Newsletter

128

Mar 2017

A Member of the SARL

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Inside this issue:

AWA Committee:

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* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* Historian—Richard F4WCD (ZS6TF)
* Member—Ted ZS6TED

Reflections:

As frustrating as the present band conditions are, I have yet to be more frustrated with amateur radio than what I am at present.

That not because of amateur radio, but because of external conditions that affect my ability to do amateur radio. Namely "NOISE".

I have discovered how very naïve I was to the plight of those who complained every week about noise levels making it almost impossible for them to hear most stations on a band.

Living on a plot on the outer fringes of town, and having had all telephone lines stolen several times that Telkom stopped replacing them, made for an almost perfect environment for playing radio.

I used to pride myself on the fact that I could often hear stations that others would battle to hear. It was radio heaven.

Then the crunch came and we sold up our plot and moved to suburbia, right smack bang in the middle of it.

The main substation supplying a large part of the north eastern area of Benoni is 300m from our home. Telephone lines run right through the middle of our property, probably all connected to DSL lines. The electric fence separating the enclosed area we live in runs along the boundary of our property. The noise level is a constant S7.

Is this pay back time or what ?

Now I am starting to look into noise reduction speakers, squashers etc, all things that I used to listen to others talking about and chuckle to myself about noise. One of the biggest problems of course is that the old valve radios don't have very effective noise reduction systems at all.

My Collins radios don't even have noise blankers on them. They were sold later as an add on for some of the radios.

How much can this still deteriorate further ? Are we going to lose large portions of our bands to this phenomenon ? What can we do to get around it ?

For one, I don't want a flex radio, firstly because I cant afford it, and second because it doesn't seem like radio to me (flame suit on).

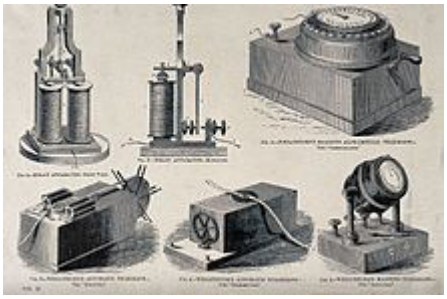
Maybe we as amateurs will become more inventive in developing systems that will reduce the amount of noise we have to deal with into our receivers, maybe we will just all succumb to it and make more use of cell phones ?

Best 73

DE Andy ZS6ADY

WIKIPEDIA

Electrical Telegraph



In the United States, the Morse/Vail telegraph was quickly deployed in the two decades following the first demonstration. The overland telegraph connected the west coast of the continent to the east coast by 24 October 1861, bringing an end to the Pony Express.
As well as the rapid expansion of the use of the telegraphs along the railways, they soon spread into the field of mass communication with the instruments being installed in post offices. The era of mass personal communication had begun.
A continuing goal in telegraphy was to reduce the cost per message by reducing hand-work, or increasing the sending rate.
There were many experiments with moving pointers, and various electrical encodings. However, most systems were too complicated and unreliable. A successful expedient to reduce the cost per message was the development of telegraphese.
The first system that didn't require skilled technicians to operate, was Charles Wheatstone's ABC system in 1840 where the letters of the alphabet were arranged around a clock-face, and the signal caused a needle to indicate the letter. This early system required the receiver to be present in real time to record the message and it reached speeds of up to 15 words a minute.

HF Happenings

Standing Wave Ratio

Now might also be a good time to better understand your antenna *system*, espe-cially how efficient it really is. Your antenna tuner may make your radio happy, but a mod-estly high shack-measured SWR combined with lossy coax cable might indicate you are radiating less of your signal than you think. Check out this technical note re-garding SWR, keeping in mind that fractions-of-dB losses distributed through your sys-tem can add up https://www.arrl.org/files/file/Technology/tis/info/pdf/q1106037.pdf.

K3 to K3S Migration

Elecraft has a "K3 to K3S Migration" service that helps current K3 owners easily move their filters and other compatible options to a new K3S/100 www.elecraft.com/K3_K3S_Migration.htm. For one flat fee, the current K3 is sent to Elecraft, where the existing options are tested, updated to current firmware and mod revisions and then installed in a new K3S. Of course, additional K3S options can be purchased and added at the same time. The K3 and K3S are both returned in seven to ten business days, ac-cording to the Elecraft website http://elecraft.com/.

Word to the Wise - DMR: Digital Mobile Radio

A set of standards for digital voice and data communication via radio and published by ETSI for professional (commercial) mobile radio users http://www.dmrassociation.org/. Following an age-old tradition, commercial UHF and VHF DMR gear has been and con-tinues to be repurposed for the amateur bands. As interest has grown, amateur-specific gear has become available. DMR appears to be quickly growing and is attracting the attention of many newer amateurs because of its novelty, rapid inno-vation in hardware and services, utility of various networks http://www.dmr-marc.net/ and system operators and inexpensive entry level radios. For experimenters, DMR building blocks (e.g. encoder/decoder modules, software, digital radios https://www.gigaparts.com/dv-mega-for-raspberry-pi.html) are available from a number of sources and are being combined with inexpensive computing hardware. There are even DMR hotspots in a USB form factor http://www.va2pv.com/dv4mini.

Audio peaking filter

Some radios have an "audio peaking filter" feature that maximizes audio response (volume) at a particular frequency. Another way to accomplish a similar feature is to de-sign a speaker enclosure that is tuned to respond at desired frequency - a mechanical solution. This YouTube video by Steve, N4LQ, https://www.youtube.com/watch?v=MF8bk6958Hg describes how a 70's Sky Tec speaker is constructed and pointers on how to construct your own out of PVC pipe and other plastic odds and ends.

Antenna Restrictions

How low can you go with your HF antennas? If you are space constrained for 160 me-ters try this "No excuses" vertical by K6MM https://k6mm.com/pages/ant-v160.html. At only 7,5 m tall and painted green, perhaps your neighbours will not notice this in your backyard. John originally presented this as a joint Northern California Contest Club / Poto-mac Valley Radio Club webinar in 2009 http://www.k6mm.com/antennas/160- pvrcwebinar.pdf.

A Tip for K3 Users

Here's a technique to eliminate any PTT tail delay in your CW Macros with modern K3 firmware versions, as described by Bob, N6TV, in a recent e-mail to the Elecraft reflec-tor http://elecraft.365791.n2.nabble.com/OT-Somewhat-Interesting-Ebay-Item-K2-td7626862i20.html, "The problem of unwanted PTT delay when using the internal keyer with VOX and computer-generated CW/PTT, was already addressed by the im-provements to the RX; command in K3 firmware 5.46 and later. Sending an RX; com-mand at the end of all computer-generated CW messages will immediately open the PTT line no matter how long you set the VOX delay, so there will be no delay in receiv-

March

3 - World Day of Prayer for Wom-en
4 - World day of Prayer for Men
CTARC Bumper Flea market
5 - **SARL Hamnet 40 m Contest**
8 to 14 - Scifest Africa, Graham-stown
11 and 12 - **SARL VHF/UHF Con-test;** RSGB Commonwealth Contest
12 - Purim; Cape Town Cycle Tour
16 to 20 - Wild Trout Festival, Rhodes
17 - St Patrick's Day
17 to 19 - Lambert's Bay Kreeffees
20 - Autumn Equinox; School holi-day
21 - Human Right's Day
25 and 26 - CQ WPX SSB Contest
27 - Closing date Radio ZS April
31 March to 9 April - Stars of Sand-stone, Ficksburg
31 - All schools close

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Building Spiderbeams for WRTC 2018

WRTC 2018 site details require months of preparation activities. Re-cent 15-meter Spiderbeam reflec-tor and director element construc-tion re-quired preparation of 120 Spiderbeam elements, nearly a kilo-metre of wire, 480 insulators and tying 1 920 knots http://lists.wrtc2018.de/pipermail/wrtc2018/ attach-ments/20170208/06ba4674/attachment.png. The three Satur-days required were described as "hard and boring." https://dk0ru.github.io/ fotoalbum/wrtc-antennenbau/. Three Amateurs from the Uetersen Radio Club, Malte, DE7LMS, Olaf, DK2LO and Karl-Heinz, DB7BN, tackled the tasks.

Quote of the Week

"A few years ago I heard this per-son on 144,200. He was running about 50 watts. I was running 100 watts on my horizontal loop. He was having trouble hearing me. He was using a vertical that had a 4:1 SWR on 144,200. I told him that a hori-zontal antenna resonant at the low end of the band would make a huge difference. He did not think it would make any difference. Further, into the conversation, I found that he

ing when the computer-generated message terminates. You will still get the programmed CW VOX delay when hand sending and the PTT will be held closed for the duration of all computer-generated messages, if you follow all of the steps outlined below." Bob goes on to describe the macros to use with Win-Test and provides guidelines for other contest logging software.

African DX

Burkina Faso, XT2. Elvira, IV3FSG, will be active as XT2SE from the city of Ouagadouga be-tween 17 February and 13 March. Activity will be limited to her spare time on 80 to 10 meters using SSB, RTTY and PSK31. She is there working on a project for the Informatici Senza Frontiere ONLUS. QSL via IK3GES.

African Islands

IOTA frequencies
CW: 28 040 24 920 21 040 18 098 14 040 10 114 7 030 3 530 kHz
SSB: 28 560 28 460 24 950 21 260 18 128 14 260 7 055 3 760 kHz
Canary Islands, EA8. Tom, DL7UZO will be active as EA8/DL7UZO from Fuerteventura, Canary Islands (AF-004) from 25 February to 11 March. Plans are to operate from different WWFF areas and light-houses, see www.funkstation.info for detailed information and direct link to Club Log's log search and OQRS.

Results of the PEARS National VHF and UHF Contest 2017

Poor Tropo conditions limited the analogue range to 390 km, as well as the number of contacts made. Koos, ZS3JPY, at Kleinzee and Lee, ZS5LEE, in Durban stated that they only worked one station each, Cobus, ZR3CVB in Port Nolloth and Rickus, ZS4A, at Bethle-hem, respectively. Nevertheless at least 25 logs were received countrywide covering all six categories of the contest. What Tropo lacked Meteor Scatter made up for in the Digital contest where new records were established. Last year the overall analogue winner scored 82 075 points, whereas the current digital overall winner has now surpassed the 100 000 mark for the first time in the history of the PEARS contest. PEARS can now claim to be truly a National VHF/UHF Contest.
Overall Digital Winner
1st Pieter Jacobs, V51PJ (Base) - 101 430 points
2nd Rickus de Lange, ZS4A (Base) - 19 250 points
3rd Paul Smit, ZS6NK (Base) - 17 552 points.
1st Cape Radio Group, ZS1CRG (Club) - 24 956 points (operated by ZS1DUP, ZS1HE, ZS1ABU, ZS1DWH)
2nd Christo Greyling, ZR6AUI (Field) - 19 680 points
3rd Rickus de Lange, ZS4A (Base) - 3 261 points.
Longest Distance on Digital
50 MHz: Pieter Jacobs, V31PJ, and Paul Smit, ZS6NK - 1347 km
70 MHz: Pieter Jacobs, V51PJ, and Paul Smit, ZS6NK - 1347 km
144 MHz: Pieter Jacobs, V51PJ, and Rickus de Lange, ZS4A - 1 138 km
Winner Limited Category (Digital):
Andre Botes, ZS2ACP (Base) - 43 832 points.
Winner Rover Category
1st Alex Gogos, ZR2T (Rover)- 4 142 points
2nd Andrew Gray, ZS2G (Rover) - 915 points.
Winners of the Divisional FM Category:
Division 6:
1st Max Bouckley, ZS6MAX (Base) - 490 points
2nd Kevin Suckling, ZS6KGS (Base) - 280 points
Division 2
1st Dakota Watson, ZU2DW (Field) - 180 points
2nd Hugo Ras, ZS2HR (Field) - 120 points.
Divisional Analogue Winners
Division 1
Cape Radio Group, ZS1CRG (Field) - 24 956 km.
Division 2
Al Akers, ZS2U (Base) - 1 574 points
Mike Higgs, ZU2MOO (Field) - 1710 points
Division 4
Rickus De Lange ZS4A (Base) - 3 261 points
Division 6: Christo Greyling, ZR6AUI (Field) - 19 680 points

did not have the preamp on his radio turned on. He said that would not make any difference, either. I told him I had to go." Buddy, WB4OMG

Microsoft Windows

When Microsoft *Windows* boots, it interrogates serial ports connected to your sys-tem to look for peripherals like mice. Unfortunately, this may have the side effect of switching some lines, such as DTR, that are connected to radios or other devices. There were vari-ous techniques in previous *Windows* versions to prevent this, but those techniques do not work with *Windows* 10 https://serverfault.com/ questions/350440/how-do-i-stop-windows-from-sending-random-data-to-serial-port-on -startup-and-shu. However, if you are using FTDI-based USB to Serial port hardware, Tom, VA2FSQ, suggests "If you open the device manager in Mi-crosoft *Windows* and double -click on the serial port, you can select Port Settings and then Advanced. In this page, there are two options. One is 'Serial Enumerator', which should not be checked and the other is 'Disable modem ctrl at startup' which should be checked. This solves the issue at least for the FTDI chipset."

Electret Mic for ZC1
Gary Henderson ZL2TBH

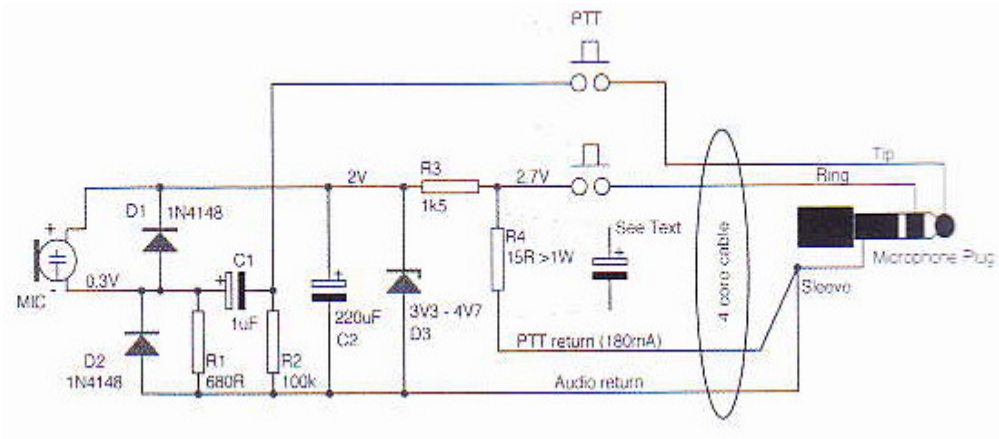
Late last year (2011), I acquired (rescued?) a ZC1 Mk2. This was fairly complete but lacked the required "Handset No.7" needed to operate AM. A kind local ham gave me one of these handsets and a dynamic insert for it, but the particular combination of handset-body and screw-cap fell a neat Imperial 1/8" short of depth needed to accommodate said insert. Measurements established that the ZC1 (with the "standard" AREC modifications to the modulation chain) needed almost 8 mV of audio to achieve its maximum modulation; this is quite a bit more than even very good dynamic microphones (such as Audio-Tecnica AT-818, a competitor to the famous Shure SM58) could achieve. Also more than the ZC1-type insert I had would put out, in absence of the rubber horn that they originally used. Knowing that the PTT circuit provides a source of d.c. at 12 V behind about 60 ohms, I decided that I'd try an electret capsule; these are tiny so there would be plenty of room for an amplifier if needed. They are also very sensitive, because the mass of the diaphragm is extremely small and the in-built FET provides power gain.

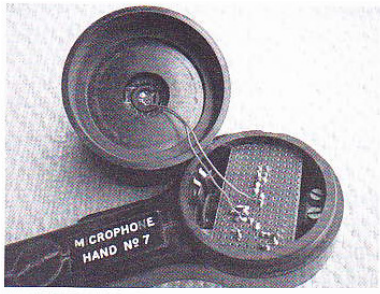
My scheme to power the electret capsule had to allow for the need to keep volt-drop low (so relays inside the ZC1 would still work reliably) and make allowance for the known ripple from the vibrator power-supply affecting the 12 V supply. Particular care was needed to ensure that the filtered 'clean' supply for the capsule had its bypass-capacitors returned to Audio ground, not to the PTT return. I also elected to make use of the relatively-high output-impedance of the capsule's internal FET by interchanging the load and supply, i.e. the capsule is connected to the filtered +Vdd with the drain-load resistor going to ground. Note that this does NOT make the circuit into a Source-follower, because the actual electret device remains connected directly between Source and Gate of the built-in FET. Any residual ripple on the filtered +Vdd is divided by a factor of about 10 through this ruse.

I had some capsules ex IQL telephones; these are the larger (10 mm diameter) style which have 2-3 dB more output than the 6 mm types. Surprisingly, in the ones I have the Blue lead goes to the + terminal of the electret-capsule while the Red lead goes to case. (Look hard to see which of the two solderpads on the rear of your electret capsule has tracks linking it to the case! Don't expect other capsules to necessarily use this same odd arrangement…)

I retained the foam-rubber microphone-holder of the original telephone handset; this spaces the capsule about 0.5 mm back from the inside of the housing; the telephone's housing has a hole about 4 mm diameter to admit speech. Exposing the entire front of the capsule gives excess sibilance; putting it behind a hole gives pleasant voice quality. I glued the capsule and its holder into a larger ring of foam-rubber to make a tight fit in the front-cover of the Handset No.7. I then found a large grommet (ex firewall of a Hillman Avenger I think!) which slipped neatly over the projection on the front-cover of the handset, with a 4 mm hole in the centre. Perfect!

A trial with the PTT-powering arrangement connected, prior to building a low-gain preamplifier I had designed, showed that the capsule I was using gave easily more than 8 mV output on speech, so the preamplifier was not necessary. However, after a few days' use the output-level started dropping… I had provided adequate means of preventing overvoltages on the supply side so clearly switching-transients from the ZC1 were getting back into the output of the electret capsule. Addition of the two reverse-biased diodes D1 and D2 limits any such transient voltages to (Vdd + 0.8) V and (0-0.8) V respectively without affecting voice signals. Ideally some series resistance should be provided after C1, but no further problems have occurred.
Referring to the complete circuit diagram:





First, note the separation of the Microphone earth-return from the PTT return. This is readily achieved even with the original Microphone cable, because the required 4th conductor is already there! (A bit of work to access its ends though…).

Powering:
The 15 ohm-1W resistor R4 drops about 2.7 V d.c.; the relays remain reliable with over 4 V drop so this should never give problems. This resistor MUST return to the PTT-earth lead, NOT the Audio-earth! The 1K5 resistor R3 drops this to about 2 V; capacitor C2 (220 µF) filters this; it MUST return to the Audio-earth lead - no use injecting ripple via its negative lead! A small zener-diode D3 is provided to prevent excess voltage reaching the capsule; any value from 3.3 V to 4.7 V should be OK.
Speech-circuit:
Any modern electret microphone-capsule includes a JFET, to which the back-electrode of the capsule is directly connected internally. The load-resistor R1 has about 0.3 V d.c. developed across it which is enough to allow for over 40 mVpp of audio; this resistor effectively defines the source-impedance of the microphone. Other capsules may require some fiddling with the value of this resistor – 680 ohms suits the capsules I have.

Resistor R2 is placed after C1 to minimise transients by defining the d.c. charge on C1 when the PTT switch is open. And as mentioned above, D1 and D2 prevent transients from inside the ZC1 from driving the output more than 0.8V past Vdd or ground; yes, they have proved to be essential!

Oscilloscope checks show that I can easily drive the ZC1 to maximum modulation without raising my voice, while vibrator-ripple on the signal is kept to a low level. (Just what constitutes "maximum modulation" is the subject of another short article!)
Further suppression of vibrator-ripple (and better relay operation, had that been necessary) could be achieved by adding an electrolytic (say, 220 µF 16V) across R4; if used this one MUST be directly across R4 i.e. its return should be to the PTT-return lead, NOT to the Audio earth. (It would be bypassing a 'dirty' voltage so would inject an equally-dirty current to earth, so any common-impedance of this current with low-level audio must be avoided.) This capacitor, if fitted, should not affect CW operation as it would be out of circuit while the PTT switch is released. However, from signal reports so far it appears not to be needed.

More Modulation for ZC1:

After addressing the shortage of audio level in my recently-acquired ZC1 Mk II by use of a higher-output electret microphone, I was still getting poor signal-reports so I started looking into ways of improving this.

I was well-aware of a long-established way of achieving 100% modulation when using the simple choke-coupled constant-current-shared scheme originated by Raymond A. Heising, i.e. to insert a dropping-resistor with a bypass capacitor between the point at which modulated-HT is provided, and the final. But this scheme achieves 100% modulation at the expense of carrier power; the PEP is unchanged at best. Given the part that screen-modulation plays in the high-level modulation of a tetrode/pentode final, it seemed to me that increasing the proportion of modulation applied to the screen of the 6V6GT beyond its normal fraction (about 50%) of the plate supply might be useful. This could be achieved by dividing the screen-resistor (R16A in the ZC1 Mk II schematic, 15 Kohm) into two parts, with one part bypassed by a suitable capacitor. This would work, but be cumbersome to experiment with so I soon realised that a direct equivalent could be achieved by simply adding a series RC-combination in parallel with R16A. (All component references are to ZC1 MK2 circuit diagram.)

Calculation showed that a capacitor of 33nF would always be sufficient (given the 15K resistor at R16A) and a series of experiments showed that the resistor in series with this capacitor should be 15Kohm also. Oscilloscope checks showed that 100% modulation downwards was now achieved, but less than 90% upwards with obvious distortion.

A little thought showed that while the energy stored in the choke on the downward swings will be returned to energise the upswings, the resistive losses in the choke assist downwards modulation peaks but oppose the upswings. The only answer available whilst retaining the basic circuit is to increase the current in the modulator 6V6GT (V4B in the ZC1 schematic) to increase the energy stored in the inductance. The common "AREC" audio modifications have partially addressed this by reducing the cathode-resistor of V4B from 500 to 333 ohms; I found that even more current is required so reduced it further to 270 ohms. This remains within ratings for the 6V6GT; it results in a small increase in total power-consumption but the overall arrangement maintains full carrier-power. Oscilloscope checks show better than 90% upward peaks before obvious distortion occurs; unfortunately the digital sampling artefacts conceal the downwards peaks which show as carrier 'flat-lining' clearly on an analogue CRO.

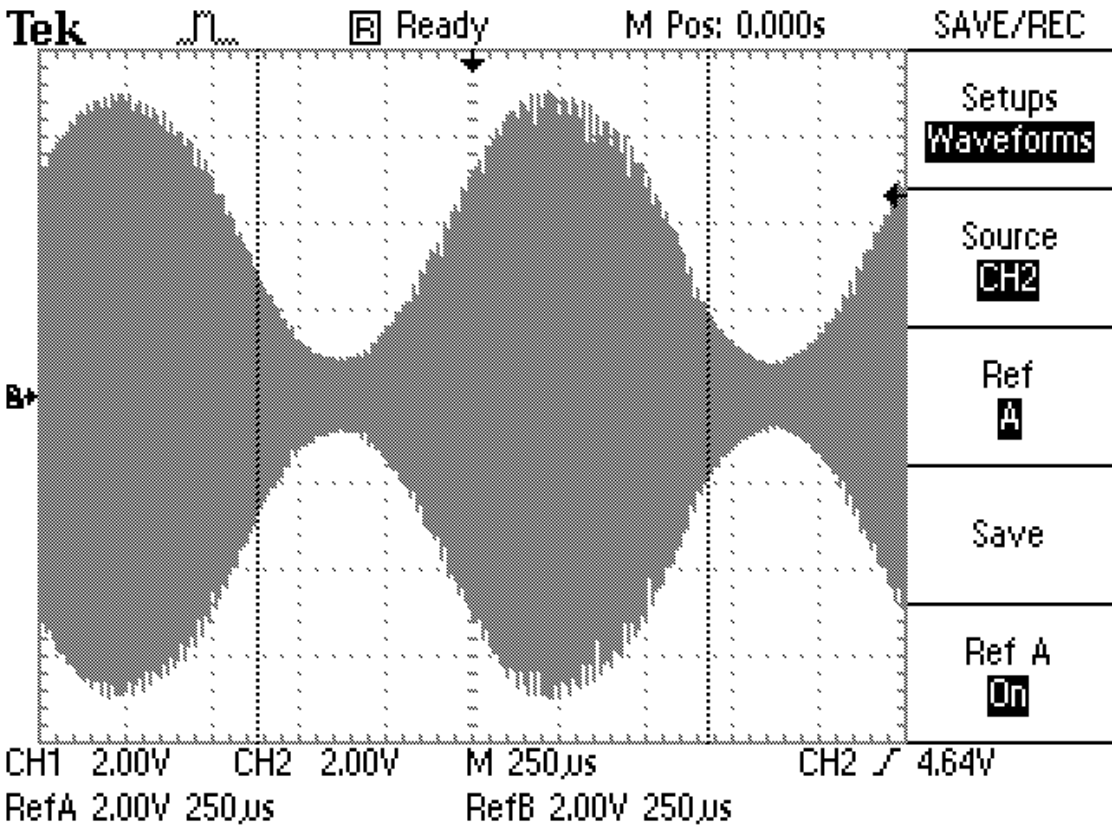
Signal reports have greatly improved !

Historical note:
Another of Raymond A. Heising's schemes uses a centre-tapped choke in a see-saw configuration, with the final at one end and the modulator at the other and HT-supply to the centre-tap. This offers several advantages, including considerable cancellation of d.c-magnetisation in the choke-core, and the modulating tube actively pulling-down at the same point in the audio waveform as the final is seeing maximum voltage and drawing maximum current.

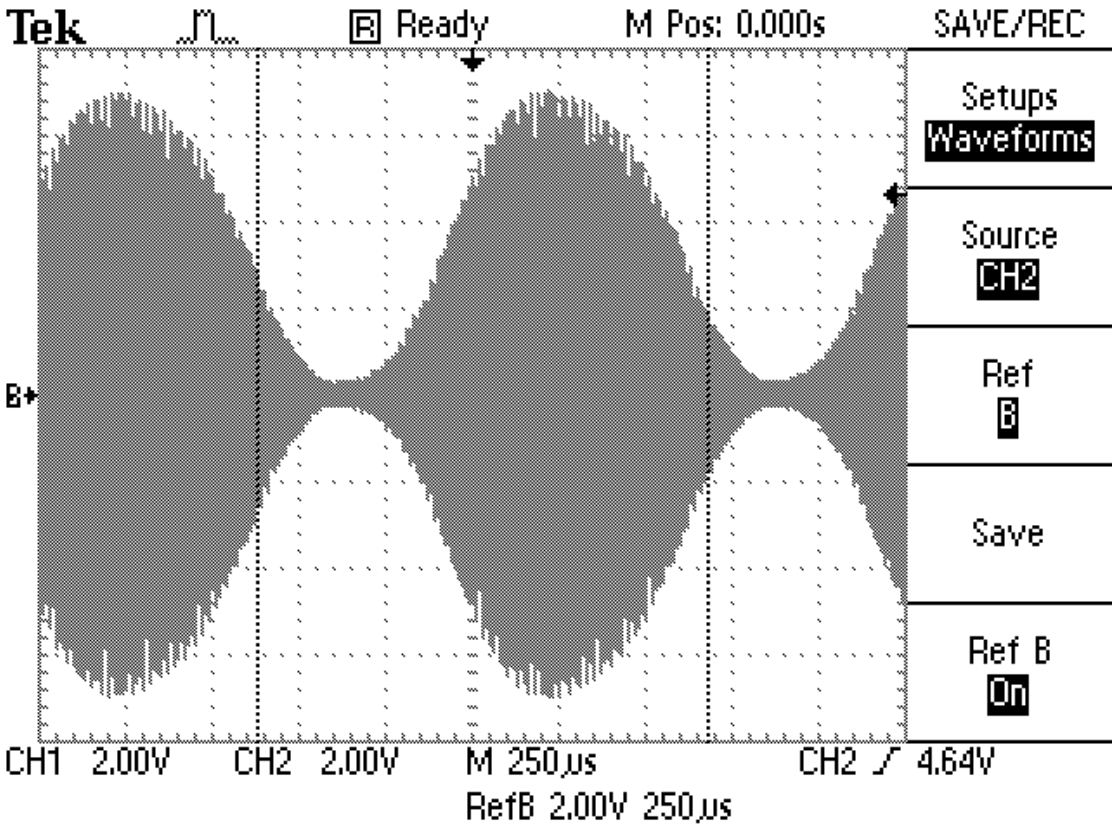
Mr Heising also invented grid-modulation and the diode-modulator, amongst the more than 100 patents granted to him and assigned to his employer Bell Labs .

(This article was first published in Break-In, Journal of the New Zealand Association of Radio Transmitters (NZART), May-June 2012 issue and the second article in July—August 2012 Issue)

Attached: Oscilloscope shots



ZC1 Mk2 with ZL2TBH mods - 3.85 MHz with 800 Hz audio at level 6.3mV



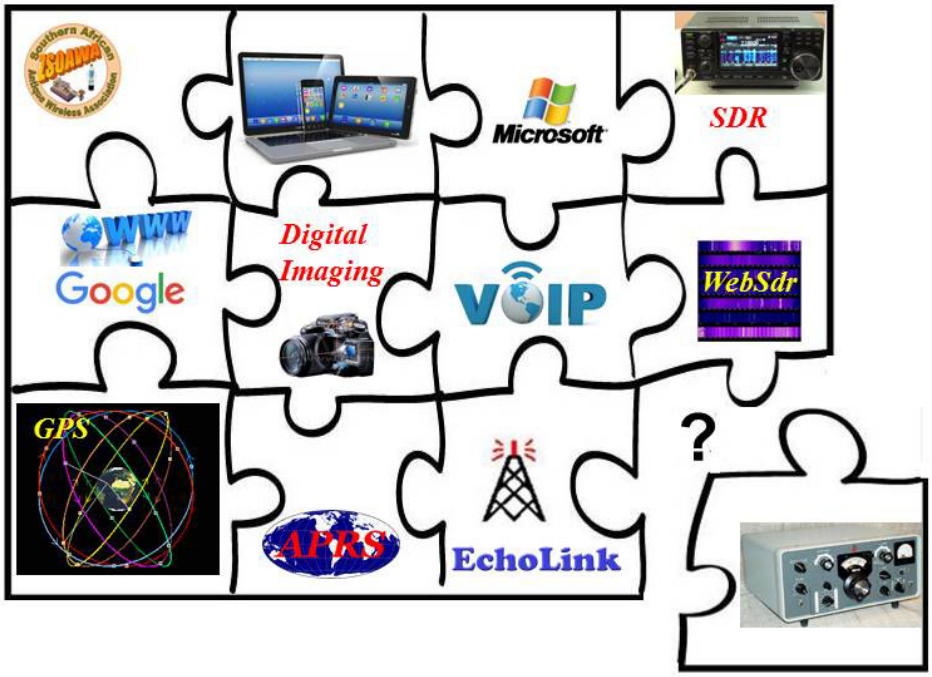
ZC1 Mk2 with ZL2TBH mods - 3.85 MHz with 800 Hz audio at level 8 mV

A BETTER MOUSETRAP

by AWA Historian Richard F4WCD (ZS6TF).

The AWA of SA SSB net on Saturday 4th February 2017 had as its topic of discussion "The effect of latest technology on the old" with specific reference to our radios of yesteryear. Unpicking the mission statement your historian realised that new technology enhances every aspect of the AWA in a way inconceivable when the equipment was designed and manufactured. Furthermore, AWA members use of technology in the pursuit of the mission is catching the attention of the wider ham community as the club becomes more accessible through nets, relays, and the website. In particular, far from being hidebound in nostalgia and obsolete technology, the AWA is acknowledged to be progressive and a resource of knowledge bridging the total development of radio.

This article's title derives from the expression**" Build a better mousetrap, and the world will beat a path to your door"** which dates from the late 19th century. The phrase has turned into a watchword for the power of innovation, and is frequently taken literally, with more than 4,400 patents issued by the United States Patent and Trademark Office for new mousetraps, with thousands more unsuccessful applicants, making them the most frequently invented device in history. So it is with the AWA. The more radio amateurs become aware of what we do with newer technology, the more they become interested in the conservation and use of antique radios, valve technology, AM transmission, and the use of morse code which has been in use for more than 160 years, longer than any other electronic encoding system. It is especially important for young and newly qualified radio amateurs as these topics are not in the license curriculum. Yet this subject is a bit indigestible for some of our senior members, especially those who did not adopt the PC (personal computing) era as it unfolded.



Before talking about the technologies it is useful to talk about the effect of them on communication and our lives. About 15 years ago I was talking to a Japanese work colleague who had the then latest digital camera. He was saving his work documentation on the memory of the camera through the USB connection to his laptop. I jokingly asked "when will the Japanese enable this to be done on the cell phone" and he relied "soon". Pushing him a bit further I said "and a GPS?" to which he replied "within a year". All this of course has come to pass and is an example of **"convergence of applications"** which complicates but enriches the experience.

Another effect is the **"collapse of the information gap".** In the pre PC era it was possible to telephone anywhere in the world, but at a cost, due to state ownership of the resources. To avoid this for family updates in the late 1960's the writer used to post small reel to reel audio tapes backwards and forwards between Africa and the UK, later migrating to tape cassettes. The round trip of this process was 2 or 3 weeks whereas today long messages can be exchanged over Skype, or Facetime with a propagation time of a few milliseconds. Placing orders via the internet with electronic payment have resulted in 3 day deliveries from both the USA and China to our rural post-box, a process which would have taken several weeks in the pre PC era using letters, faxes, telexes and bank drafts.

A third benefit is **"richness of content"** in both quality and quantity. We only need look at the video on Skype, or on You tube, or at the quality and content of the AWA newsletter and website to understand this compared to hand-typed roneo'd sheets of paper that used to arrive in the post in the 1960's.

Fourthly **"accessibility"** is making it easier for non- technical users to obtain at low cost the benefits of the latest technology through simpler and more intuitive interfaces.

The enabling technologies began with the advent of personal computers (PC's). At first very rudimentary devices using versions of the Basic programming language such as the Sinclair ZX81, Commodore, and BBC computers, were often sold in kit form, and were not easy to use. A seminal design was the IBM XT which used an embedded operating system called DOS. Today's PC's are bigger (in capacity), smaller (in size),faster, lower relative cost versions of this ancestor.

The next enabling technology was **networking** over coaxial cables first allowing terminals to communicate to mainframes in the business application, followed by PC's as intelligent terminals, and then with one another. The need rapidly developed for these local area networks (LAN) to be expanded out of the workplace to other remote locations via wide area networks (WAN's). Publicly accessible networks using a protocol called X25 was rolled out in most countries during the 1970s and 1980s by Telco's and private companies lowering the cost of accessing various online services. Prestel (UK) and Beltel (RSA) were highly utilised pre-internet examples. The radio amateurs were quick on the uptake with AX25 protocol (A for Amateur), the foundation of digital modes today. The Internet began with universities networking to share data and information in the 1980's and the major proliferation took place in the 1990's extending the network globally into a network of networks that connects private, public, academic, business, and government networks and individual users, linked by a broad array of electronic, wireless, and optical networking technologies. The bandwidth and speed of the network has been driven inexorably upward enabling voice, music, video, and television transmissions each of which have had their own digital revolution with digital CD,DVD (digital video disc), and VOIP (voice over internet protocol), and digital TV being driven by the consumer realm and development of better downstream consumer devices for storage, display and interaction.

Returning to the AWA mission statement and keeping it simple, encouraging like-minded amateurs to do the same is achieved mainly by the net topics, the website, and the newsletter. This article, the above graphic and the newsletter have been produced and compiled using several of the technologies depicted. There is no doubt that the relay of the Saturday SSB net over Echolink pioneered by Kevin ZS6KAT, and its subsequent connection over the Sandton repeater ZS6STN by Henry ZS6MC has extended the reach of the AWA influence to the global level, and enabled HF challenged members to participate, the writer included. The location and acquisition of boat anchors is often a word of mouth and flea market affair, but without swop-shop on the SARL site, club sites, and on-line auctions the writer would not have obtained some key parts of his collection.

In the repair and home brew mode, use of the internet with search engines comes into its own with trawling for manuals, schematics, articles, valve pinouts and ratings, modifications (and de-modifications), advice and sourcing of spares, materials and resources. There are many helpful groups which specialise down to the individual radio type like FoxTango for Yaesu, WS19 Yahoo group, and the Radioboulevard website is an exceptional resource for the HRO.

Software-defined radio (SDR) is a radio communication system where components that have been hitherto implemented in hardware such as mixers, filters, amplifiers, modulators/demodulators, and detectors, are instead implemented by means of software on a personal computer or embedded processor. Often it is accompanied by a spectral display, for example a waterfall moving display on a dedicated LCD screen or on the PC screen, which can be configured by the user. Its roots stem from panadaptors developed during WW2 and the later development of frequency domain displays on spectrum analysers.

The yachting fraternity have an APRS system uploading position signal packets to a global website automatically just above 10MHz. Apart from its intrinsic interest, the track display gives an almost instant propagation picture for that band. WSPR (The Weak Signal Propagation Reporter) does it better however for all the amateur bands which can only improve as it proliferates. D-STAR (Digital Smart Technologies for Amateur Radio) is a Japanese proprietary system and maybe too exclusive and smart for AWA use.

Given the technical capability that exists among the AWA membership, it is a pity that only a few commit to writing it up for the benefit of others. The publication of technical articles is one way to enhance the associations standing in the amateur radio community. If you don't have the time but the subject has merit and AWA interest, please email the photos and comments to your historian and he will turn it into an article for you.

SDR technology comes into its own for AWA users as a policeman of our signals and Rad ZS6RAD has used it for a long time to keep the signals on the AM net in good order. However webSDR's enable you to do it yourself. Find them all on http://websdr.org/ There is a webSDR in Johannesburg South and the degree of user control of the receiver via the web is mind-blowing. You can use them to listen in to overseas nets such as VMARS,RAOTA, and CCAE and to check out HF propagation. from RSA. A good example is HF/VHF/UHF WebSDR's located at the Nantwich Secret Nuclear Bunker, formerly R.A.F. Hack Green, now a working museum.

Possible Outings for AWA Members:

There are now 3 possible outings,

1) **Skyclass classic scenic flight**
We would like to know who would be interested in a 20min scenic flight in the Douglas DC-3 Dakota or Douglas DC-4 Skymaster, at around R850 per person. See attached flyer for more information. Not necessarily the next date as shown on the flyer, perhaps in a month or two.

2) Visit to the **Rand Society of Model Engineers**
2 April (Sunday)
No entrance fee, and only R10 per ride on the miniature trains
More info: www.rsme.co.za

3) Visit to the **James Hall Museum of Transport**
Possible date: Sunday the 21st of May when the museum will be celebrating International Museum Day!
More info: www.jhmt.org.za

Please let Jacques ZS6JPS know should you be interested in joining any (or all!) of these outings. XYL's and friends always welcome:
jscholtzp@gmail.com

Results of the AWA CW Activity day 05 February 2017.

First place : Barrie ZS6AJY
Second Place : Barry ZS2NF
Third place: Adrian ZS1TTZ
Fourth place : Stephen ZS6SVJ

It must be mentioned that Barry ZS2NF rig was a Hallicrafters HT37 at 50w with an SX 111Rx and modified 2nd WW British strap on key. Good effort Barry.

Certificates for the first 3 places will be sent out by email.
Congratulations to all who took part in the activity.

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Get your backdated issues at
http://www.awasa.org.za

Antique Wireless Association of Southern Africa

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website: www.awasa.org.za

Notices:

Net Times and Frequencies:

Saturday 06:00—AM Net—3620
Saturday 07:00—Western Cape SSB Net— 7140 (Alternate 3630)
Saturday 07:30—KZN SSB Net—3615
Saturday 08:30— National SSB Net— 7140; (Echolink connect to Sandton repeater ZS6STN-R)
Saturday 14:00— CW Net—7020
Wednesday 19:00— AM Net—3620, band conditions permitting.

ICASA Licence fees for 2017

The new fee structure for Amateur Radio licences has been announced by ICASA. The fees for 2017 will come into effect from 1 April 2017 and are as follows:

1-year licence R134.00
2-year licence R256.00
3-year licence R367.00
4-year licence R468.00
5-year licence R559.00

Please note, that any licence not renewed by 1 April 2017 will lapse and the licence holder will have to re-apply for a new licence and this will be subjected to extra costs. No fees will be accepted after 1 April 2017.

ICASA has recommended that Amateur Radio licence holders apply for a 5-year licence. This equates to a current saving of R111.00. You will also save the yearly escalations.

You need to apply in writing specifying the licence you wish to apply for. This must be stated in the subject heading of the relevant e-mail to ICASA. For example, the required number of years licence, your seven-digit licence number and call sign (e.g. 5 year payment, licence number 544-165-1, ZS6ZU). If you do not notify ICASA of the required term of licence, you will receive a one-year licence, regardless of the amount paid.

For all those who have already paid using the 2016 fee structure, the balance outstanding must be submitted to ICASA before 1 April 2017, otherwise your licence will lapse.
If your surname is between A to K, then you need to e-mail your payment advice to Mr Kenneth Kgwedi at KKgwedi@icasa.org.za
If your surname is between L to Z, then you need to e-mail your payment advice to Mr Pieter Jansen at PJansen@icasa.org.za

All Amateur Radio licence fees need to be paid directly to ICASA and NOT to the SARL.

The ICASA banking details:
Nedbank account 1462002927
Branch (universal code) 198 765
Deposit reference: Your seven-digit licence number