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Canadian Vintage Radios

The Publication of the
Canadian Vintage Radio Society
Incorporating the CVRS Newsletter

Winter 2025 Issue

Another 'Set From Hell' - a Howard 329-619 'Sussex' – Marcus Chick (Vintage Radio Club of NE Victoria, Australia)

After some searching, I found out that the Howard chassis presented to me to attempt to fix (photo, below), was in fact manufactured by 'Regent Radio Pty Ltd.' according to the 1937 'Trade Annual'. They were located in Burke Road, Camberwell, and were manufacturers of all types of radio receivers, public address amplifiers and transmitters. While that was all wonderful, it made no real contribution to sorting it out.



From the initial assessment, it fortunately looked like it had only two cathode electrolytics replaced and the originals, left under the tag board Cont. on Page 16

Restoration of an RCA Radiola IIIA—Larry Tell

Several years ago I acquired an RCA Radiola III and was able to restore it, so, when I saw a very rough Radiola IIIA, I decided to see what I could do with it. The restoration steps are recorded here with contact information on parts and service sources in case others might face similar needs.

The Radiola III and IIIA were introduced in 1924, 20 years after the invention of the vacuum tube and are considered by many to be the first commercially successful radios. For comparison, it took only 7 years from the invention of the transistor for the first successful transistor radio, the Regency TR-1 to appear. The big difference being the existence of an already functioning market and available stations.

The Radiola III and IIIA were marketed by RCA, but manufactured 60% by GE and 40% by Westinghouse. The release dates, number made and prices for the Radiola sets are shown in the table, below (all values in US Dollars).

Note: US\$65 in 1924 is equivalent to about US\$1150 today, and US\$35 in 1924 is equivalent to about US\$645 today.

Model	Release date	no. produced	Original sale price
Radiola I	Aug. 1922	7900 (approx)	\$25.00
Radiola II	Dec. 1922	9594	\$97.50 w/tubes & batteries
Radiola III	Feb. 1924	293,000	\$35.00 w/tubes
Radiola Balanced Amplifier	Mar. 1924	55,000	\$30.00 w/tubes
Radiola IIIA	Mar. 1924	164,624*	\$65.00 w/tubes

Cont. on Page 2

HEALTH and SAFETY: The Canadian Vintage Radio Society (CVRS) draws the attention of all readers of 'Canadian Vintage Radios' to the Warning and Disclaimer statement on the rear cover page of this document—please read and heed the contents of that statement as health and safety is our priority—thank you.



Editorial — Gerry O'Hara

This issue features the restoration and/or testing of three early-mid 1920's radios, all now over 100 years old and still doing stalwart service thanks to the dedication and skill of their current custodians—well done!

I always think that we, as vintage radio enthusiasts, are only a small part of a radio's 'life'—hence the term 'custodian'—we may 'own' the set(s), but only for a limited time, before (hopefully) they are passed on to a new custodian, who we all hope will take good care of it during its next phase of 'life'.

Please keep these fine articles coming—they are much-appreciated by all CVRS members! Also, many thanks to Marcus in Australia for providing articles from 'down under'—always interesting to see sets from another continent.

Gerry

Cont. from Page 1

As can be seen from the photo, right, my Radiola IIIA needed a lot of work, including:

- Replacing core and coil of all three interstage transformers;
- Replacing tube socket supports;
- Replacing wire to moving coils;
- Replacing tubular capacitors;
- Replacing main cable;
- Adding WD11 kit tubes;
- Re-plating all visible metal parts;
- Replacing thumb screws;
- Replacing most front panel screws;
- Applying black shoe polish on the front panel;
- Using white filler stick on all engraved lettering and scale; and
- Applying paste wax on cabinet



Local Representatives

Alberta Chapter — Rick Williams

Atlantic Network — Kevin Christopher

BC Lower Mainland Chapter — Ken Patenaude

Manitoba Network—Grant Sesak

Ontario Golden Horseshoe Network—Dave Chamberlain

Saskatchewan Network— Doug Parker

Vancouver Island (VI) Network—Gerry O'Hara

Local groups or chapters of the CVRS can represent a small group, whether geographically-based or otherwise, and Networks can cover small or large geographic areas. Thus we can have the Alberta Chapter, Vancouver Island Network or even the Northern Electric Special Interest Group—as long as a member of the CVRS wishes to run it and wants it to be represented within the CVRS. Why not step-up folks – we want to hear from you!



The two interstage and the output transformer were all open-circuit. I chose to replace them and used Hammond PT-156 (photo, right). I modified the metal band around the core and mounted the transformer in the shell from the original transformers. Since the Hammond core is smaller than the original core, there is some visible difference, but from the side the transformers look original. The PT-156 is available from the [Antique Electronic Supply](#), who offer some alternatives, and other alternatives are available on a search.



The tube sockets in the Radiola III and IIIA are supported by rubber strips to reduce mechanical vibrations from affecting the tubes. After nearly 100 years,

the rubber was mostly missing. It would be possible to make the strips from something like an old bicycle tire inner tube but I didn't have access to the right thickness rubber, so ordered replacement support strips from the [Radiola Guy](#) (details of the kit are shown left). I found getting the strips tensioned as needed and then clamped into their mounts to be a bit of a challenge but did accomplish it.

\$16.95

Both radios are tuned with variometers consisting of

Radiola III/A

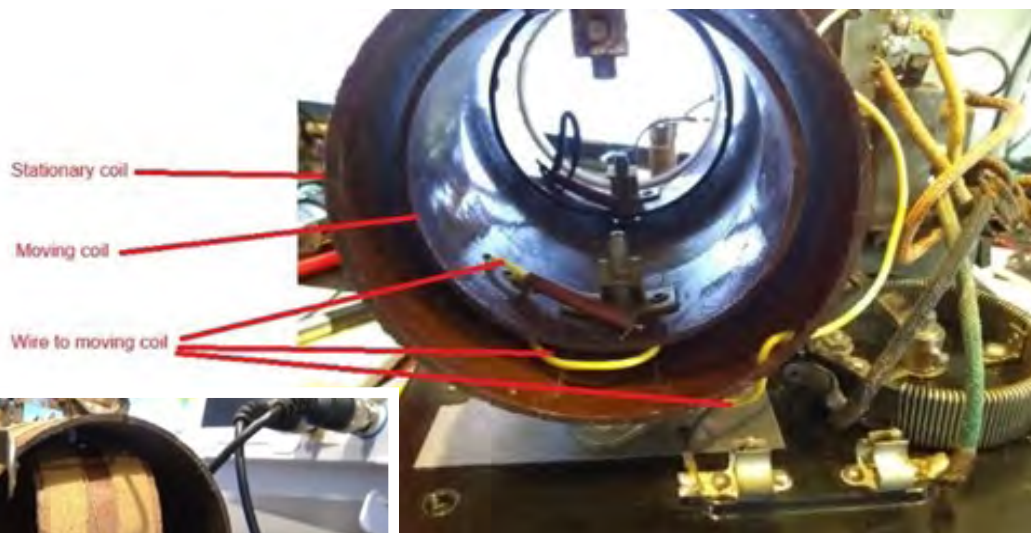
Radiola III/A tube socket suspension rubber kit

Kit includes; tube socket suspension rubber strips and detailed installation instructions with photos. Fits models AF, III, IIIA and balanced amplifier. These are extra long for ease of stretching to proper tension, set of 2 or 4 strips.

PURCHASE-INQUIRE \$24.00 for 2 strips or \$28.00 for 4 strips **FREE** USA Shipping

coils that rotate about 90 degrees withing a larger fixed coil. A flexible wire connects to one end of the rotor winding while the other end is connected through the support shaft (annotated photo, right). The flexible wire always requires replacement in these radios.

The antenna circuit is tuned



with tubular capacitors. Four inputs and a movable jumper provide tuning for a wide range of antennas. The capacitors in my radio had been replaced, rather sloppily, with 'domino' style capacitors, too far from original for me (photo, left).

To restore the radio closer to original, I found a source for firecracker tubes that were close to the diameter of the original and could be cut to the needed length. Wrapping the tubes with yellow paper brought them to the desired diameter and closely matched the original color. I was able to buy a set of damaged tubular capacitors on Antique Radio

Cont. on Page 6

Local Chapters

BC Lower Mainland Chapter – Ken Patenaude

Please contact Ken Patenaude for information on joining the BCLM Chapter, to arrange for a Show-and-Tell, enquire about fleamarkets, to submit suggestions for future meeting topics, or for any other details about BCLM activities.

Meetings are held at the Charles Rummel centre in Burnaby (3630 Lozells Ave.) starting at noon, and are coordinated by Ken Patenaude (Tel: 604-856-0253).

Alberta Chapter – Murray Dickerson

The CVRS (Alberta Chapter) met on January 19/25 to hear a presentation called "Great Radios I have Known" given by local long time member, Brad Winder.

Brad's spacious country home is beautifully enhanced by fully restored vintage radios of museum quality. These radios include some of the finest high end radios of the 30's and 40's, including some fine members of the famous EH Scott brand. These were all viewed through a slide show on screen, along with Brad's commentary on the story behind each one of them; how he encountered, procured and restored them. We also saw his well provisioned and organized workshop and archival rooms, where many more radios were housed, some undergoing a current renovation. It was a treat for all who value these antique works of art that bring back the golden age of radio.

This meeting might be the last meeting of the Alberta club for a while, since the Telus community centre where we meet may be discontinuing our use of their facility due to security and insurance issues. Discussions are continuing to find an acceptable work-around for our continued use of this wonderful location, which provided both a meeting area and workshop facility under the same roof. Alternatives are also being looked at and we hope that by the next issue of this bulletin some solution will be forthcoming.



Non-CVRS Organization News

News and events from other (non-CVRS) vintage radio groups and organizations.

Prairie Vintage Radio Society — Nothing reported from the boys on the Prairies for this issue.

Puget Sound — the CVRS always receives a copy of 'Horn of Plenty', the newsletter of the Puget Sound Antique Radio Association. This is a great publication with many interesting article in every issue.



Ontario Vintage Radio Association — for information visit their website, [here](#)

Ottawa Vintage Radio Club— The Ottawa Vintage Radio Club meets monthly simultaneously on-line and 'live'. Please visit our web site at www.ovrc.org, and note that our meetings have moved to a new venue in 2025. For information contact Gord Rabjohn, President, at gord.rabjohn@sympatico.ca or visit us online at <http://www.ovrc.org/>



Quebec — The SQCRA has 115 members mostly from Quebec but also in eastern Ontario, United-States and France. The SQCRA organizes local radio restoration contests, auctions, workshops and social events for its members and publishes the magazine "Radiophilie" 5 times a year. Visit their web site at www.sqcra.org.



Victoria Radio Group— Free to join! Vicradiogroup. For sale, trade, giveaway or "show and tell". Beacon Drive-In, 126 Douglas Street. 3rd Wed of every month: Dec 18, 2024, Jan 15, Feb 19, Mar 19, Apr, 16, May 21, June 18, July 23, Aug 20, Sep 17, Oct 15, Nov 19, Dec 17, 2025. Starts at 7:00pm. Go on, look through your vintage electronic stuff, find what you can live without, then bring it with you! Contact: Lee Allder atlelee@gmail.com.

SPARC Radio Museum, Coquitlam — Vintage radio museum based in Coquitlam, BC. Check out the [SPARC website](#) and [this presentation](#).



Regional Networks

Atlantic Network — Kevin Christopher

Well, in this area, interest in vintage radios has been pretty well limited to repair and restoration of family radios since the New Year started. Collectors are reluctant to add to their collections mostly for economic reasons, with high costs and uncertainty usually cited as the limiting factors. Quite a few people drop by my shop to see what is available. So many would love to have that little yellow radio, or that one with the large dial, but not right now. In the meantime, I do see some interest in unusual radios, such as 1920 sets, and good quality domestic and foreign AM-FM tube receivers, tape recorders and record players are enjoying a little interest too, as well as vintage black and white TV sets.

It is surprising how many small hoards and collections of vintage radios are coming up for sale of late. Prices for these project sets remain low since there are so few buyers. There is an opportunity for anybody wishing to specialize in one type of radio or other. What the future holds is anybody's guess, but one thing is for sure, demand will change suddenly, one way or another.

Ontario Golden Horseshoe Network — Dave Chamberlain

Nothing to report from the Golden Horseshoe this time—Happy Valentines to all you vintage radio lovers!



VALENTINE RADIO



Manitoba Network— Grant Sesak

Nothing to report from the Manitoba Network for this issue. If you are interested in learning more and/or becoming a member of the network, please contact Grant Sesak: gsesak@gmail.com.

Saskatchewan Network – Doug Parker

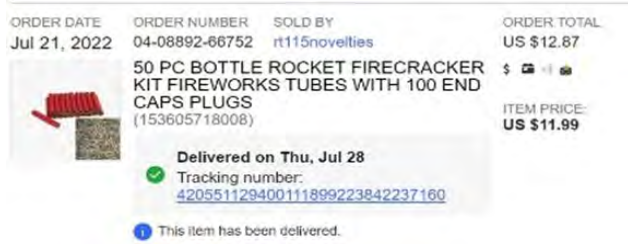
Nothing to report from the Saskatchewan Network for this issue. CVRS member living in Saskatchewan and are not a member of our group and would like to join please contact: Doug Parker via email dmprkr@yahoo.ca for more information.

Vancouver Island (VI) Network – Gerry O'Hara

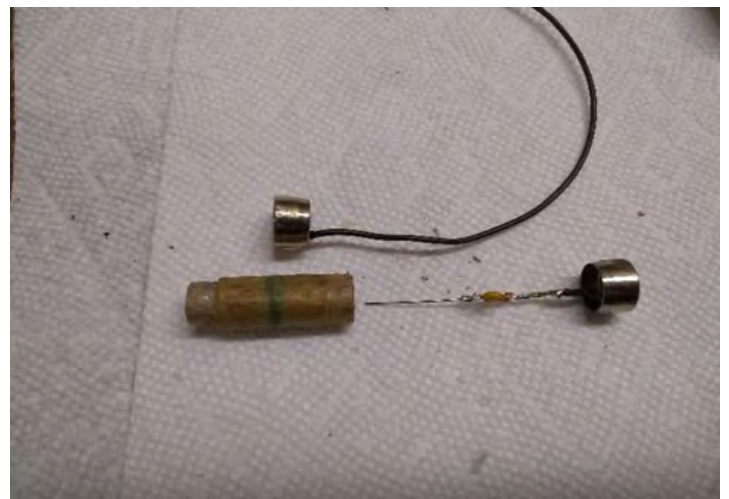
All quiet in the VI Regional Network this time of year. With the National Zoom call now in the rear-view mirror, the VI Network is considering holding a Regional Network Zoom call, maybe later in the New Year. In the meantime, why not join several other CVRS members who attended the Victoria Radio Group meetings held at the Beacon Drive Through in James Bay (opposite Beacon Hill Park) at 7pm on the 3rd Wednesday of each month. There is always lots of 'vintage radio chatter', fleamarket/swaps and 'give-aways', with the bonus of being able to enjoy a coffee, or better still, a yummy chocolate-dipped ice cream cone from the 'Beacon Drive Through'.

If you are a CVRS member residing on the Island who is not yet a member and would like to join, please contact: Gerry O'Hara at vinetwork@canadianvintageradio.com.

Cont. from Page 3



Forum and salvage the end caps. Modern capacitors were soldered to the end caps and mounted



inside the firecracker tubes then the end caps glued to the tubes (photos, above and left) - *[these look great! - Ed.]*

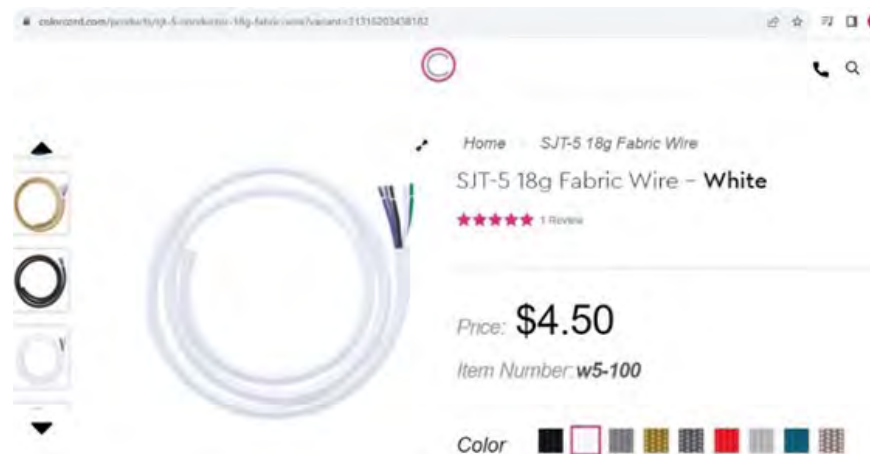
Once mounted in the radio they made a reasonably good match to the originals (photo, below).

The main cable from the radio to the battery pack was



badly frayed and beyond salvage. I found a modern cable (www.colorcord.com), but it was not available in the brown of the original so I chose the white option (photo, top left on page 7).

I tried to dye the cable with RIT dye but was not satisfied with the result. Then I tried Miniwax wood stain



(photo, right) with good results. The cable is a good match to the original except for the exposed conductors at the ends. Possibly some cotton covering could be added over those wires but the cable, as shown in the photo, below, is acceptable to me.



The RCA Radiola III and IIIA were delivered with WD11 tubes which are now very expensive and also very fragile with a failure mechanism that is damaging to the radio. More readily available tubes can be used with adapters to match the different pin patterns. I successfully made adapters and tested 1A5GT tubes and then installed my FET based tubes ([Tells Radio Store](#)) which unlike many FET solutions, support volume control via changes in filament voltage.

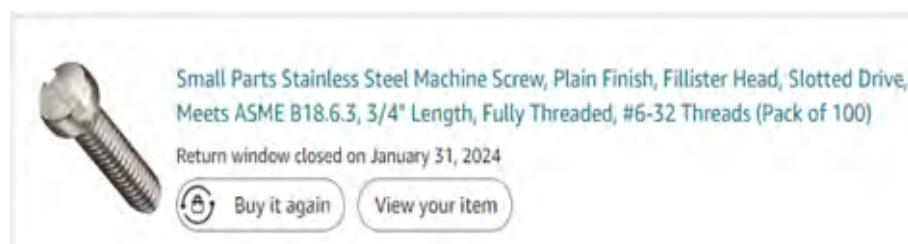
The metal parts were all corroded and stained (annotated photo, right). I didn't want to mess with the solutions required for replating, so found a plating house to do the job - 'JR Plating' ('JR'), located near me (39374 Grand Ave. North Branch MN 55056 651-464-0761), was very helpful and responsive and did a very good job of replating the parts of both the Radiola IIIA and my earlier Radiola III, although it took about 4 months. I initially planned to have the threaded parts replated but JR warned



Parts to be plated

Plus all screws approximately 20

Original plating was said to be Nickel. I'm open to recommendations



that the threads would be filled in and unusable so only the unthreaded parts were replated.

Threaded parts were replaced with new parts readily found on the internet (see image, left).

While the radio Cont. on Page 12

Testing the 1924 Shutt Biflex Receiver—Tom Stevens

The 'Shutt Biflex' (photo, far right) is a one tube reflex receiver with a fixed crystal detector, and was manufactured by the Shutt Radio Manufacturing Co. in Ottawa Ontario (photo of label, above right). It seems to have been only advertised in 1924, being superseded by a Schutt 3-dial set in 1925.



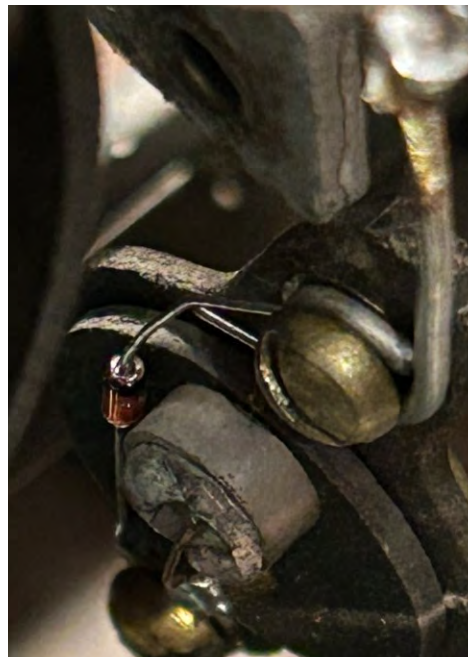
Due to the scarcity of this radio and the primitive and somewhat fragile construction, I decided to test the radio but I have not, and will not, do any additional restoration.

I acquired this Shutt Biflex receiver many years ago and due to work, household stuff, etc., it has been sitting on a shelf ever since. Finally, due to retirement and exceedingly wet weather, I have been able to get back to radio repair and testing.

The radio came with a Federal Tube Socket UV99 tube in a hard rubber adapter (photo, below left), and an interesting transformer made by the Packard Electric Company of St Catharines Ontario, of which I have never seen another. A bonus was that the UV99 tube is useable and the transformer windings have continuity!

I found that the only real problem was with the crystal detector (photo, below right) that was very weak. Rather than attempting to rebuild the detector, I attached a 1N34 diode across the terminals. This worked perfectly.

I applied 3V 'A' supply and 22V 'B' supply, and using my trusty Dixie Cannonball headphones, I was able to pick up two stations in Vancouver. Reception was surprisingly strong for this type of radio.



Joining the CVRS



Member Benefits: These are many, but here are some of the obvious ones:

Networking: Opportunity to network with like-minded folks—radio restorers, collectors, repairers, historians etc.—by joining local chapters, attending member-organized swap-meets and local meetings to chin-wag about radio-related topics.

Schematic Service: The CVRS offers a free copy service for Radio College of Canada (RCC) schematics to members currently in good standing. A pdf file of an RCC schematic can be obtained by emailing schematics@canadianvintageradio.com with the manufacturer and model number of a radio made in Canada between 1927 and 1980. If possible, please provide an estimated year of manufacture or the latest year of patent registration (usually given on the model tag). Members wishing a printed copy of a schematic should send a SASE (self-addressed, stamped envelope, Canadian postage) to the CVRS Membership address given below. If you wish to make sure that an RCC schematic for your radio exists before sending a SASE, send an email to the above email address.

Website: The CVRS website provides updated meeting information, membership and contact information, as well as access to radio-related information and links of interest to Members.

Forum: An active forum is available to members and non-members, however, enhanced functionality is being considered for members.

Newsletters: For prior calendar years, electronic copies of 'Canadian Vintage Radios' (the Newsletter) can be accessed (where available) and downloaded by current members in good standing. Passwords to access this section will be sent annually to those members taking out membership in the current year.



Payment of Dues: Members will receive five 'pdf' copies of 'Canadian Vintage Radios' per year of their paid-up subscription. Members will be notified when the latest copy of the Newsletter is available for download from the CVRS website.

Paying by Cheque or Money Order: If you pay by cheque or money order, the annual dues are \$20. **Subscriptions for printed copies of the Newsletter are no longer available.** Please send a cheque or money order for the appropriate amount (\$20) to: **CVRS Membership, 4757 London Green, Delta, BC, V4K 4X1, Canada.** If you are a new member, please include the following information for our member database: name, address, phone number(s), email address, occupation, any special areas of interest in vintage radio or related topics.

Paying Online: Two options exist for you to submit dues electronically:

PayPal

1. You may submit your dues by using the SEND MONEY tab. Select the "Personal" and "Other" transfer options since you are not purchasing a commodity or service. Enter the CVRS membership email address (membership@canadianvintageradio.com) as the address for PayPal to send the transfer notification.
2. If you are a new member, fill out and email the information requested above.

Interac Email Transfer:

1. Log on to your online bank account, go to pay bills and transfer funds, select Interac Email transfer, enter the amount and email to membership@canadianvintageradio.com.
2. When you enter the amount and email address, it will ask you to suggest a question and answer. Just make a question up and submit it and the answer.
3. After you have completed the transaction, email the question and answer by separate email to membership@canadianvintageradio.com. If you are a new member include the member information requested above.

'Seagull Retrofit'—The Ultimate Sacrilege? – A Pauling

I recently saw this advert: "*The Seagull PCB is the only Bluetooth retrofit designed specially for antique radios. Now our Potentiometer and Wiring Kit gives you the bits and pieces you'll need to retrofit a radio or an empty cabinet. The kit's instructions show you EXACTLY how to connect the wires to the PCB and the radio. The kit is perfect for novices or those without a collection of radio parts and hardware. You can now buy the PCB and power supply or bundle it with the kit.*" I feel sickened...

To learn more about this method of 'restoring' a radio go to: <https://seagullelectronickits.com/X> (if you dare!).



Restoration of a CGE Model 93 – Tom Stevens

The Canadian General Electric (CGE) Model 93 was manufactured in 1924/25 and is similar to the Canadian Westinghouse Model 53. Both of these Radios are unique in that they have no American equivalents, although they are similar to the Radiola III and III A. Electrically, the CGE Model 93 is a CGE Radiola III with an extra amplifier stage added. The standard tube complement consisted of two UX199s and a UX120 power tube. It uses the wafer antenna capacitor assembly as found in a CGE Radiola III.

This radio was purchased at a farm auction in Alberta many years ago and, due to work, etc., it sat on a shelf and was never tested. I knew it had issues due to loose items inside the catacomb, and mouse damage. Due to retirement and poor weather, I was finally able to get around to assessing and repairing the radio.

To summarize, upon disassembly I found the following.

- The radio was very dirty and lettering was faded (photo, right);
- Mouse damage: they ate the cloth insulation off of the wires (photo below);



- One incorrect transformer had been installed at some time in its life and it was not properly mounted (photo, left);
- Both transformers were open-circuit;
- Lead wires were broken for the 'Amplification' and 'Station Selector' rotors in the tuning assembly (photo, left);

I started with the Catacomb assembly which contains the tube sockets and transformers. First, I de-soldered and removed this unit from the face plate. The cover on the catacomb was unbolted, the mouse debris was removed and everything was cleaned. I went through my pile of parts and was able to get together enough parts to make two identical transformers. The windings on both transformers were open, so I replaced them with replacement coils from Antique Electronic Supply. I have used these P-T431 coils in other Radiola sets, and they work fine (photos

at the top of page 11 show the original transformers, left, and rebuilt, right).

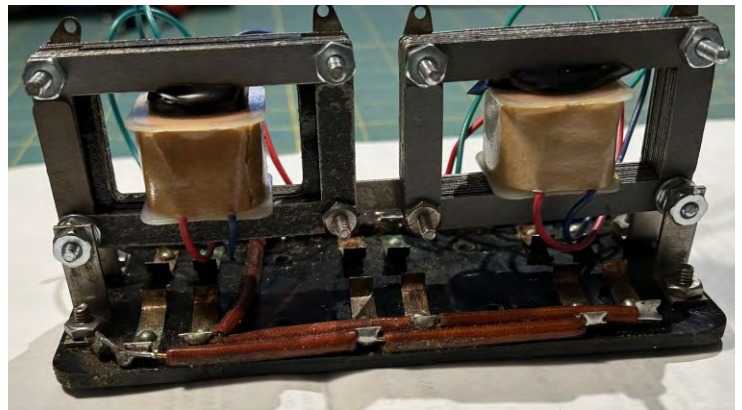
Next I removed the rotors from the coil assembly. I rewired the rotors and reinstalled them. I also replaced all of the other lead wires from the coil assembly, output jacks and the antenna capacitor pack, as they were all in



poor condition. The power input wire assembly was in good condition and was therefore reused. Obviously, the insulation on the input wires was not as 'tasty' to the mice as the others (photos, right and below).

While all of this was going on, my wife Neeltje, cleaned and re-lettered the face plate as well as polished the cabinet. She has much more patience than me for finicky stuff like re-lettering.

Finally, everything was ready and the radio was re-



assembled. Most of the hardware needed cleaning, especially the brass parts which were black with 100yrs of tarnish (photos, page 13).

I was ready to test and due to the UX sockets I had a choice of tubes.

Test #1: I did the initial testing with #30 tubes which worked just fine. I started with a headset and found that it was quite loud so I decided to hook up a small horn—I used a Brown Baby horn which worked quite well. I was able to tune in the usual stations from Vancouver.

Test #2: I plugged in a pair of UX199 tubes and a UX120, as these are the tubes originally supplied with this radio. The tubes that I used were weak, but they were adequate to drive the headphones. Output using the horn was low. (photo, page 13).

Test #3: I plugged in a set of WX12 tubes, and these worked quite well and, as with the #30s, were capable of driving the

Cont. on Page 13

Cont. from Page 7 was disassembled with the metal parts off for plating, I used paste shoe polish on the front panel and then filled the lettering with a fill stick I found at the local Menards building supply store (photo, right).

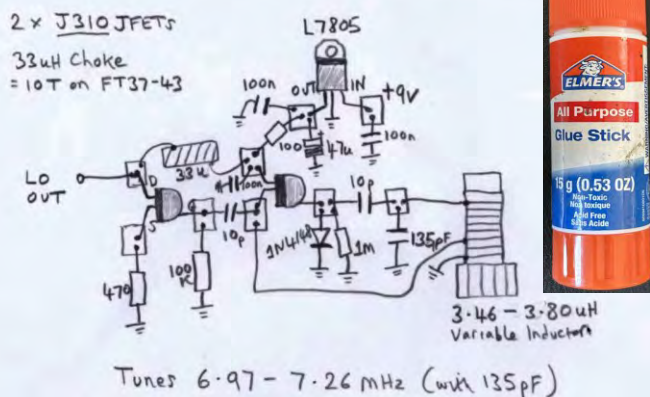
The final result is a good match to the original after 100 years. While complex to use, requiring a long wire antenna and ground along with three batteries (or equivalent), and an external speaker, and is a bit tricky to tune, the radio does work, and is a fun example of the technology of just 100 years ago. A photo of the restored radio front panel is shown below.



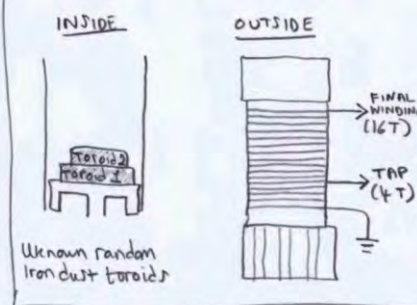
Glue Stick 'PTO' — Pete Teo

Here is a neat little home-brew project—a permeability-tuned oscillator (PTO). This version is for a 40M ham band use (easily adapted for other bands), but the cool thing is the PTO—its made from a spent glue-stick tube and a couple of ferrite toroids. This is a great idea for experimenting with!

PTO Using a Spent Glue Stick



Glue Stick Variable Inductor



Cont. from Page 11 Brown horn. I liked the look of the CGE Model 93 with the WX12s and decided to leave them in for display (photo below).

The radio is now on display in my collection and hopefully will get taken down for some exercise once in a while. Radio Rex is on guard! (photo at bottom of page).



A Nice 'Gift' From a New Neighbour—1959 Bulova D100—

Dave Chamberlain

As I sit here in front of my six-year-old HP laptop, I am wondering if it is going to be rendered completely useless in the next few months. Microsoft is updating to Windows 11 and my relic is not compatible [*apparently this restriction has now been lifted by Microsoft, but I have not checked on my own relic laptop yet—Ed.*]. What a shame—here I am repairing perfectly made 50, 60, 70 year old radios but my relatively much-newer computer is destined for the scrap heap because modern tech must be thrown out every few years. Microsoft hasn't made enough money? Everyone will have to buy new stuff... or not. Maybe I will just get along without a computer from there on—life would be a lot simpler. Just go back to the basics and write by hand. I will keep an eye out for a dinosaur like typewriter. They went the same way as the phone booth and the Dodo bird.

Let's get back on track. I was walking my little 'furry boy' around the block—something we did daily. He always had more energy than I did, but luckily he would stop multiple times to water the occasional tree. That gave me a break as my knees are arthritic and I have lost the ability to walk long distances. Running is out of the question these days(!). At one particular tree stop, a new neighbour came out of his garage and we introduced ourselves to one another. I have noticed, like many others have, that puppies are mega attractants. Everyone likes a puppy.

Bulova D100

The new neighbour and I chatted, the puppy did his thing, and as luck would have it, the neighbour found out I repaired the odd radio. At that point I ended up carrying home a Bulova D100 radio. The neighbour said it was given to him by his son and along with a lot of other stuff in the garage, it had to go as he was on a cleaning binge. I gratefully accepted.



When I got it home, I immediately started cleaning the radio—the smoke stains had completely engulfed the Bulova. As the yellow cleared, it gave way to a nice ivory with gold trim clock radio. The radio had all the dials and buttons—a bonus anytime! How many of us get an incomplete radio? Missing this or that. We have all had to improvise and mix and match. But that is part of the fun isn't it?

Under the Hood

Look at the 'dust bunnies'! (photos, left and on page 15). I have no idea how so much

For Sale/Wanted

Wanted: Stephen O'Connell in Moncton, NB is seeking to buy a GE Model G-56X radio. This was the model radio his grandmother used to own and has great sentimental value to him. If you have one that you would be willing to sell him (photos of this model below), please contact him by email at: wlkearnsfe@yahoo.com.



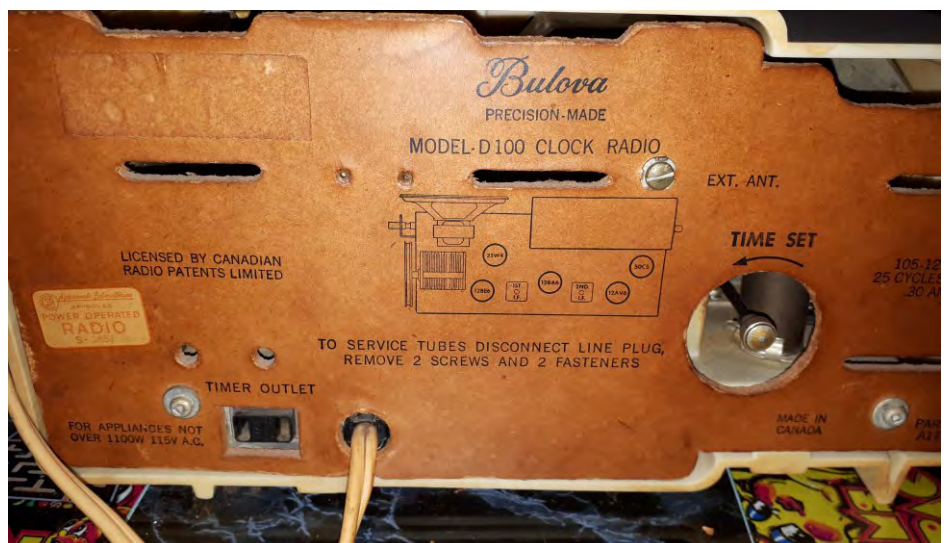
could build up but given the fact the radio was covered in nicotine, I can only imagine.

A major sweep with a brush, and it vacuumed it away nicely. Underneath it was a pretty sturdy-looking AM radio. Some say Broadcast or MW.

This table model was a good catch for me. It didn't take up the room that so many of my consoles have. It is a real retro-style model. They are said to come in this ivory colour with gold trim or aqua, black, pink, or dark brown—all are a sharp design. After replacing the filter capacitor I had it singing like Sarah Brightman.

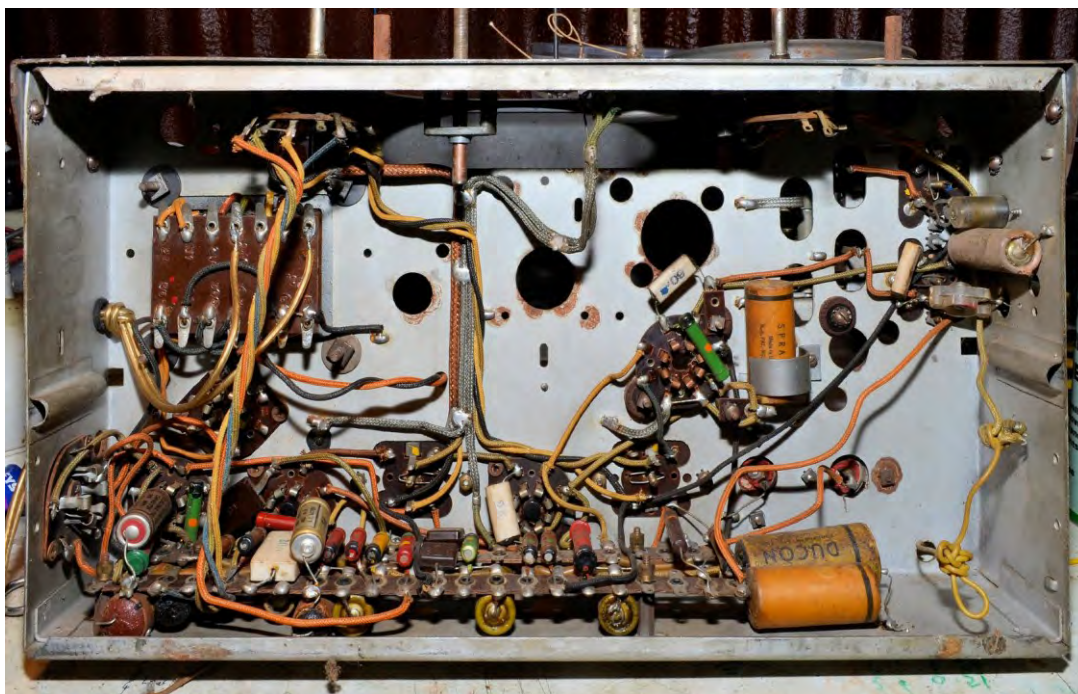
I found online people asking US\$200 for them. You may find also that it is said to be one of the nicest-looking radios ever made. I don't know if that's entirely true but it is sweet. My cousins' daughter was the beneficiary of the radio as it fit in well with her retro kitchen decor.

If you are looking for schematics and the like I went to Radiomuseum.org. They are an excellent resource. You can find string diagrams, Sams Photofacts, parts lists and more. I would include them but likely there may be copyright. Not sure of that so I err on the side of caution.



Cont. from Page 1

(tatty), plus one resistor. Otherwise, a broken dial cord, and the dial glass itself was cracked. The pentagrid was missing, along with the terminal of the fly lead for the 6G8 and a critical tube shield. All of the sockets were Octals: during the war there was a tendency to revert to the previous generations of old stock six pin type tubes, which I would suggest stopped 'WvD' scarpering off with them. Initially those sockets did help date it until I found the real info: but I had no schematic.



It was amusing that when rolled on its back to inspect the underside (photo, above), the inertia wheel of the tuning fell off. Its die-cast [pot metal] like most are, and will eventually disintegrate. I did paint and glue it to slow the process. It was interesting to note that the pentagrid was recessed in the chassis and it became clear that the set used to have an antenna post. That antenna area of the chassis was a bit of a 'shemozzle'.

It actually came with two speakers: the cone of the original electrodynamic was destroyed and a permanent magnet one (photo, below) was connected to the voice coil of the transformer. That made use of the field coil of the original electro-dynamic (field coil) speaker. I was later to realize that the output transformer had an open primary, and the tube

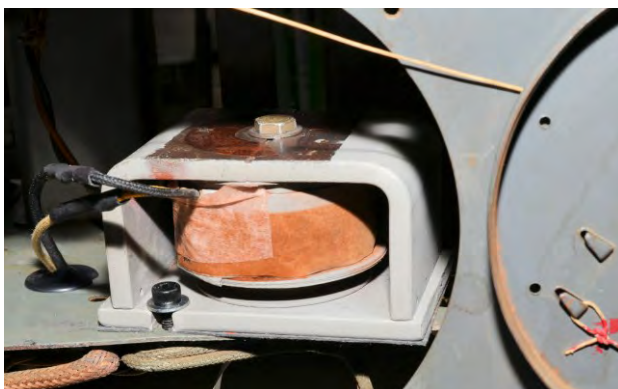
tester did not like the 6V6 output tube, nor the 5Y3 rectifier. The 6G8 (second detector/first audio) fared little better. That meant a few new tubes were in order. The 1st IF tube was the forever cantankerous 6U7—leave one of them unshielded at your peril. V1 was assumed to be a 6A8G, V2 a 6U7G, V3 a 6G8, V4 a 6V6 and V5 a 5Y3G.

One bad habit, poorly executed, was to place a link in the speaker plug to cut off B+ to the output tube plate should the speaker be disconnected. On some models without field coil speakers, that left the screen of any tube with one (tetrodes, and beam pentodes), with a live screen grid. That meant that



Cont. from Page 11

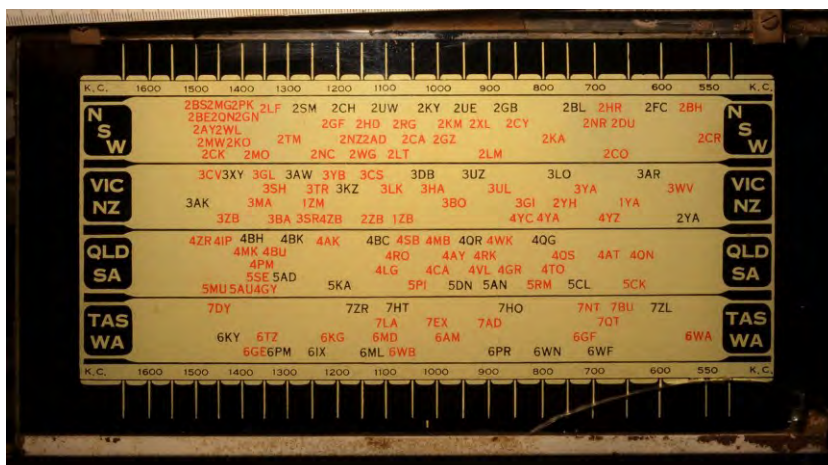
the screen effectively became the plate, and, as it was not designed to handle plate current, it failed. In covering that likelihood; by cutting off all B+, the first [reservoir] capacitor is a 600v one, to resist the surge voltage, which will happen on switch-on.



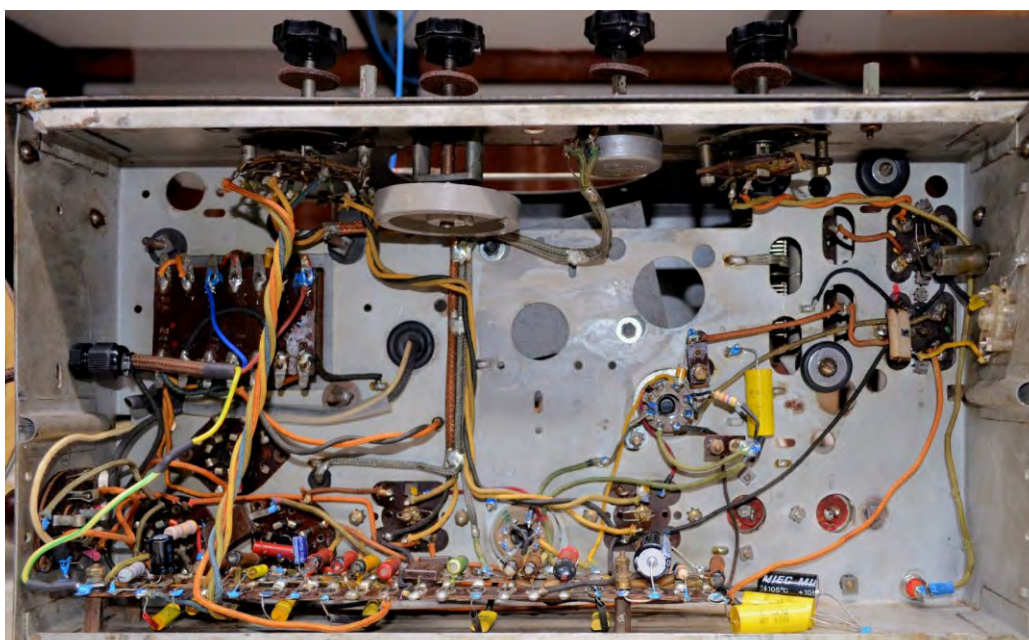
Irrespective of having no schematic, I proceeded anyway. As normal, the grid resistors of the 6V6 were way out of spec. They have an attrition rate, rather than a failure rate. Its cathode resistor also found the bin. So, three resistors went to the bin there. I was surprised as they all were types with a metal cap on their ends: I expected more failures. Being 50Kohm, as expected, the one on the pentagrid and another resistor on the screens had to go. For some reason the original filter capacitors were still in circuit—bad policy that can wreck the rectifier and probably did. They should have been replaced when the cathode bypass ones were.

I ended up dismantling the field coil speaker and salvaging the field coil. This was then mounted on the chassis (photo, above), and mods made to the speaker plug and socket to allow for that. The new output transformer was able to be mounted on the permanent magnet speaker that came with it.

The dial bulbs were a 6v 5watt automotive types. While these were obtainable, the damage to the dial glass did suggest that they were running too hot. As both were blown, and the grommets they were mounted in had started to break up, I decided to change these to a lower wattage conventional type at closer to 2watts. I saved the old sockets, in case that did not work out. The glass was removed, mainly to get the grot out (photo, above).



The knobs were missing; however, I did have some from a closed factory that only needed drilling and tapping for set screws. They will do until something better, or original turn up, or are made: maybe...



Otherwise, getting it going was more an exercise in time. The paper capacitors were all leaking like a sieve, as expected, and were replaced, along with all electrolytics. The 6G8 cathode bypass capacitor was incorrect, as it did not comply with the value of the old one still under the board (photo, left shows the underside of the chassis after completing this work). Those I fished out, as there were paper ones under it,

Cont. on Page 18

Cont. from Page 17 which needed replacing. The 6V6 needed attention as it, and its grid resistors and cathode resistor, were defective, as was the output transformer. This chassis actually has a switched tone control, but otherwise, is relatively convention for that run of tubes, which wiring wise, tend to electrically follow the same, or similar circuit.

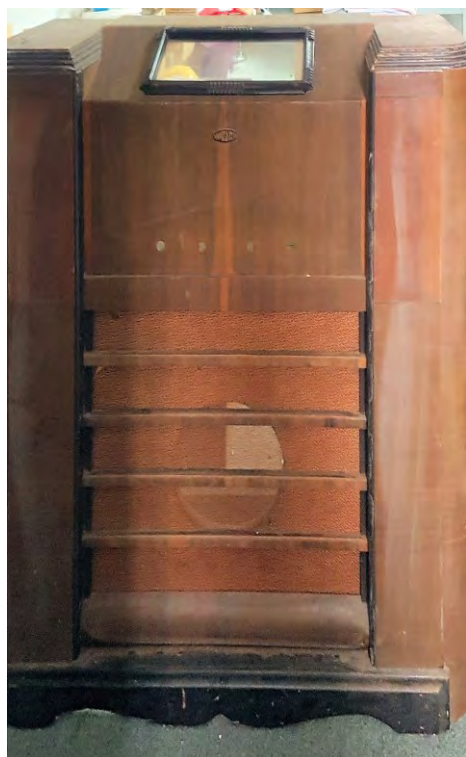
The chassis did fire up with the usual issues with the pentagrid I used. This I guessed, by the fact it was Broadcast only and the pentagrids with their integrated triode oscillator, did not appear till around 1938, mainly in muti-band sets thereafter – it was likely the rather unstable, 6A8, but anyway, it worked (the RCA description of 2A7, 6A7 & 6A8 is not particularly flattering: the difference in those tubes is the heaters and bases only). But it failed the ‘burn test’.

The NOS 6U7 tube was faulty with an unsoldered pin, on replacing with another tested one, I realised the socket was also broken, so out it came. Next came the realization the first IF transformer (photo, right) had a ‘make and break’ fault. That was a broken 100pF capacitor so I changed both. Now for the pentagrid....

This 6A8 is quoted as having good sensitivity on the Broadcast band and on the shortwave bands down to 25 metres where its sensitivity drops, rapidly falling off below 20 metres (‘RCA Handbook 1944’). Also, this tube type does not like AGC/AVC on shortwave, as this causes frequency shift, which is largely why it was superseded by tubes like the 6J8, with a separate triode for the local oscillator built-in. The B+ supply voltage was another problem, as the 6A8 tube’s oscillation is not very stable with variations in supply voltage. Its socket also turned out to be faulty. Naturally the socket pins on the new, did not line up with the old socket, requiring some rewiring.



I then moved on to the antenna and oscillator coils. Initially, I had noted that the ‘Monkey’ had been at the front end. As noted, the aerial terminal had gone, and had been replaced by wire in a great tangle under the chassis. The oscillator was weak and playing up: the 50Kohm resistor inside the oscillator’s can had developed a loose cap and measured 100Kohm, so out it went. I was hoping the fault was not a coil wire. Fortunately, it was a dry joint causing a ‘make and break issue. The solder joint to chassis should have never been attempted where it was: I moved it to a more effective point. Not surprisingly, the oscillator was much happier after that sort out.



That area of the chassis needed a tidy up as the oscillator trimmer was loose and should have been bolted down. The holes were already in the side plate for both trimmers, so I re-located it near the antenna one where it should have been. The trimmer was a bolt-down type anyway, so why was it where it was? You could not turn the set on its side to adjust it, as that risked wiping out the 5Y3 (see tube data) – it also impeded the tuning slug’s adjustment.

I did run it sideways while working on it, but used a Russian 5Y3, as its ‘ruggedized’ and built more like a ‘6x’ rectifier series and has to have a cathode sleeve given the way it behaves.

As it was a transformer set with a shielded transformer, which puts a charge on the chassis, it got a new cable which grounded it. Much safer all round, and it did pass ‘Tag and Test’ (ground effective and no ground leakage).

This set is rather typical of the evolution from the ‘Autodyne’ (screen grid radios) – one of the first really successful superheterodyne radios, to ones using pentagrid frequency changers, where mixing and oscillation were more predictable and superior. Unusual for the era, the highest frequency was 1600KHz which locally became 3NE around 1954. It’s now 1566KHz. The IF I believe was 460KHz—I ended up tuning by the voltage method.

So, it did finally get to the point where it did not malfunction when ‘burn tested’ for a minimum of three hours. I did not have the cabinet (one from another set is shown in the photo, left).

Earliest Hacking Job?—DT Raatt

While we're used to talking about hackers in terms of current security breaches, cyber warfare, and a distinctly post 20th-century technological landscape, one of the earliest hackers was actually an early 20th-century gentleman harassing none other than Italian radio pioneer Guglielmo Marconi, pictured, right.

In 1903, a crowd was gathered at the Royal Institute of Science's lecture hall in London. The crowd was there to witness a demonstration of long-distance, secure, and wireless telegraph transmission put on by physicist John Ambrose Fleming (who was there on behalf of his boss and the developer of the technology, Marconi).

Just before the demonstration was about to begin, the telegraph came to life, seemingly of its own accord, and began tapping out



[Nevil Maskelyne](#) (photos above and right), who was a magician and also an early pioneer in wireless communication who was rather irritated with Marconi's claims that the technology was secure.

Like modern hackers who scoff at the claims governments and companies make about security (and frequently poke holes in those claims), Maskelyne had done just that by hijacking the demonstration and showing that the allegedly secure medium was anything but – [reported in the New Scientist in 2011](#).

messages. For several minutes it tapped out “Rats. Rats. Rats.” over and over again, before then shifting to “*There was a young fellow of Italy, who diddled the public quite prettily.*”, which was in turn followed by more insults directed at Marconi, mocking lines from Shakespeare, and additional insults.

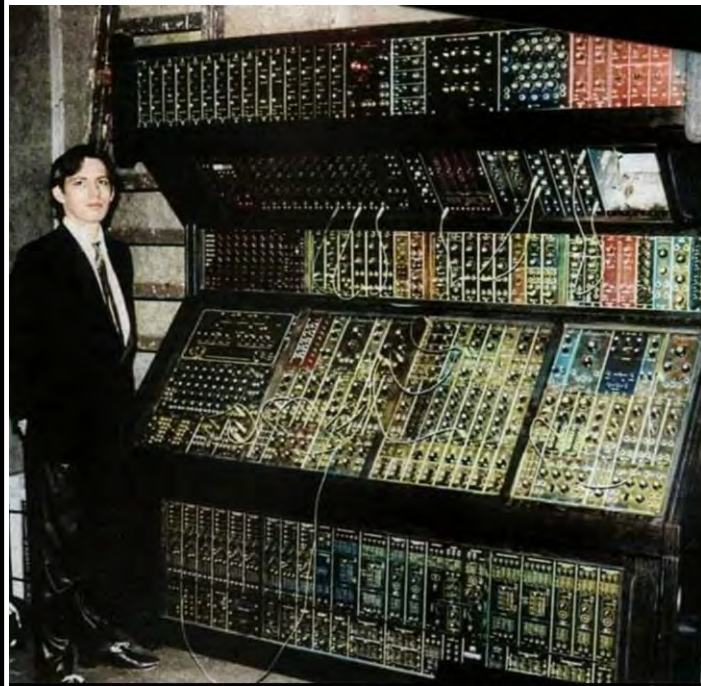
Who was behind this early hack? A man by the name of

“The hush was broken by a ticking noise, the sound of a Morse code message. Then it got personal...”



Radio—Caption Competition— Eamonn Tork

Another version of our 'Radio Caption' competition, this time with an electronic music theme — if you would like to enter, please send suggestions [here](#). Some examples to twiddle your knobs...



- Young Robert Moog was having a really 'bad hair day' – all the pots in his prototype synthesizer were becoming scratchy and Caig had told him that their bulk Deoxit F5 dispensing truck was on the other side of the country...
- The shock of the 110dB of 'scratch' had caused Robert to have a little 'damp' accident—no problem though, the heat from all those early transistors would soon dry his trousers while he stood next to the exhaust fan vent
- If only GPS was available in 1964... using a paper map and compass to find the desired controls was very time-consuming for the musicians(!)
- Robert posed with a stunned expression as he suddenly realized that there was no way he could move his latest contraption from his mum's basement...
- Robert's new solid-state version of his synthesizer could fit in a fraction of the space his tube version needed (though the sound was arguably no where near as good!) – but wait a minute, ooops, he had forgotten the keyboard again—damn!

WARNING and DISCLAIMER: Vintage radios and other older electronic equipment were not manufactured to meet



modern-day safety standards. These radios (especially AC/DC radios) and equipment can present electrical and other safety hazards, eg. exposed high voltage/hot parts, and materials health and safety hazards, eg. asbestos, PCBs, cadmium, in their original form. Any modifications to, repairs of, work on, or operation/use can pose a significant risk of injury, even

death. Also, these units may have been/are home to rodents, spiders and other pests that can cause harm, or leave residues that can be harmful to health. Readers undertake work on such radios or other electronic equipment entirely at their own risk and must take appropriate mitigating actions, including use of personal protective equipment (PPE), eg. eye protection, dust mask, nitrile gloves. The CVRS and authors of articles appearing in 'Canadian Vintage Radios' hereby waive any responsibility or liability whatsoever associated with anyone working on, modifying, or operating any piece of electronic equipment or otherwise making use of any information contained within this publication or available elsewhere from the CVRS, including but not limited to, the CVRS web-site.

And finally.....

We encourage all CVRS members to submit articles or letters that relate to vintage radios or associated items. Please send any editorial mail to:

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