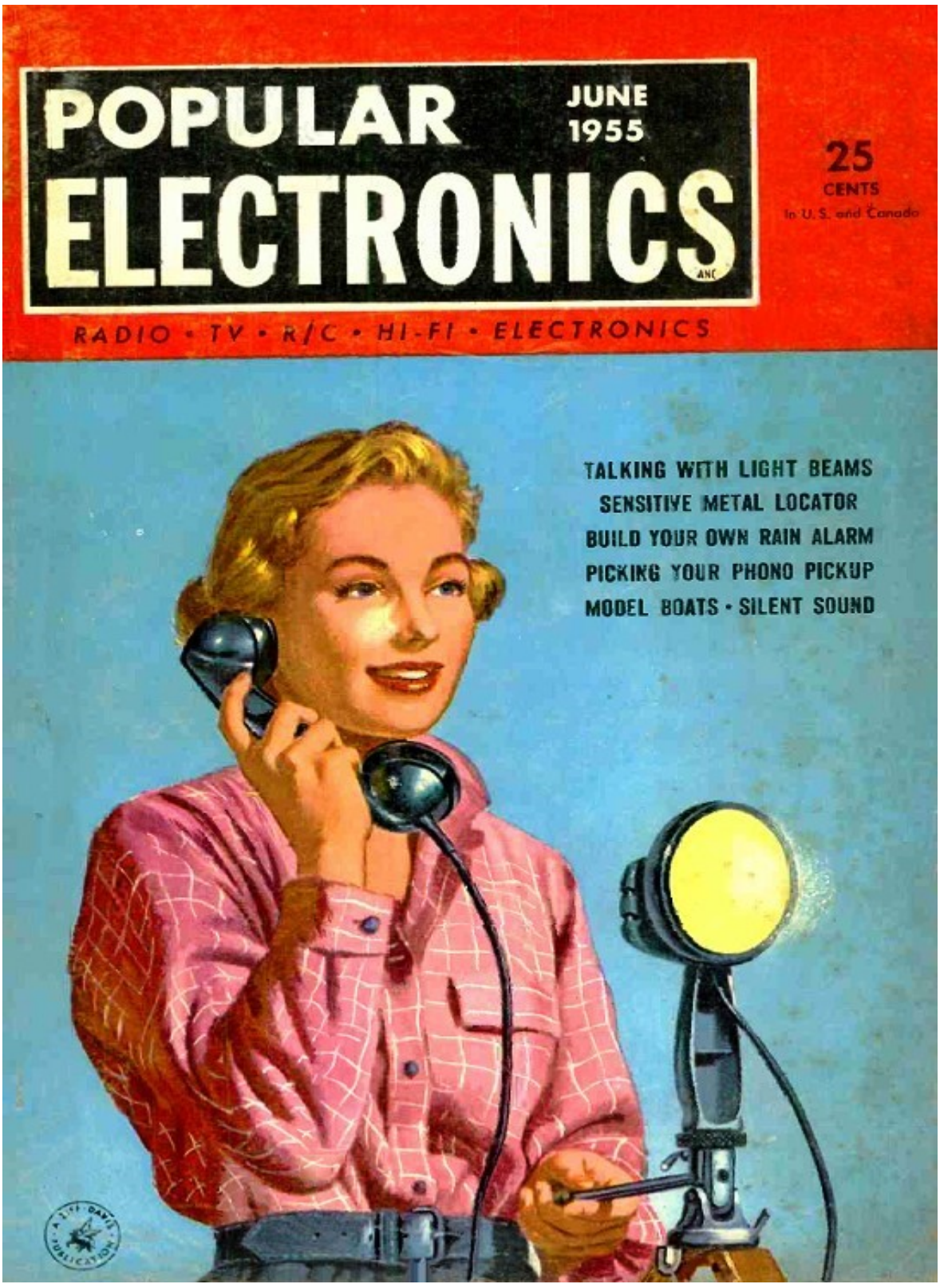
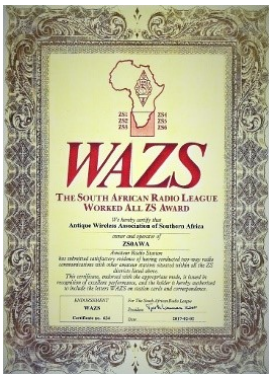
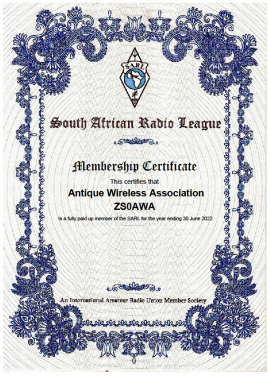
Antique Wireless Association of Southern Africa

 # 203 **June 2023**







Inside this issue:

AWA Committee:

* President—Renato ZS6REN
* Vice President—Jacques ZS6JPS
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* WC—John ZS1WJ
* Historian—Oliver ZS6OG
* Member—Wally ZS6WLY

Visit our website:

www.awasa.org.za

Reflections:

I was chatting with an old friend the other day and he reminded me of all the past AWA get togethers that he had been to and why didn't we do it anymore ?

I have known this friend for about 30 odd years, and although we did not see each other that often, we had chatted on air and at the various gatherings we both liked to attend.

We sat and had a good chat about some of the AWA gatherings that had taken place at various venues, the Rand airport open days with displays and flea markets, the Kempton Park club and the West Rand Club.

The AWA has never really had a permanent site or clubhouse as such, but were always invited to use facilities of clubs or institutions that were open to our ideology.

It was only when the opportunity came along to walk hand in glove with the SAIEE, thanks to Richard F4WCD, that it became a kind of more permanent relationship.

The SAIEE has offered us a place to put down some roots and get involved with their ideology, as the two fitted well together.

After the start up of the shack at the SAIEE, and the station that was put together there, there was a lot of effort put in by some individuals to sort out the museum and to get the shack operational. (You will notice I have not mentioned names here, for fear of leaving someone out). The only other person I will mention, is Oliver ZS6OG, as he has put a tremendous amount of work into the museum, all without any kind of compensation or mention.

However, we want to turn this around now and make the Museum and shack part of a drive to remind people of our radio heritage.

With this in mind, we would like to open the Museum up for visits once a month, make the shack operational and have swop and sell days all included in one at the SAIEE grounds.

You will find on the next page, dates when we propose to have the shack operational and the museum open for viewing.

People wanting to come along and view our radio heritage as well as many more very interesting items dating back to the beginning of radio. Are welcome to come along.

Should you want to bring along items for disposal by boot sale, or bring your own table, then you can do so. You may well even be surprised with steak rolls and cold drinks available.

Remember, this will be a monthly addition to the roster on the SARL website, so if it clashes with something you are going to so, the choice is yours.

Centrally sited in observatory up on the hill, do come visit us.

Best 73

DE Andy ZS6ADY

Wikipedia

Coronal Mass Ejection (CME)

CMEs release large quantities of matter and magnetic flux from the Sun's atmosphere into the solar wind and interplanetary space. The ejected matter is a plasma consisting primarily of electrons and protons embedded within the ejected magnetic field. This magnetic field is commonly in the form of a flux rope, a helical magnetic field with changing pitch angles.

The average mass ejected is 1.6×10^{12} kg (3.5×10^{12} lb). However, the estimated mass values for CMEs are only lower limits, because coronagraph measurements provide only two-dimensional data.

CMEs erupt from strongly twisted or sheared, large-scale magnetic field structures in the corona that are kept in equilibrium by overlying magnetic fields.

AWA Open Day at SAIEE

The AWA in conjunction with the South African Institute of Electrical Engineers is going to be holding an open day once a month at the grounds of the SAIEE.

The museum will be open for viewing, the SAIEE shack will be operational. Should you wish to bring along some of your valuable jewels that you no longer have space for and want to either sell or barter them, bring them along. A boot sale will be available. There are no tables, so if you need one, you can bring your own along.

There will be refreshments available, and maybe even some rolls with meat inside.

If you want to come and view what the AWA is all about, (Our amateur Heritage) it is there to be seen in all it's glory.

Times will be from 09:30 to 14:00

The address is 18a Gill Street, Observatory or look for directions on the AWA website, under "Museum".

Dates are 10 June; 15 July; 19 August; 16 September; 14 October….further dates will be announced.

Any members wishing to help out at the SAIEE can let Andy ZS6ADY know when you will be available. We need more hands to help out.

On the first Saturday, 10th June, we will be going through all the shack equipment, radio's, antenna's, power supplies to ensure all is in working order.

The Electronic Vacuum Tubes Temptation

I remember many happy hours of building ham radio projects with tubes. I never made a full super heterodyne receiver, but I made audio amplifiers with pentodes, triode-pentode, oscillators, converters and regenerative and super regenerative receivers.

In that time I considered they work great. It was OK for me to shake with both hands on the tuning knob and on the regenerative adjustment knob, in order to receive the same station. It was kind of fun, especially that it was in Europe and there were plenty of stations. So what if the frequency went off a little? It was always another radio amateur in a nearby frequency.

And yes, I remember the electric shocks I took several times from capacitors that remained charged at high voltage. That is something to avoid.

After I saw a squirrel taking out the flowers just planted around my building in order to recover a peanut, I remembered the acorn type tubes, nuvistors. They had something from the peanut shape and size. There were plenty of Russian tubes some 30 - 40 years ago. The army was unloading the old Russian equipment, so plenty of vacuum tubes everywhere.

By the way, I put back the flowers the squirrel took out, and I did not tell anybody about it.

Browsing for such acorn tubes on the Chinese websites I was again impressed by the elegance of the 850 and 829 tubes, met by chance in my search for other types of tubes. I used their Russian versions, called GU50 and GU29.

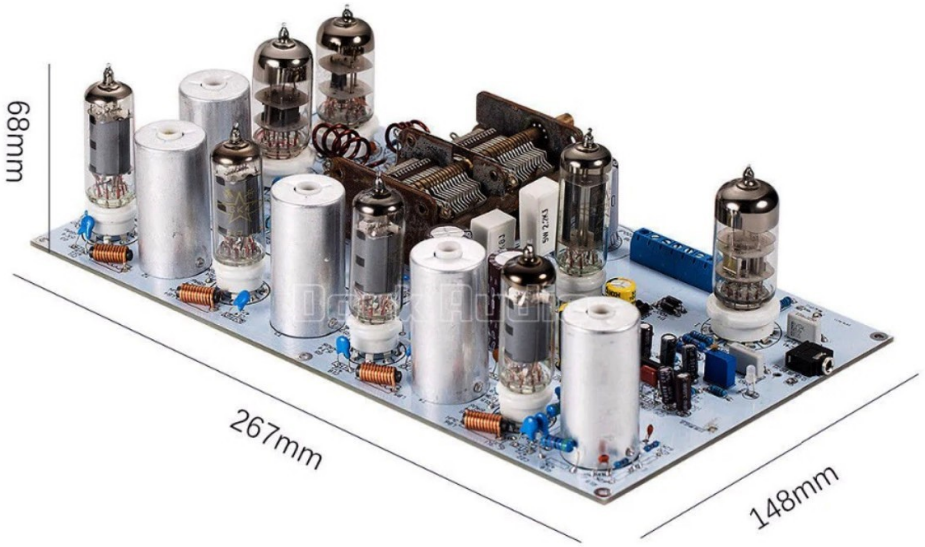
The above pictures are not of old tubes. They are brand new ones, made in China these days, in 2020, under the names FU50 and FU29. Russia also has an active well-known manufacturer of electronic vacuum tubes, “Svetlana”, in St. Petersburg. FU29,

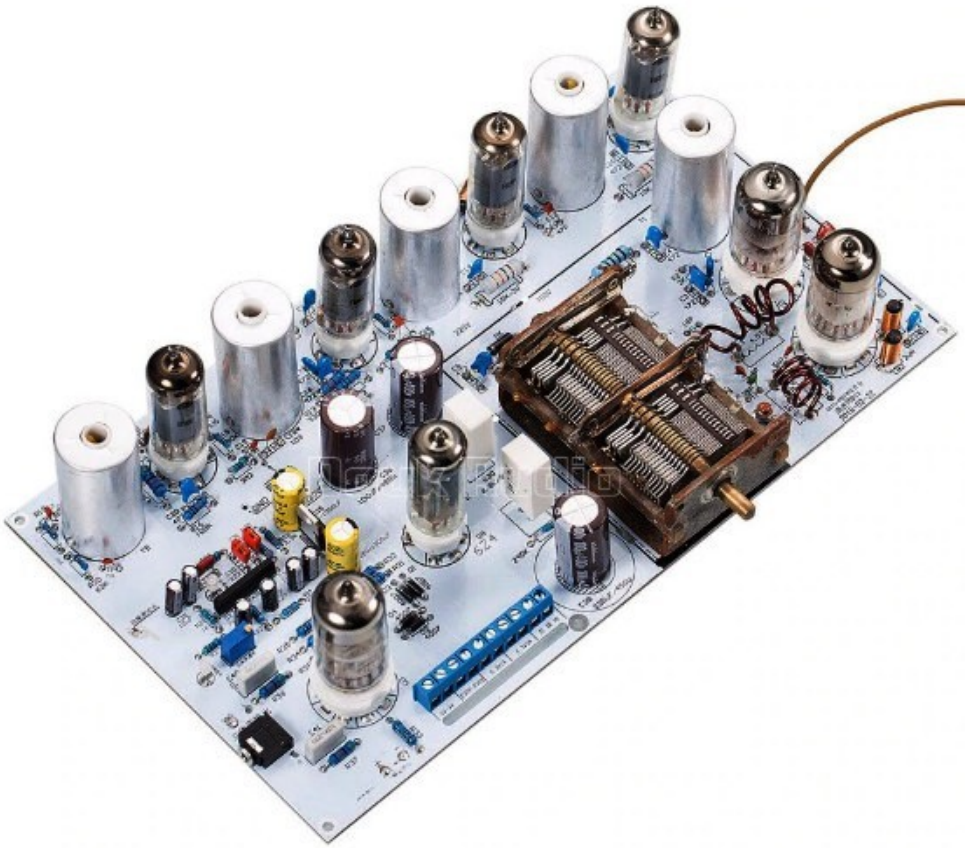
GU29 and 829 have two anodes at the top of the glass container, for its two tetrodes. I remember that this tube wanted to work only and only in vertical position, and self-oscillated whenever it was not in a vertical position (as also stated in the manufacturer's datasheet). High plate voltage, like 1 kV to 1.5 KV were applied to those RF final tubes.

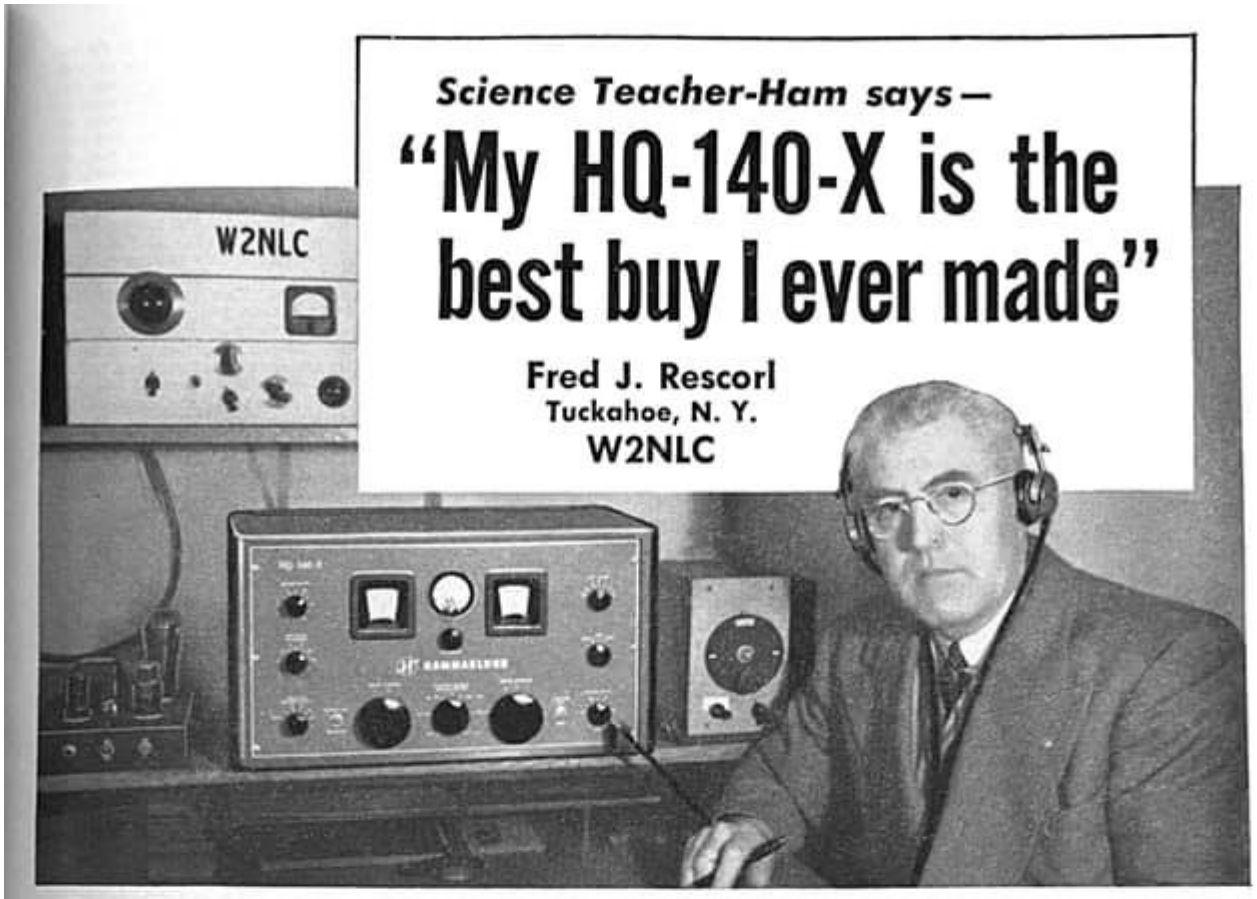
(People still hunt for damaged microwave ovens, in order to take from there the high voltage power supply, although they have to "fix" it. The fixing is necessary for transforming it from a variable voltage source into a fixed voltage source.)

And yes, I remember the electric shocks I took several times from capacitors that remained charged at high voltage. That is something to avoid. If I will start building again projects with tubes, I will use lower plate voltage.

An immediate problem for making projects with tubes would eventually be finding a power supply strong enough to provide some Amps for the heater (filament) and high voltage(s) for plates. Buying such components at a reasonable price and getting them from China or Russia would be a postal hassle. Even the all-over available kits with tubes on Chinese websites avoid this problem. The kit radio presented in the following picture gives everything except the transformers/power supply:







Science Teacher-Ham says—

"My HQ-140-X is the best buy I ever made"

Fred J. Rescorl
Tuckahoe, N. Y.
W2NLC

Fred J. Rescorl is both a science teacher and a ham, and as such can appreciate both the practical and theoretical sides of radio. Fred has been a satisfied Hammarlund customer for years, using Hammarlund capacitors and other components in home-built equipment, and now has a Hammarlund HQ-140-X receiver in his ham station.

Fred is enthusiastic about Hammarlund products. In his latest letter, he says, "My HQ-140-X is the best buy I ever made. It's the receiver I recommend to my friends. It has performed the way you said it would — outstanding sensitivity and selectivity, with almost no frequency drift."

Fred J. Rescorl's happy experience with Hammarlund products is no accident. Rather, it is the result of careful engineering exemplified in the professional characteristics of the HQ-140-X.

Be completely satisfied with your next receiver. Get an HQ-140-X! It's available either as a cabinet model or for rack-mounting. For complete details, write to The Hammarlund Manufacturing Co., Inc., 460 W. 34th Street, New York 1, N. Y. Ask for Bulletin 601.


Rack Model

HAMMARLUND

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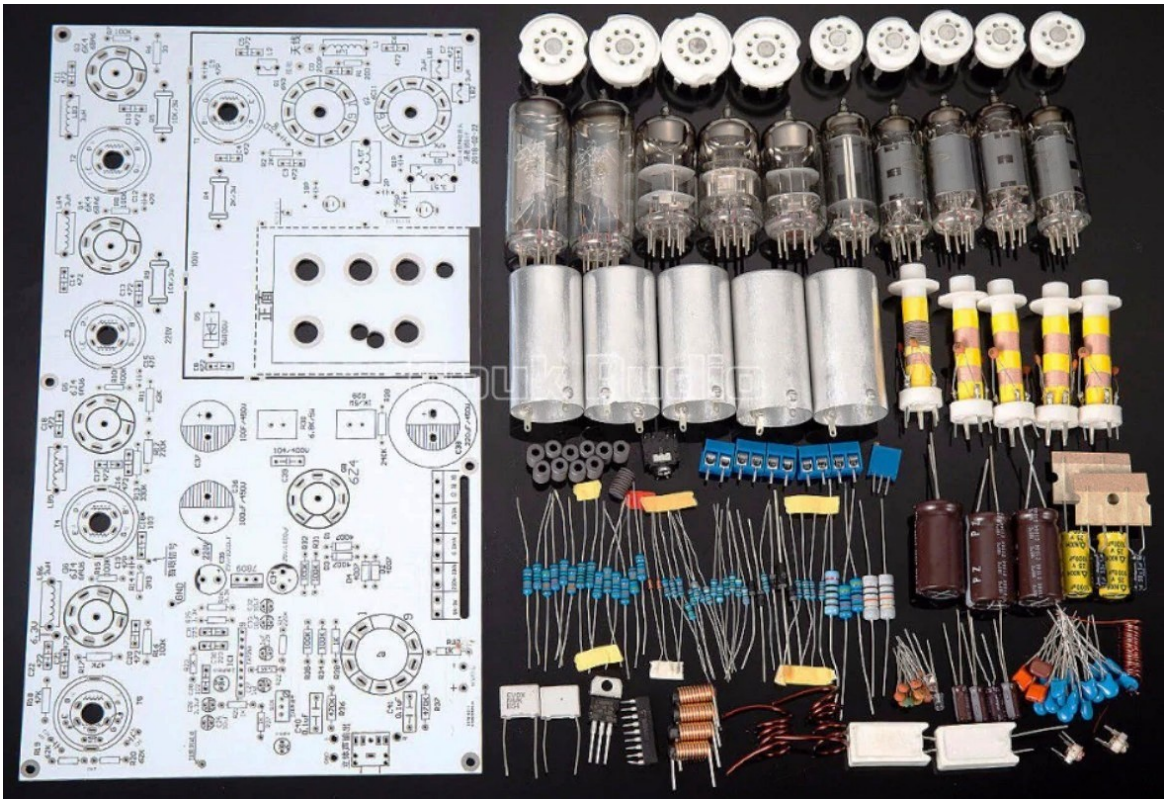
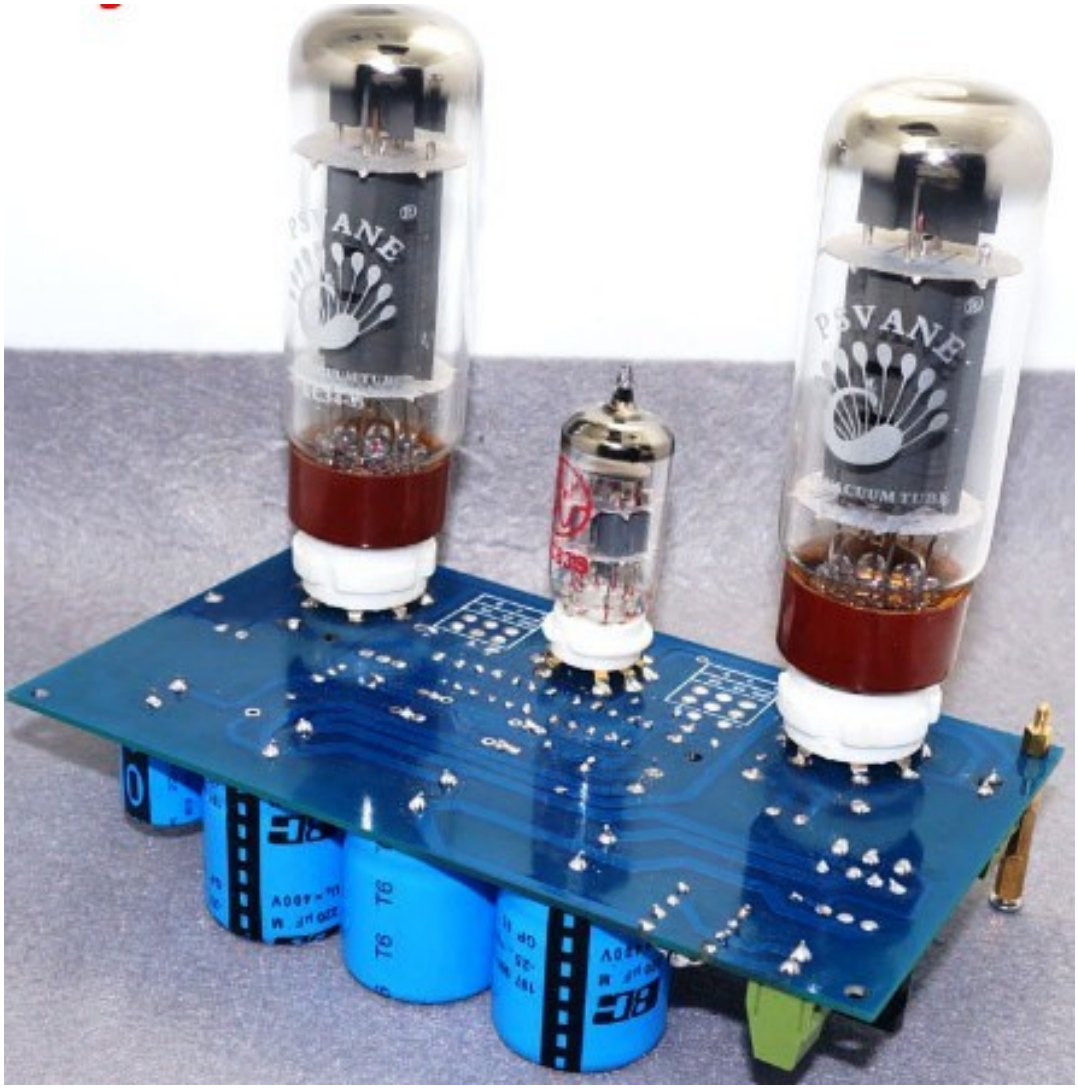


Such FM stereo radio kit is around 220 CA$ (shipping and taxes included) if it is already assembled and around 160 CA$ if it is only DIY kit. I wonder if it will come unbroken from China into Canada. In order to avoid stereo decoding with tubes, the kit uses a TA7343 decoder integrated circuit. There is a headphones jack, used only to provide the audio signals to an external power amplifier. Because there is no onboard tube amplifier there would be no speaker transformers required. Tubes have high impedance outputs, and require transformers (usually, please continue reading) to connect normal 4 Ohm – 8 Ohm speakers.

The above radio kit is sold in so many places, that any Internet search will pop-up results. One place with more pictures and the electric schematic at the end of the page is: https://www.aliexpress.com/item/32678549529.html?spm=a2g0o.detail.1000014.41.59b65125OVLbgW&gps-id=pcDetailBottomMoreOtherSeller&scm=1007.13338.170517.0&scm_id=1007.13338.170517.0&scm-url=1007.13338.170517.0&pvid=d29343cd-ab3b-4e36-9e35-321fdf08ad69&_t=gps-id

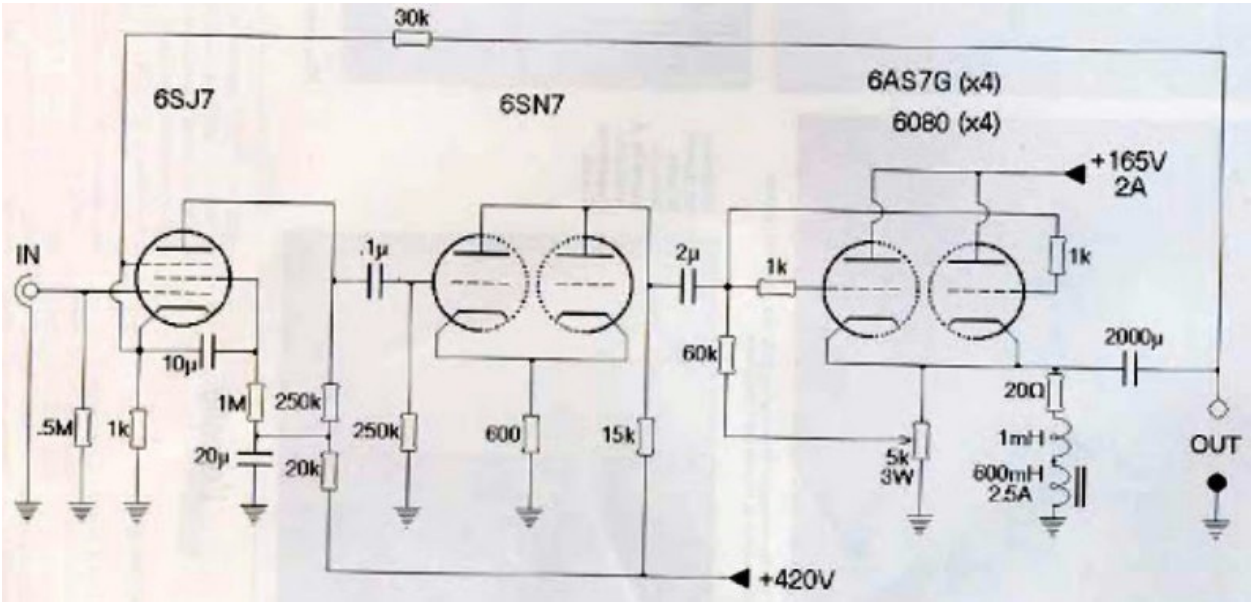
A classic audio amplifier, with its transformers, two final EL34 tubes and a double-triode 6N2 tube would cost another 150 CAD. This starts to become a very expensive adventure, going into tubes, due to the final transformers.

Without the audio transformers it would be in the 25 CA$ – 29 CA$ range:

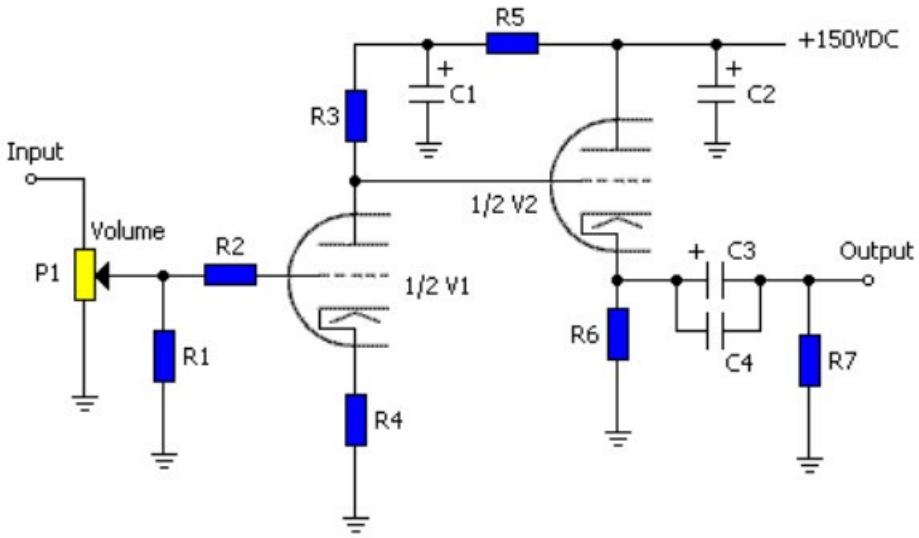


I like to keep my electronic projects cheap, under some 50 – 100 CA$. It seems it would be possible if somehow, I get rid of the final audio transformer and the transformer for plate high voltage.

There are tube audio amplifiers without final transformers. They are called OTL (output transformer less) amplifiers. Here is a Japanese schematic from 1952:



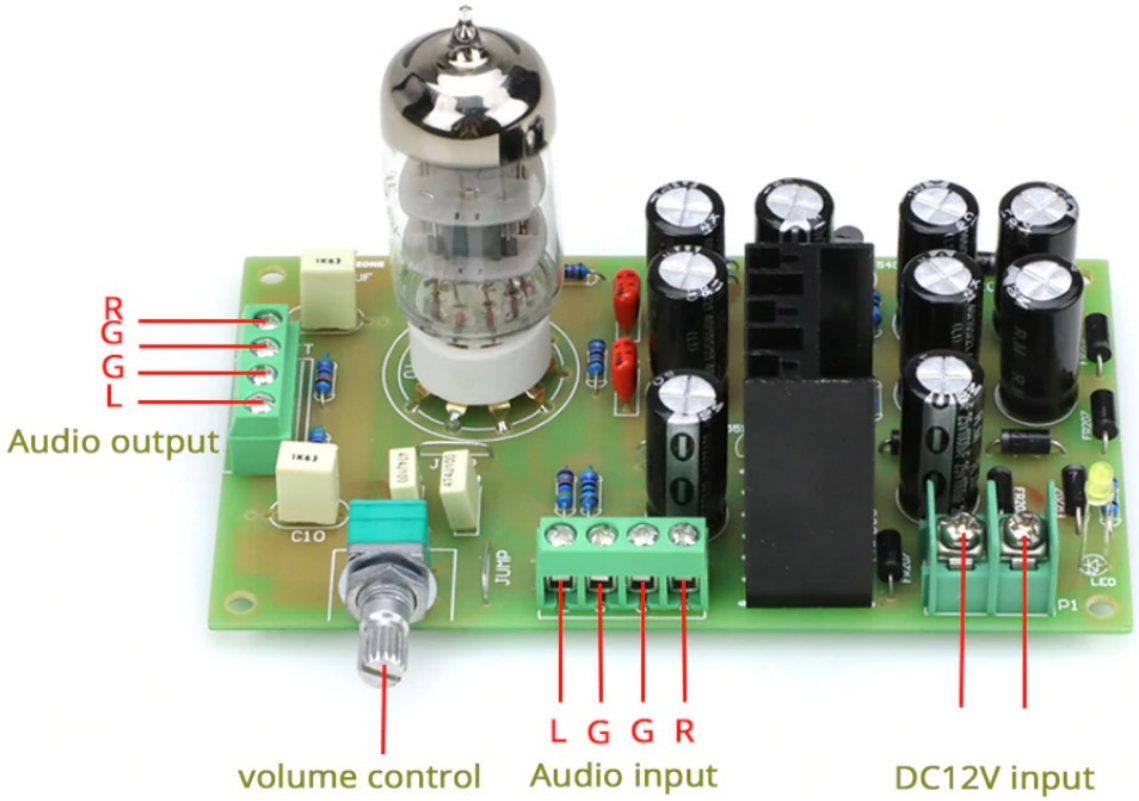
The output is taken from the cathode. What I do not like is high voltage required for such schematic. A version of the above is present in many variations in many websites dedicated to OTL amplifiers:



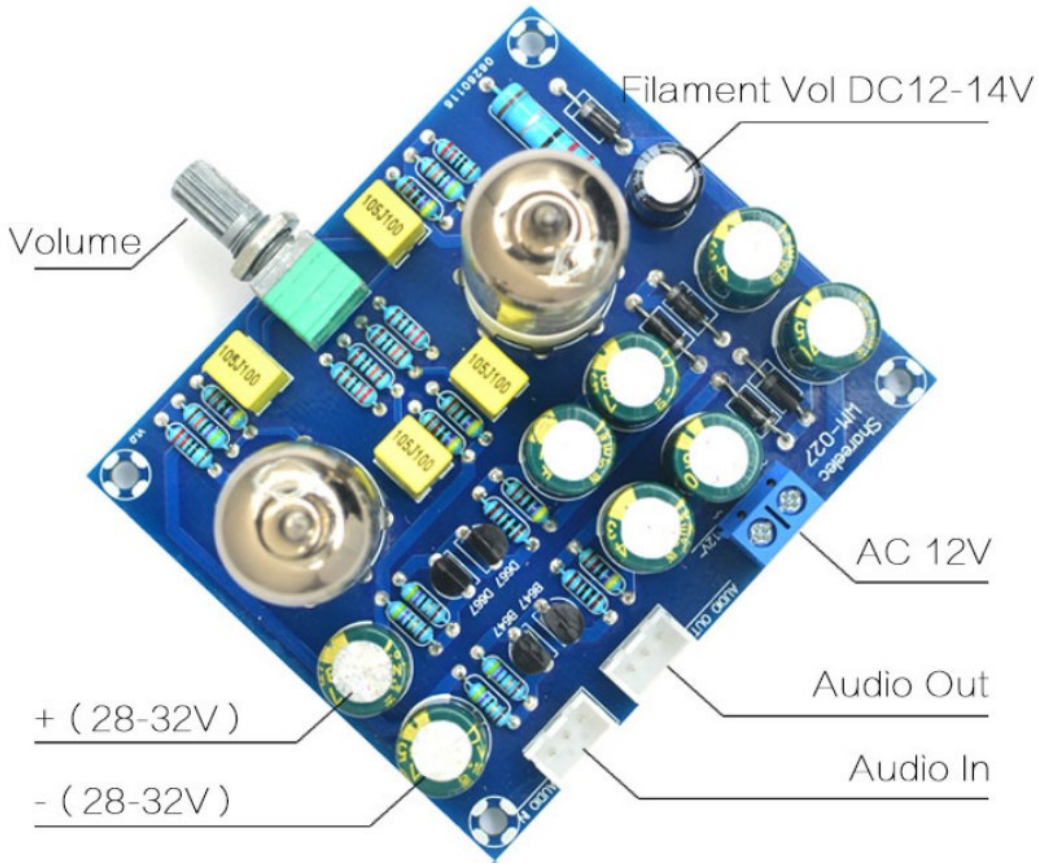
The original schematic is attributed to Rudy van Stratum, whom has published it in the April and September 1995 issues of the Dutch magazine Audio & Techniek. OTLs take the output from a cathode. The speaker or headphones are separated from the DC high voltage through a capacitor. There is also a resistor connected to the ground which reduces the tendency of self-oscillation when nothing is plugged in at the output and also protects (somehow) the user.

And yes, I remember the electric shocks I took several times from capacitors that remained charged at high voltage. That is something to avoid.

I already decided hundred of volts is not something that I will use in my projects. Chinese websites sell audio preamplifiers with 6N3 double triode tube power supplied at the anode with just 12 V, and users report it works.



Similar, there are preamplifiers with two 6J1 small pentodes, also power supplied only from 12 V:

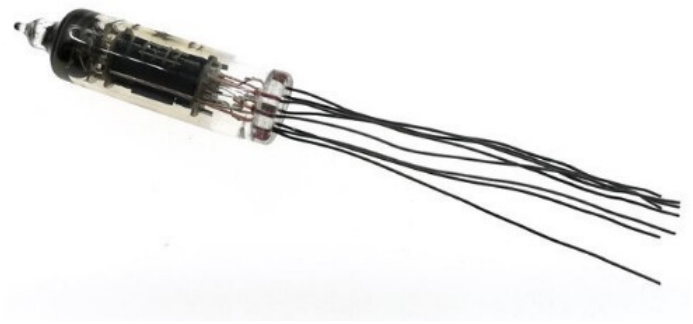


So, in principle:

The possibility of lowering the power supply voltage from hundred of volts to 12 – 24 Volts is very attractive. Such projects would be less prone to accidents. There are many websites dedicated to normal vacuum tubes “convinced” to work from 150

V anode voltage down at 12 - 24 Volts and still providing good functionality.

I even found small tubes that do not require sockets.

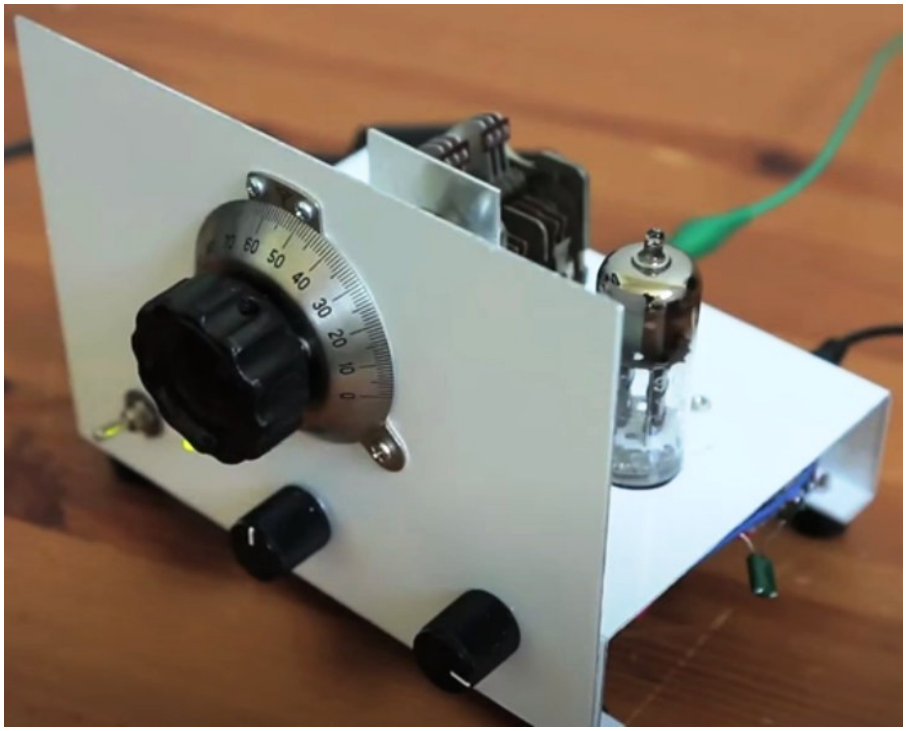


Well known such subminiature tubes are 6021 and6112 (6N16B and 6N17B, eventually written as 6H16B and 6H17B). They are double triodes. It looks more and more tempting to do fun projects with tubes, investing just several dollars.

When it already started to look promising, the picture became even better. There are tubes that were designed from the very beginning to work from 12 V, both the heater and the plate circuits. *These tubes worked on something called the "space charge" principle, which basically used the first grid after the cathode to accelerate electrons toward the weakly-charged plate, which was now working at 12V instead of 180V. Between 1958 and 1962 Tung-Sol, GE, RCA and other manufacturers released quite a few different types, all in 7- and 9-pin miniature packages. Virtually all of these tubes were designed for RF work up to reasonable HF frequencies. Note that there are no true power amplifiers in the lineup. Getting a tube to output significant power with 12V on the plate is almost impossible. Nonetheless, if you're content with headphones or QRP operation, the space-charge 12K5 driver tube can source as much as 35 milliwatts at either audio or RF.* (taken from http://www.junkbox.com/electronics/lowvoltagetubes.shtml)

All those 12 V tubes have the number 12 in front of their name. An extensive table with what tubes are available in the car tubes series can be found at:
http://www.angelfire.com/electronic/funwithtubes/12v_tubes.html

Somebody named Chappy Happy presents on youtube.com a one tube FM super regen receiver built around 12BH7A Tube:
https://www.youtube.com/watch?v=B8W_IsCJ0C0



Somebody else, under the name QRP QRP posted on youtube.com a receiver with a normal ECC82 (12AU7) tube, convinced to work at 12 V:
https://www.youtube.com/watch?v=OVaeKucfDoQ

There are many websites selling tubes, not only the Chinese ones. One place with big variety and cheap prices is: https://tubes-store.com/

My only concern is that glass tubes will arrive broken in my mailbox. Maybe I should use ceramic tubes, like the triode 6SK17-W?

Daniel VE7LCG

Heathkit Equipment / Archive PE1GVK

Elettra Back On Air!
- ninth edition – June 10 and 11th, 2023
Ham Radio Activation of "Elettra" yacht relic

SPECIAL MARCONIAN STATION CALLSIGN
I Y 4 F G M

Villa Griffone (Marconi's birthplace) - Pontecchio Marconi, Bologna (ITALY)
- With the sponsorship of the "Guglielmo Marconi Foundation" and "Marconi Museum"-

A.R.I. Fidenza Radio Club (A.R.I. Italian Amateur Radio Association, IARU affiliated), organizes the eighth edition of a technical – cultural event, hold at the seat of the **Guglielmo Marconi Foundation** (Villa Griffone, **Marconi's birthplace** – Pontecchio Marconi , Bologna – Italy) on **Saturday, June 10 and Sunday, June 11.th, 2023.**

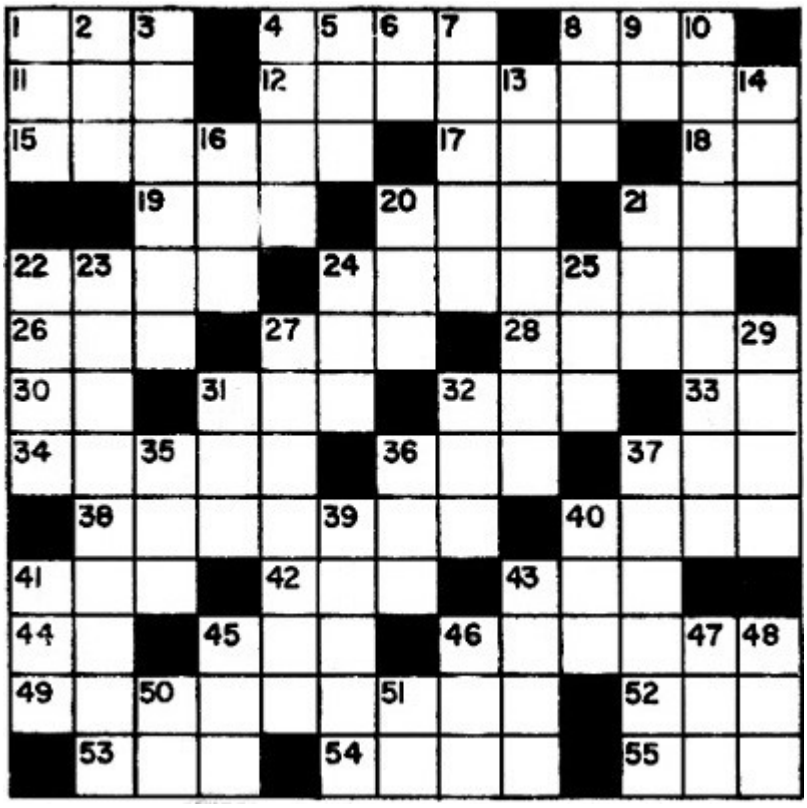
Aim of this event is to highlight at an international level the **historical value and meaning of the Yacht "Elettra"**, the moving laboratory of the great Italian scientist, onboard of which a number of very important experiments on the radiocommunications were conducted.

Over the whole weekend, the radioamateurs of the A.R.I. Fidenza group **will operate a radio station located close to the relict keel of the yacht "Elettra"**, kept at the Museum, and will ideally give new life to its "voice", allowing the radioamateurs overall in the world to get in contact with it.

The radio contacts will be operated using the **SPECIAL MARCONIAN STATION CALLSIGN I Y 4 F G M**

We believe that is mainly interest all Ham Radio operators, so **please notify it to your associated OM and /or your webmaster/website.**

All details at official website: www.arifidenza.it

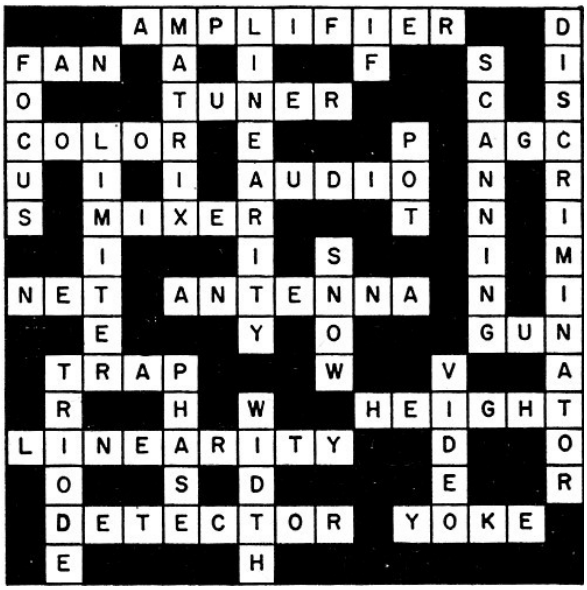


Across

1. Resistor striped brown-black-green (colloq.).
2. Book of Bible (abbr.).
8. Word common to cps, rpm , and mph.
11. Feminine pronoun.
12. Animals who enjoy vegetables with their meat.
15. Source of power for home lighting in ancient Greece.
17. Unit in Morse Code.
18. Pitcher's dream (abbr.).
19. Old game revived for electronic brains.
20. Power ratio unit.
21. Wire size (slang).
22. Try to persuade.
24. Positive particles in atom.
26. Excessively.
26. Adjust meter readings (abbr.).
27. Main artery.
28. Prerequisite for some electronic jobs (abbr.).
31. Supplied with signal.
32. Past time.
33. "Either's" twin.
34. Scornful expression.
36. Raw metal.
37. Method of shipping (abbr.).
38. Obsolete sewing machine part.
40. Low audio frequency.
41. Compensation for signal variations (abbr.).
42. Wet soil.
43. Liable to cause misadjustment of ion trap.
44. Henrys times volts (abbr.).
45. American soldiers (slang).
46. Usually can't have built-in hi-fi.
49. Causing current to lag voltage.
52. Female deer.
53. Male progeny.
54. Time of orbital cycle.
55. Hobbyist who tunes in overseas broadcasts (abbr.).

Down

1. Transconductance of 200 6A U6's parallel.
2. Fish equipped with 600-volt "batteries."
3. Foreigner in Mexico (esp. Yankee).
4. Rhythmic utterance.
5. The d.c. equivalent of a.c.
6. Closed position of s.p.s.t. switch.
7. AM portion of TV wave.
8. Resistor with variable tap (colloq.).
9. One side of Ohm's Law equation.
10. Most numerous components in any kit.
13. Electromotive force.
14. Basic source of energy (colloq.).
16. Compete.
20. An Army Ordnance Re-search Group (abbr.).
21. Swank suburban apartment (phone-book abbr.).
22. Shoshonian Indian.
23. X-ray units.
24. Speaker volume control.
25. Result of too much registration.
27. Type of capacitor.
31. Charge for professional services.
32. Plural of "am."
35. Voltage drop across wave-shaping network (symbol).
36. Not the latest.
37. Units of capacitance.
39. Condition of many dim picture tubes.
40. Taboo.
41. Storybook user of R/C cave opener (first name).
43. Taunt.
45. Core of CRT.
46. Government agency producing electric power.
47. At present.
48. Wired communication (abbr.).
50. Auxiliary verb.
51. Equal conductance (symbol).



Answers to last month puzzle

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

Visit our Website:
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.

Notices:

Net Times and Frequencies (SAST):
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3.640; Every afternoon from 17:00—7.125
Saturday 08:30 (06:30 UTC)— National SSB Net— 7.125; Sandton repeater 145.700
Echolink—ZS0AWA-L
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 ZS6ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business. You must download Telegram App first. …..+27824484368

For Disposal:

Bruce ZS6BK has a Trio R590S for disposal. Bruce has kindly donated the radio to the AWA so a donation to the coffers of the AWA would be in order.

Bruce can be contacted at the following number:
0827005171