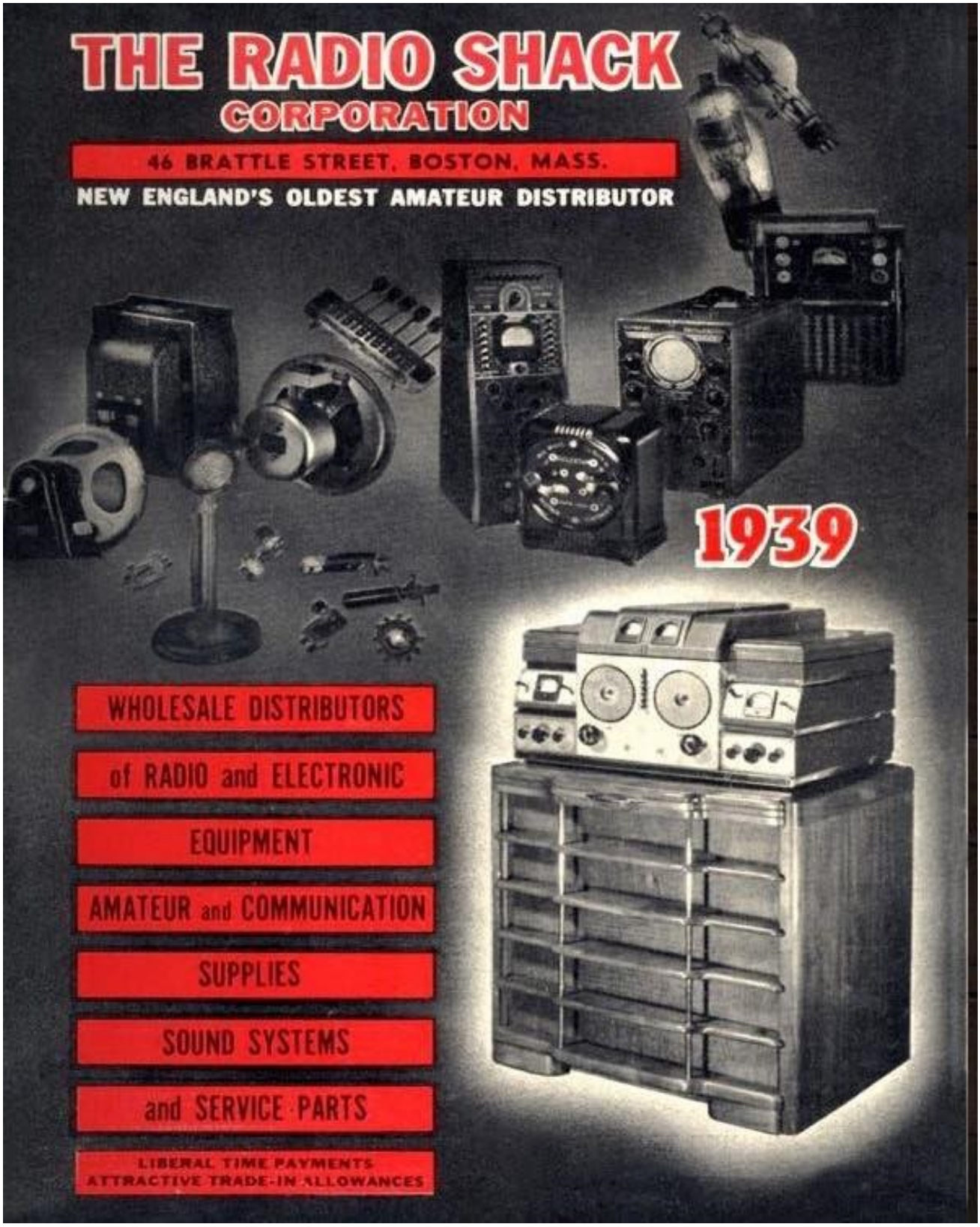
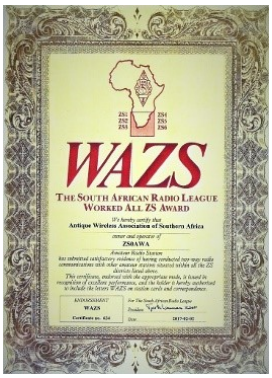
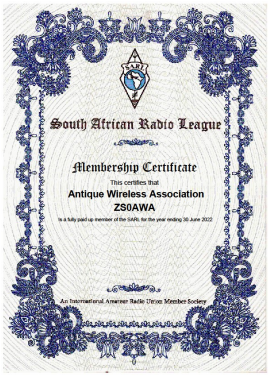
Antique Wireless Association of Southern Africa

209 December 2023







Inside this issue:

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Reflections:

With Xmas approaching fast, I suppose many will be trying to decide how they going to blow their annual bonus. Do we take the kids away on holiday ? Do we stay home and blow it all on parties and braai ? Do I get the wife the new car she was wanting ? Do I buy the latest SDR operated radio with all the bells and whistles ?

If you are considering the last option, there are certainly some nice radio's around on the new market that would really look good on your shack table. Really good plug and play stuff.

It's a hard life, but someone has to supply the second hand market with some good quality radio's that you don't have space for.

There again, there are also plenty of good old radios around that are crying out to be refurbished and get a new life. It works the same as when you want a new dog, get a rescue dog instead of a new puppy. You will feel a whole lot better and help to keep the second hand market going. Plus, the wife won't be as mad at you for getting another radio when you tell her it's a rescue.

There are so many radios out there looking for new homes and I absolutely love it when I see messages that get placed on the AWA group of radio's that follow people home and they take them in, make them look and work just like they used to and give them a good loving home.

This is the kind of thing that the AWA is made of. For instance, we were donated a set of earphones that belonged to Streeter. Yes the man Streeter who started amateur radio with all home built equipment in the days of yore in Cape Town. Well his earphones have now been paired up with his original radio that now sit in the Museum at the SAIEE. That is an achievement that none of us could ever have imagined, but thanks to some influence of Paul ZS1S and the daughter of Dennis Wells (SK), this has happened. " Thus ensuring the maintenance and preservation of our Amateur Heritage". Thanks Paul and our thanks to Jeanette Wells.

So now, all that remains for me to say is, no matter how you celebrate this time of the year, we wish you all happiness and health and as old man Rod ZS5RK(SK) used to say, more strength to your arm. I never quite knew whether that was for sending CW, pushing the PTT or maybe some other form of entertainment, but have a really pleasant time with your families and friends.

Remember to join up with us on the AWA net every Saturday morning at 06h30 (UTC) 08h30 for those in GT, on all of those different modes and ways.

You will never want to miss another one after you been there once.

Best 73

DE Andy ZS3ADY

Coronal Mass Ejection (CME) **Wikipedia**

Propagation:

Observations of CMEs are typically through white-light coronagraphs which measure the Thomson scattering of sunlight off of free electrons within the CME plasma. An observed CME may have any or all of three distinctive features: a bright core, a dark surrounding cavity, and a bright leading edge. The bright core is usually interpreted as a prominence embedded in the CME (see § Origin) with the leading edge as an area of compressed plasma ahead of the CME flux rope. However, some CMEs exhibit more complex geometry.

From white-light coronagraph observations, CMEs have been measured to reach speeds in the plane-of-sky ranging from 20 to 3,200 km/s (12 to 2,000 mi/s) with an average speed of 489 km/s (304 mi/s) 1996 and 2003. Observations of CME speeds indicate that CMEs tend to accelerate or decelerate until they reach the speed of the solar wind (§ Interactions in the heliosphere).

When observed in interplanetary space at distances greater than about 50 solar radii (0.23 AU) away from the Sun, CMEs are sometimes referred to as *interplanetary CMEs*, or *ICMEs*.

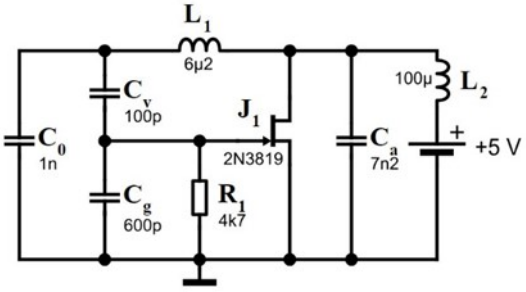
The Vackar oscillator – a 1949 electronics design

by Daniel Romila, VE7LCG

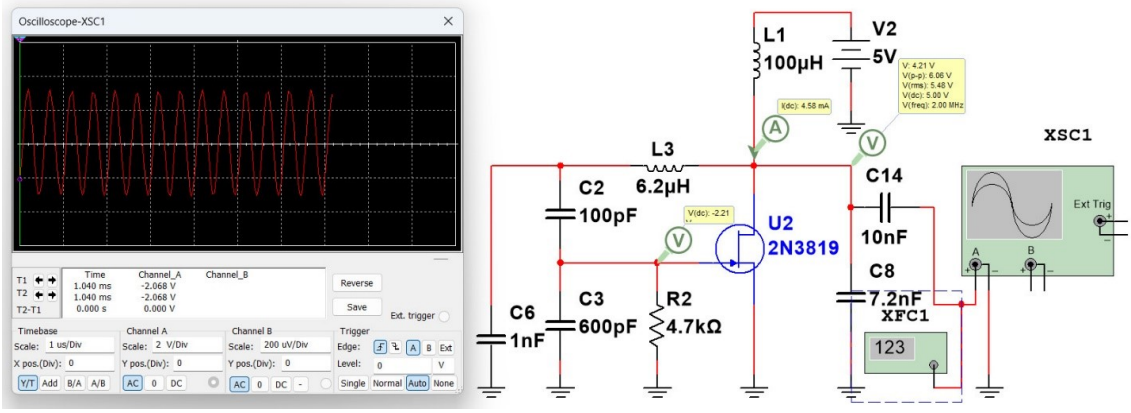
This article is intended for those readers wanting to have fun with CAD and breadboarding experimenting and learning/ remembering some old analog oscillators. The article does not go neither into the theory, nor into building something that would take days/weeks to build and permanently use after; it is just for those wanting to exercise, have fun and see immediately something working. But I provide links for those that decide to go deeper into construction, and not just the links, but a short explanation what I learned myself from those external materials, and why I choose them.

I was asked in an email by an older radio amateur colleague if I have experience with Vackar oscillators. In that moment the answer would have been NO, so I decided to correct the situation and quickly build some, starting virtually with CAD (computer assisted design), and select after a schematic to implement on the breadboard.

According to Wikipedia: "A Vackar oscillator is a wide range variable frequency oscillator (VFO) which has a near constant output amplitude over its frequency range. It is similar to a Colpitts oscillator or a Clapp oscillator, but those designs do not have a constant output amplitude when tuned."

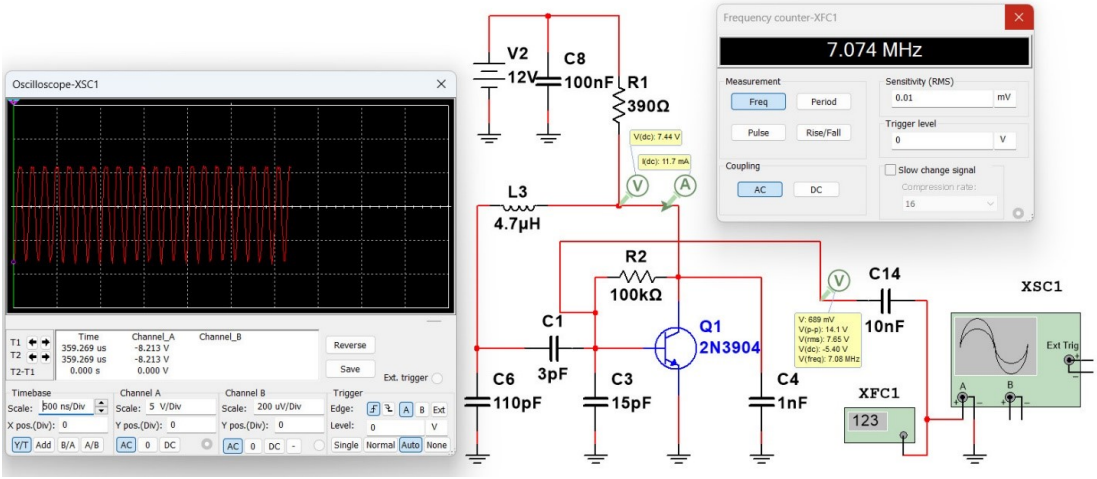


There is a schematic given on Wikipedia, as example of Vackar oscillator: Initially, it did not work for me. I tried it in Multisim 14.3, and I simply could not make it oscillate.
After verifying the schematic and repairing my mistakes I was able to simulate this 2 MHz oscillator:



I also tried the above schematic with the transistor BF245, and it works the same.
Anyhow, in the while I remembered that Vackar oscillator is that oscillator where there is a PI kind of circuit, formed by an inductor and two capacitors, like a low pass filter. It is just a quick visual indication for me to recognize if an oscillator is the Vackar type.

I drew another schematic, this time with a bipolar npn transistor, 2N3904:

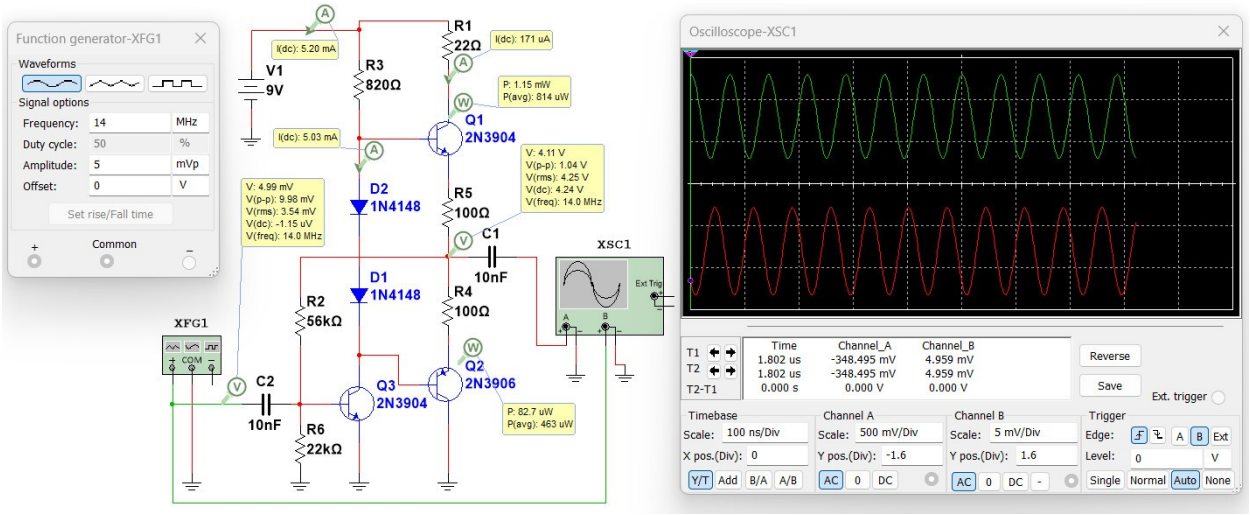


I need to underline here that the material written by the Czeck engineer Jiri Vackar in 1949 was more than proposing a schematic. He gave practical means for making the inductors, combination of capacitors and calculations in order to obtain a variable frequency oscillator close to the stability of a crystal quartz oscillator.

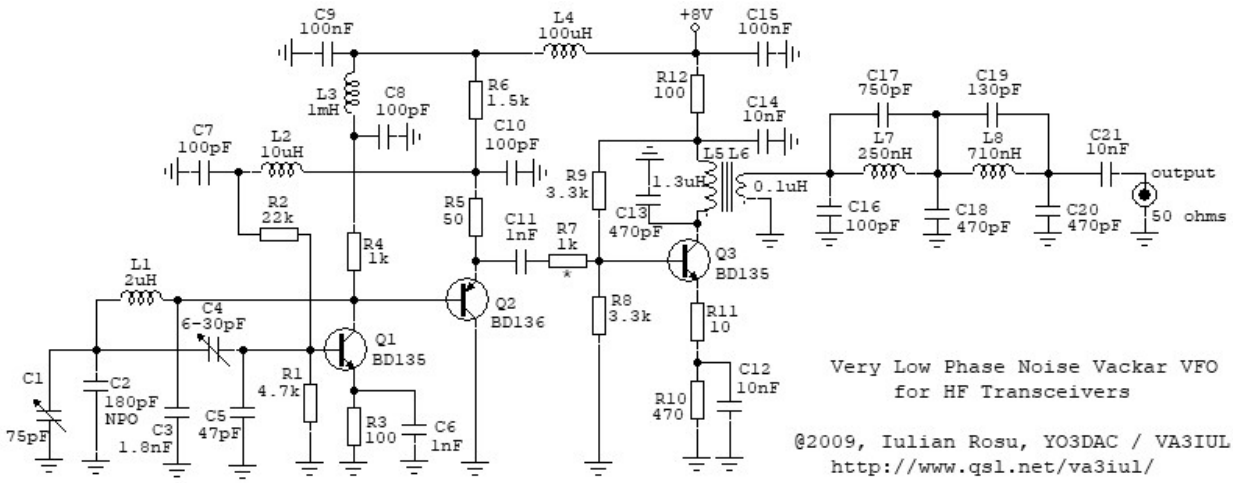
I looked on the Internet for something similar to Wikipedia's schematic, less theoretical and more practical. I found the website of Bob F. Burns, G3OOU, where he gives a practical schematic, he really made, with plenty of explanation and calculation for making a permanent built of a Vackar oscillator, with separator and amplifier, for various frequencies. G3OOU also gives details how to obtain a good thermic compensation and stability of his version of Vackar oscillator. https://www.qsl.net/g3oou/vackarvfo.html

I reproduce here just what follows after the oscillator, since the oscillator itself is the same schematic with Wikipedia's example, and it contains some Tx/Rx switching components irrelevant for this article.

The class AB amplifier, a classic vintage final audio schematic might be an overkill: in order not to distort the signal, the input of the BF199 transistor must be attenuated to some mVolts values. Here is my own drawing and simulation of the last stage. In the 14 MHz band I obtained an amplification of 100 times. I limited the input to 10 mV peak to peak:

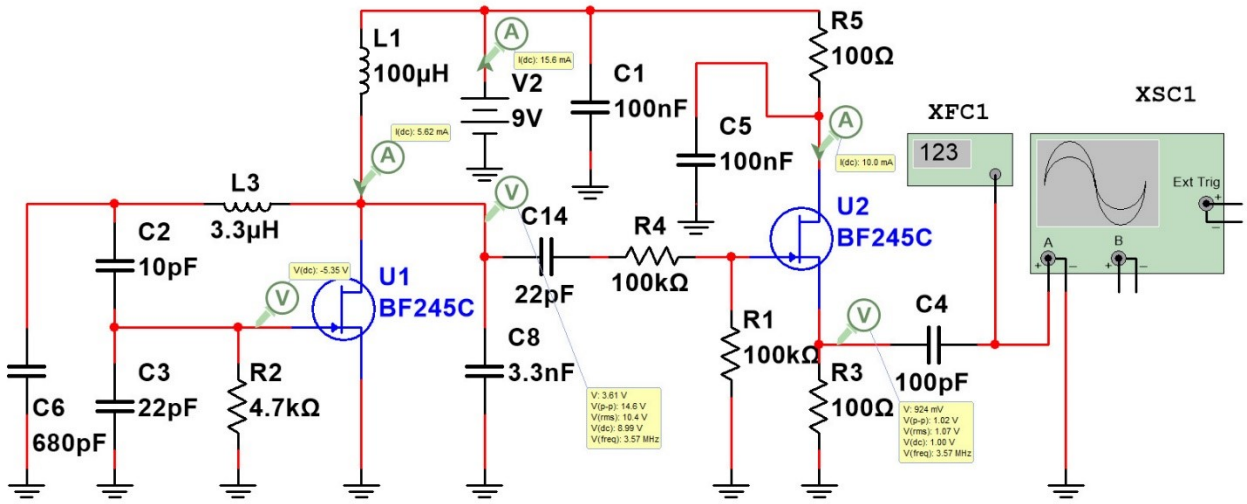


The complicated schematic designed by Bob F. Burns, G3OOU assures a very good separation of the oscillator from whatever it is connected at the output of the schematic, which has a low impedance.
A very different approach was adopted by Iulian Rosu, YO3DAC / VA3IUL. He designed a Vackar oscillator with medium power transistors, which have a low noise when used at very low power. There is also a loop for regulating the output of the oscillator, between the emitter of Q2 and the base of the Q1. The full article, with details about constructing such a very low phase noise Vackar oscillator can be found at:
https://www.qsl.net/va3iul/Very_Low_Phase_Noise_VFO/Very_Low_Phase_Noise_VFO.htm



I decided that an experimental practical build, which I will do on the breadboard, verify and measure with an oscilloscope and tear apart after, would not follow a complicated schematic. I settled for an oscillator with FET and a source follower also with

FET:



The output voltage is around 1 Volt peak to peak and the frequency is around 3.57 MHz.
VA3DIW has an interesting page about this vintage oscillator design with explanations and schematics: https://www.qsl.net/va3diw/vackar.html

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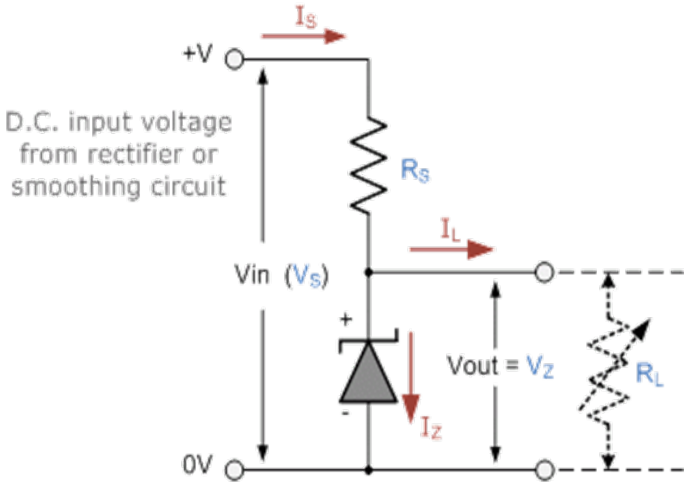
Voltage stabilizer tubes

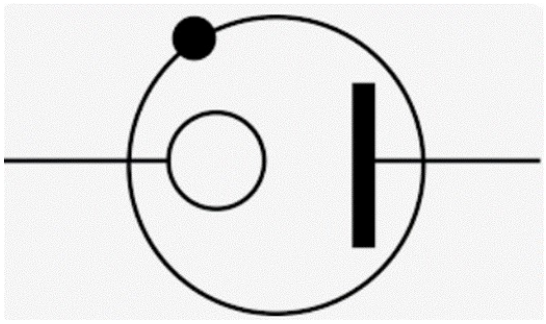
by Daniel Romila VE7LCG

Whenever we talk about tubes, we immediately think of something hot, because the cathode of the vacuum tubes emits electrons only when the filament heats. But there are special tubes which work cold. Those are the voltage regulators. Instead of vacuum the glass tube is filled with gas. When enough voltage is applied across the electrodes, the gas ionizes, forming a glow discharge around the cathode electrode. The tube is designed to present a variable resistance. More ionization, less resistance, and in this way less voltage across this variable resistance, the voltage tube regulator.

The way to use it in a circuit is exactly like we use a Zenner diode:

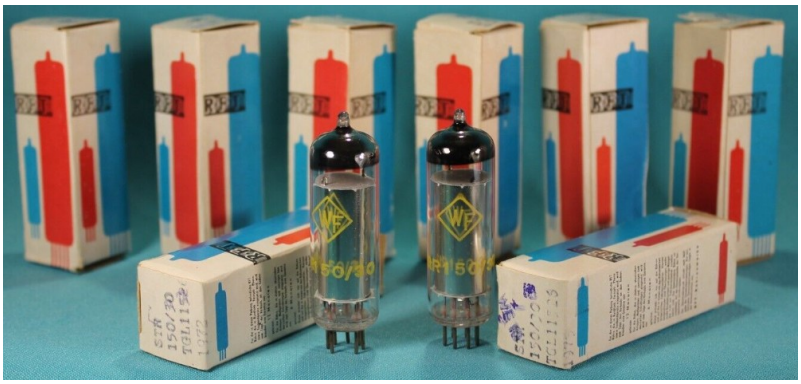


From: https://www.electronics-tutorials.ws/diode/diode_7.html

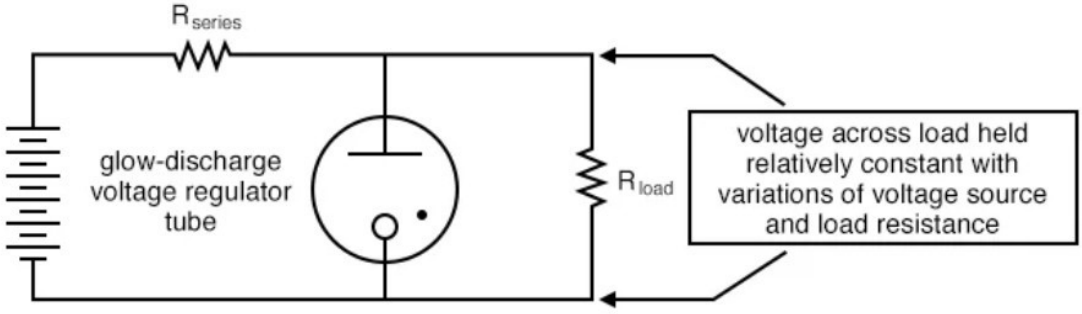


The electrical symbol for those voltage stabilizer tubes:

I worked myself with tubes for stabilizing the voltage from 200 Volt down to 150 Volt, for a variable frequency oscillator made with a double triode (oscillator and separator).



The schematic, as already written at the beginning, is similar with the schematic using a Zenner diode. From https://www.allaboutcircuits.com/textbook/semiconductors/chpt-13/ionization-gas-filled-tubes/



Carl & Jerry: Going Up, Up, Up
March 1955 Popular Electronics

"Radio and television waves are reflected in the same way as light waves. As both light and radio waves are forms of electromagnetic waves, they are both subject to the same basic laws and principles. Visual examples of light reflection are everywhere from specific mirrors to flat reflective surfaces like glass, polished metal and the like. So too, radio waves can experience reflection. Conducting media provide the optimum surfaces for reflecting radio waves. Metal surfaces, and other conducting areas provide the best reflections, so the story below is feasible and within the known technology at the time. The use of a highly directional Yagi antenna would have been very important because without it the reflected waves would have been inverted (out of phase) with the normal signals, thereby reducing the overall received signal. This effect was noticeable with analog television as a helicopter or other aircraft passed over a receiver in an urban area sometimes resulting in severe ghosting."

Thanks to Mr. Ferrous Steinka for submitting this commentary on the episode of Carl & Jerry appearing in the March 1955 issue of *Popular Electronics* magazine.

Carl and Jerry: Going Up, Up, Up

By John T. Frye

Twas one of those unseasonably warm days that March often borrows from May and then pays back with a chilly day of its own during the latter month. Jerry Bishop was a victim of this nice weather. Instead of lolling comfortably on the leather-covered couch in his basement laboratory while his nimble mind toyed with some fascinating electronic problem, he found himself standing in the middle of a vast expanse of winter-littered front yard with a rake firmly grasped in his plump hands. Recalling the dark threats his father had made about what would happen if he came home that evening and discovered a single unraked square foot of that yard, the boy plied the rake vigorously.

As he engaged in this unaccustomed and --to his mind—unseemly exercise, Jerry reflected bitterly that any other time his pal and neighbor, Carl Anderson, would be around to provide Jerry with at least a fifty-fifty chance of inveigling his friend into helping; but Carl had not shown up all day. Like most jobs, though, once started it was not so bad. He had the yard more than half finished an hour later when Carl came dashing around the house with his dog, Bosco, in playful pursuit. Around and around the yard the hay and dog romped while Jerry leaned on his rake handle and looked at this reckless waste of energy with mild disapproval. Finally Carl threw himself on his back at full length in front of Jerry and let Bosco tug and worry at his pants leg while he looked up with a grin and said, "Well, Blubber Boy, how do you like doing a little physical labor for a change? I've been sitting up there with old Mr. Gruber in his room for the past hour watching you. It was an interesting study in slow motion."

"What were you talking to him about?" Jerry asked, ignoring the other remarks.

"I was trying to get him to tell me about his experiences with the Rough Riders. I always thought old people enjoyed talking about the past. Well, someone ought to explain this to Mr. Gruber. All he wants to talk about is flying saucers!"

"What about flying saucers?"

"He's read everything about 'em he can get hold of, and he has a stack of science-fiction magazines this high," Carl said as he suddenly elevated one powerful, lanky leg straight up in the air to show the height of the magazine stack, with Bosco, his eyes tightly shut, still clinging doggedly to the pants cuff. "Mr. Gruber's convinced the saucers contain people from Mars who are trying to raid the earth, and he keeps a loaded double-barreled shotgun right by his bed to repel an invasion by day or night."

As Carl talked, Jerry walked slowly over to a silvered-ball lawn ornament and stared at it fixedly as he walked around it.

"Crystal gazing will get you nowhere," Carl jeered unsympathetically. "You may as well make with the rake, Jake."

"I was just noticing I could see you and Bosco reflected in this globe, no matter where you were playing with him," Jerry said with a thoughtful look on his round face.

"A fascinating bit of useless information," Carl remarked as he sat up and vigorously wiped his horn-rimmed glasses with a questionable-looking handkerchief.

"No information is useless," Jerry declared reprovingly. "This gives me an idea. TV signals move in straight lines much the same way light does. If we had a silvered ball like this mounted away up in the air where it would be in the direct line-of-sight of signals arriving from the station on Channel 6, sixty-five miles away, those signals would strike different points on the ball and be reflected down into every location in town, where TV antennas pointed right at the ball should provide excellent reception. A balloon with a metallic painted surface doubtless would serve just as well as the silvered ball. Even if such a spherical balloon moved around, there would always be some point on its surface that would serve to reflect the signals down to a given antenna, just as there was always a point on this ball that reflected the light waves from you and Bosco to my eye."

"Well, since we don't have a balloon-" Carl suddenly stopped short and clapped a hand over his mouth.

"Hey! You know where there is a balloon!" Jerry accused excitedly.

"Me and my big mouth!" Carl exclaimed in disgust. "I just remembered that I have a rubber balloon six feet in diameter and a cylinder of compressed helium to inflate it. Dad picked them up at a war surplus store some time ago. I'm saving the balloon for amateur Field Day. Then I'm going to see how our portable club station transmitter can get out with a long wire vertical antenna."

"Aw, Carl, you don't want to wait until then to try out your balloon," Jerry wheedled. "Maybe that cylinder has enough helium in it to fill the balloon several times. Let's spray it with a coat of aluminum paint and see how my idea works tonight."

"We-I-I-I, I dunno," Carl said slowly, obviously weakening. "How high would it have to go, and what would we use to hold it? I was going to use wire out in the country, of course."

"Using wire on a balloon in town, around all the wires carrying high voltage electricity, would be about as healthy as rubbing noses with a cobra," Jerry observed. "I've got a roll of binder twine in the basement that will be just the stuff. As to how high we've got to go, let's see now . . ." He pulled a battered slide rule from his hip pocket and began working with it as he talked.

"I remember the formula for determining how far out you can see on the earth's surface from a high point, allowing only for the normal curvature of the earth. $D = 1.23\sqrt{H_t}$, where D is the distance you can see in miles and Ht is the height of the viewing position - in this case the top of the transmitting antenna - in feet. Channel 6's tower is just about 1,000 feet; so we take the square root of that, which looks like 31.6, and multiply it by 1.23, and we get very, very close to 39 miles.

"Now we know the station is 65 miles away, and 39 from 65 leaves 26 miles as the distance our balloon must be able to 'see' if it is to establish what hams call 'eyeball contact' with the transmitting antenna. Substituting this in our formula gives us $26 = 1.23\sqrt{H_b}$, where He is the needed height of the balloon in feet. Dividing both sides of the equation by 1.23 gives us about $21.1 = \sqrt{H_b}$. Squaring both sides of this yields $445 = H_b$. In other words, our balloon should be around 450 feet in the air for line-of-sight reception. In actual practice, the height worked out by this formula can be decreased by a factor of from 1.25 to 1.35 to allow for the refraction that TV signals experience in the earth's atmosphere that ordinarily increase the 'virtual line-of-sight' distances beyond the true line-of-sight figures. Just to be safe, though, I think we'll stick to the figure worked out."

"Well, let's get going," Carl said as he sprang to his feet and vigorously brushed off the seat of his trousers.

"I'd like to," Jerry said wistfully, "but I've got to finish this yard first. Of course, if you were to get your rake and help...."

"All right, all right!" Carl shouted over his shoulder as he hurdled the fence between his yard and Jerry's. "I might have known I'd be suckered into something if I came around while you had work to do, but maybe this will teach me a lesson. I'll be right back with the rake."

He was as good as his word, and the remainder of the yard was quickly finished. Carl's explosive energy made short work of the leaves and twigs - and even of some of the grass roots! As soon as the yard was done, both boys tossed their rakes aside and made a bee-line for Carl's garage.

There Carl fished a long box out of an old trunk and opened it to reveal the limp carcass of a large yellow rubber balloon and a small metal cylinder of gas. It took only minutes to attach the two and open the valve. There was a great hissing sound, and the wrinkled envelope swelled and smoothed out into a beautiful golden sphere. Apparently the man who filled the cylinder calculated very nicely, for just as the balloon reached a diameter of roughly six feet, the hissing noise stopped and the rubber sphere ceased to grow.

" 'Maybe the cylinder has enough helium in it to fill the balloon several times,' he says," Carl quoted bitterly.

"So I was wrong," Jerry cheerfully admitted as he closed the valve in the neck of the balloon. "Wups!" he exclaimed as the neck slipped from his fingers and the balloon soared up and bumped along the rafters of the tall barn that had been converted into a garage. "It's a good thing we didn't fill it out of doors. You get a ladder and recapture the slippery thing while I get our spray gun and put some aluminum paint in it."

Neither operation took long. Carl held the captive balloon and turned it about while Jerry stood on a stepladder and sprayed the surface with metallic paint. Jerry directed the paint spray with more enthusiasm than accuracy, and by the time the job was finished, Carl's face had a metallic sheen that matched the silvery sphere he was holding.

"I'll bet my face cracks six ways the next time I smile," he muttered through stiff lips. "Now I know how the man in the iron mask must have felt. Say, wait a minute!" he exclaimed as he picked up a piece of black tissue paper and began whacking away at it with the tin snips. In a couple of minutes he climbed up on the ladder and pressed the bits of paper against the sticky surface of the balloon. Those bits of paper (serving as eyes, mouth, and nose), transformed the silvery bubble into the bald head of a menacing, snaggle-toothed ogre.

"Holy cow!" Jerry exclaimed, "I'd hate to meet that guy in the dark."

"When I was in the third grade, I won a prize for carving- the meanest-looking Halloween pumpkin," Carl modestly admitted.

The boys spent the remaining daylight hours rigging up an old yagi Channel 6 antenna the Bishops had taken down when they put up their new all-channel antenna and rotor. The yagi was mounted on a broom handle thrust through the rungs of a stepladder so it could be rotated on a horizontal axis.

"By keeping the side of the yagi pointed at the station while the front of it points up in the sky, we can make sure all the reception we get is reflected from the balloon," Jerry explained. "A yagi picks up practically nothing off the side."

Carl's folks had gone out of town for the weekend; so the two boys had the run of the Anderson home. It was thought best to keep the balloon raising point, the yagi antenna, and the TV receiver all as close together as possible so that information could be easily relayed back and forth between the balloon-and-antenna operator and the TV set observer. To this end a short length of twin lead was run from the TV receiver out through a window to the yagi set up on a short ladder between the Anderson house and the Gruber home next door. The binder twine was measured off and a knot tied every fifty feet so the height of the balloon could be known. When everything was ready, both boys went over to Jerry's house for supper, leaving the balloon safely hidden inside the closed garage. They did not want to send it up until after dark to avoid attracting attention.

By eight o'clock it was quite dark except for the light of a bright moon just coming over the housetops. Carl and Jerry, armed with flashlights, stealthily conveyed the balloon, tugging and bobbing in the gusty breeze, out of the garage and into the narrow space between the houses.

"Sh-h-h, don't make any noise," Carl whispered as he pointed to the lighted window above their heads on the second floor of the Gruber house. "Grandpa Gruber must be catching up on his science fiction reading, and in spite of his eighty years, he's got plenty good ears."

"Okay; let her go up," Jerry commanded.

"Aye, aye, sir; releasing ballast," Carl whispered as he let the coarse binder twine slide through his fingers.

The released balloon soared aloft like a live thing for about twenty feet, and then it stopped with a jerk.

"What's the matter'?" Jerry whispered hoarsely.

"Darned twine is tangled," Carl muttered as he fumbled with knots in the darkness. Above their heads the balloon was caught by a gust of wind and lurched over and bumped against the lighted window pane with a soft thumping sound.

"Holy cow! Let it go, tangle and all," came Jerry's agonized plea.

Carl obeyed, and the balloon started up again; but it was too late. From the lighted room there came a sound that was half a scream of fright and half a Rebel yell.

"Boots and saddles! Prepare to mount! Charge!" came the muffled shouts of Grandpa Gruber. Then his window was thrown open and a long black tube thrust outside. A moment later an orange tongue of flame licked out of the tube toward the balloon, only to be followed a second later by a second jet of flame. Three reports rang out almost as a single clap of sound, and the balloon evaporated from sight. The binder twine dropped back to earth in a tangle over the heads of both boys.

"I got him! I got the varmint!" Grandpa Gruber cackled at the open window, as doors were thrown open and people came running from all directions. "Look for his carcass down there, but keep an eye peeled for some more of them Martians that may be hanging around. He was thirty feet tall with a head as bald as an egg and as big as a barn door and the skinniest body you ever did see. I got a real good gander at him while he was peeking in my window, and I'll swear I never saw such a mean-looking countenance outside of a nightmare. Hain't you found his carcass yet? Old Betsy here put two loads of chilled shot right between his nasty eyes; and there ain't a thing on this earth or any of the rest of the planets that can live after a dose like that."

"All right, folks, stand back; what's going on here?" demanded a policeman as he shouldered his way through the crowd.

"Mr. Gruber up there saw somebody- or some thing - peeping into his window and shot at it," a woman explained.

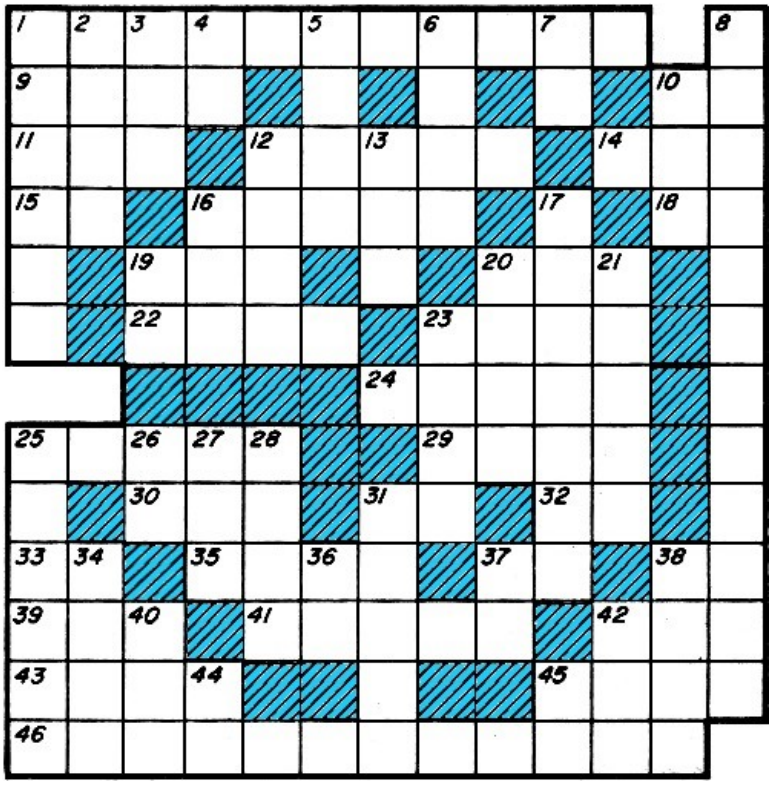
"Peeping into a second story window!" the policeman scoffed. "Grandpa, you'd better close that window and go on back to bed before you catch a cold. You've been having a nightmare."

"Nightmare my eye, young know-it-all!" Mr. Gruber said tartly. "I tell you I saw a man from Mars, and I let moonlight through his pumpkin head with Old Betsy here. If you can't find the body, like as not his companions have lugged it off in one of their saucer ships. But there's no use trying to explain anything to stupid people who read nothing but the comics."

Saying this, Grandpa Gruber slammed down the window, and a few minutes later the light in his room went out.

Jerry and Carl had very quietly and unobtrusively slipped into the Anderson house as soon as the policeman arrived, but they had not escaped his notice. As he got back into the squad car he said reflectively to his fellow officer, "You know, every time there's some excitement, that tall tow-headed kid with the glasses and the short fat one are right on the spot. I wonder how come."

Inside the Anderson home, Carl and Jerry sat on a couch and grinned at each other rather sheepishly.
"That's the end of my Field Day balloon and your experiment," Carl said slowly, "but I guess neither of us minds too much. It was worth it just to let Grandpa Gruber get a good look at one of his saucer folks. I just hope I've got half his zip and fire when I'm that old." END



ACROSS

1 Harvey·Wells T90 is a _____

9 Inclined passageway.

10 Toward.

11 Novices are limited to 75 watts ___ abbrev.

12 I^2R.

14 Code for "Do you have anything for me?"

15 All right: abbrev.

16 In transistors, N is the _____ of electrons.

18 Diameter symbol seen on mechanical blueprints.

19 State in third amateur district: abbrev.

20 Helpful for mobile operation.

22 Better halves: code.

23 Novice who can't make General Class.

24 One of the "R's" in ARRL.

25 Type of lug.

29 Directional antenna.

30 Policeman.

31 Swan Island station prefix.

32 _____ Cobb.

33 Components of a tuned circuit: symbols.

35 Modulation used in R/C devices.

37 Type of engineering degree.

38 Initials of your favorite magazine.

39 Control grid is to electron stream as _____is to river.

41 More cunning.

42 Leyden _____

43 Evenings before.

45 Friends.

46 Receiver type.

DOWN

1 Amplifier tube.

2 Standing.

3 Unit of current measurement: abbrev.

4 One of the magnetic poles: abbrev.

5 Radar signals were bounced off this object.

6 Layer.

7 Plate voltage: symbol.

8 Sound transducers.

10 Prefix for three.

12 Broad end of a hammer.

13 Succeeded.

16 Pasha of Tunis.

17 An antenna is used to _____ electrical energy.

19 Long distance: abbrev.

20 C.W. signals.

21 What most ham shacks are not.

23 Small amounts of speaker cement.

25 Metal alloy used by experimenters.

26 Alternating current: abbrev.

27 C.W. for "e."

28 Epic poetry.

31 One who operates code-sending device.

34 Natural opening.

36 North latitude: abbrev.

37 "Call Me _____ ": abbrev.

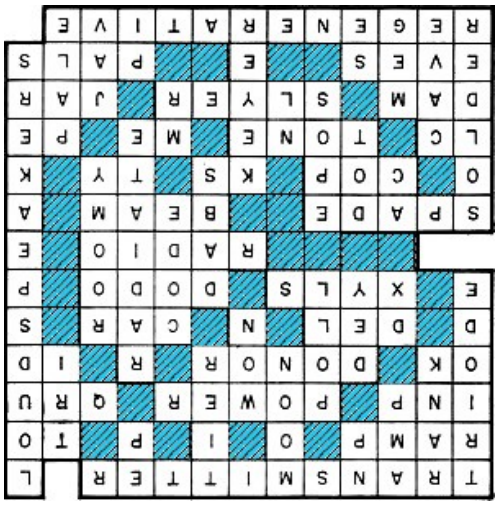
38 Pallid.

40 1,000,000: abbrev.

42 Islander with PKI ham prefix: abbrev.

44 Element used in some solid-state rectifiers.

45 Type of antenna impedance network.



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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.

Notices:

Net Times and Frequencies (SAST):
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net —7.140; Every afternoon during the week from 17:00—7.140
Saturday 08:30 (06:30 UTC)— National SSB Net— 7.125;
Sandton repeater 145.700
Echolink—ZS0AWA-L
Kempton Park Repeater—145.6625
Relay on 10.125 and 14.135 (Try all and see what suits you)
Saturday 14:00 (12:00 UTC)— CW Net—7025

AWASA Telegram group:

Should you want to get on the AWA Telegram group where a lot of technical discussion takes place, send a message to Andy ZS3ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business. You must download the Telegram App first. …..+27824484368

Items for Disposal:

I have a Yaesu FT 102, Yaesu FTDX 400, Yaesu FL100B and Trio 9R-59DS Receiver as well as a Yaesu MD 1 desk mic and a Yaesu YD 844 desk mic from an SK estate. I have explained to the people these are very old etc with a limited market. The FT102 does about 180 W key down, the other 2 around 130 W each.
There is also a CD45 II rotator, brand new in the box never used.
I can get them to Pretoria if there is any interest.

Paul ZS6NK...WA 0768310982

Website:
A note of thanks to Rudi ZS2M who has been sorting out a few problems and updating the software on the website. This all in his spare time and free of charge.
You will also be able to find audio links of the Saturday morning nets on the web under "Latest News" with a list of the topics that have been discussed.
