We found early examples of converting a Wireless Set No19 for ham use and plenty of other home brew equipment.



Until he got ill, Frank always kept a dog and you could set your watch in the morning and evening seeing Frank walking, first Jake, then in later years Molly, along the Alcester Bypass between Barkers Lane and Becketts. He always referred to his dogs as "Sunny Jim". He was a big supporter of West Midlands Air Ambulance and gave generously to other charities as well.

We have several mementos of Frank in our shack, the Air Ambulance picture and some of his early QSL cards. We also found his callsign desk plaque, but we also have our memories of him, of a kind, gentle and generous friend, who never had a bad word to say about anyone. RIP dear friend. We will always remember you

Frank Breedon G3MZU

1929-2012

R.I.P.

Xmas Fox Hunt, 7 teams this year, that's a record

The Xmas Fox Hunt held on the day after Boxing Day presented a welcome choice from stuffing oneself with turkey and cake.

A record breaking 7 teams turned up at the Barley Mow in Studley for a 10am start and it was nice to see some new faces coming for the first time and some old faces returning after a long time. The seven teams were;

1. Colin, ZDQ, Peter DUO, and Anita and Janett
2. Phil WTH and Jon JMM,
3. Colin GJM and Rob
4. Paul VLT, Mike VPD, Chris DDN
5. Stewart NYP, and Walter GRO
6. Steve SDD and Stacey STR
7. Chris EYO and David ICJ and Wendy

Colin and Rob went off as first fox and were found by Colin and Peter, Colin and Peter were found by Mike, Chris and Paul who themselves were found by Jon and Phil. Jon and Phil were found by Chris and David.

By this time it was about 12.30pm so it seemed a good time to return to the Barley Mow for some lunch which, you guessed it turned out to be turkey!! (and beef)

Everyone had a great time.

Chris G0EYO

Photos: below- Colin, Paul, Rob, Peter, Colin and Mike

Lower—the whole gang- Stewart took the pic



Contest Corner

My first radio: R208 "Sputnik Special"

VHF	GMT/UTC	Type
3-4 th March	14.00 to 14.00	March 144 + 432 mhz
6 th March	19.00 to 21.30	144mhz UKAC
11 th March	10.00 to 12.00	70MHz Cumulatives #2
13 th March	19.00 to 21.30	432mhz UKAC
27 th March	19.00 to 21.30	50mhz UKAC
1 st April	09.00 to 12.00	First 70MHz Contest
3 rd April	19.00 to 21.30	144mhz UKAC
10 th April	19.00 to 21.30	432mhz UKAC
15 th April	09.00 to 12.00	First 50MHz Contest
24 th April	19.00 to 21.30	50mhz UKAC
1 st May	19.00 to 21.30	144mhz UKAC
5-6 th May	14.00 to 22.00	432MHz-248GHz
5 th May	14.00 to 22.00	432MHz Trophy Contest
8 th May	19.00 to 21.30	432mhz UKAC
13 th May	09.00 to 12.00	70MHz Contest CW
19-20 th May	14.00 to 14.00	144MHz May Contest
20 th May	11.00 to 15.00	1st 144MHz Backpackers
22 nd May	19.00 to 21.30	50mhz UKAC
27 th May	14.00 to 16.00	70MHz Cumulatives #3
29 th May	19.00 to 21.30	70mhz UKAC

HF	GMT/UTC	Type
5 th March	20.00 to 21.03	80m CC Data
10-11 th March	10.00 to 10.00	Commonwealth Contest
14 th March	20.00 to 21.30	80m CC CW
22 nd March	20.00 to 31.30	80m CC SSB
1 st April	19.00 to 20.30	RoPoCo SSB
2 nd April	19.00 to 20.30	80m CC CW
11 th April	19.00 to 20.30	80m CC SSB
19 th April	19.00 to 20.30	80m CC DATA
7 th May	19.00 to 20.30	80m CC SSB
16 th May	19.00 to 20.30	80m CC DATA
24 th May	19.00 to 20.30	80m CC CW

The R208 is a superhetrodyne receiver designed for CW, MCW and AM reception modes. The set is often associated with the Sender #36, as it was used for local communications in anti-aircraft units. The frequency range covered by the set is rather unusual, as it covers the high end of the HF spectrum and the low end of the VHF spectrum. This enabled the set to be used for long range work using the HF ranges and for very localized work on the VHF ranges. The frequency ranges are provided in 3 bands: 10-20, 20-40 and 40-60 MHz. The set is designed to run off a.c. mains as well as 6v d.c. The receiver features an RF stage, using an EF39 (ARP34), a 6K8 mixer, followed by 2 IF stages utilizing another EF39 and the pentode of another 6K8. The 6K8 triode functions as a BFO for Morse reception. A 6Q7 is used as a triode audio amplifier, with the 2 diode functions being used for detection and AVC. A 6V6 is used for the audio output stage. The audio output is 2 watts to the internal loudspeaker. There is provision for 2 sets of low resistance headphones. Line output at 600 ohms is also provided.

The receivers were frequently advertised in the late 1950's as "Sputnik Specials", as the frequency ranges covered included some of the early satellite frequencies. (Sputnik operated a fraction above 20 MHz.) I got mine from a friend when I was 11 for the princely sum of £5 (a birthday present from my grandmother).



This radio got me started in a career in radio, first with GCHQ, then Plessey and Marconi and finally Eddystone Radio.

Chris G0EYO

This promises to be a busy year! cont'd from page 1

Keith Gibbs M6 student
Chris Marshall M6 student

The committee are working on a very busy year of events. Chris G7DDN is managing to organise a visiting speaker every month as well as conduct monthly CW classes. We have numerous special event stations we intend to organise, namely;

Hanbury Steam Fair 7/8th April
Mills on Air, Avoncroft Museum
12/13th May
Diamond Jubilee, Wythall, 4th June
International Museums 16/17th June
Carnival 19th August
Stoke Prior Steam Fair 15/16th September

We also will be contesting at the VHF NFD on 7/8th July and the HF SSB on 1st/2nd Sept. In addition we will be holding a Plug and Play weekend in May.

A new club award is being proposed in memory of Lew Williams our past President who went SK last year. Lew was the CW teacher to many in the club and a shield is being awarded to the member who has demonstrated real progress in using CW. Details of this award are shown on page 4 of this newsletter.

We will be installing broadband in the shack

in the next month or so and this promises to make radio sessions more interesting as well as enabling us to Skype meetings with members who cant make it to the meeting. The Friday night radio and social sessions are now becoming a regular feature which just shows how a club can develop given the right atmosphere and the goodwill of people who enjoy each other's company.

Wythall Radio Club, definitely having fun with RF
Chris G0EYO
Chairman

The next issue of the Wythall Radio Club Newsletter will be published at the beginning of May 2012

Editor: Chris Pettitt G0EYO, 23 Dark Lane, Hollywood, Birmingham, B47 5BS. Phone: 07710 412 819, E-mail: g0eyo@blueyonder.co.uk