SoundWaves

Published quarterly by The Vintage Radio & Phonograph Society, Inc. www.vrps.org

VRPS Summer 2026

From the President

Well, it is hot in Texas and that means several things. First, it's summer time, and hot is what we do in Texas in the summer. Second, being summer means half of 2026 is already in the books... how time does fly! Third, as August approaches, so does Radiofest sponsored by the Antique Radio Club of Illinois (ARCI). The boss and I will be headed north in a few days in search of cooler temps and an old radio or two. Wish us luck in both endeavors. If you have not been to Radiofest, you might want to consider it on your next vacation opportunity. I am fortunate to be asked to call the live auction that kicks off this well attended event held in Addison, a western suburb of Chicago. Good stuff always shows up for this sale.

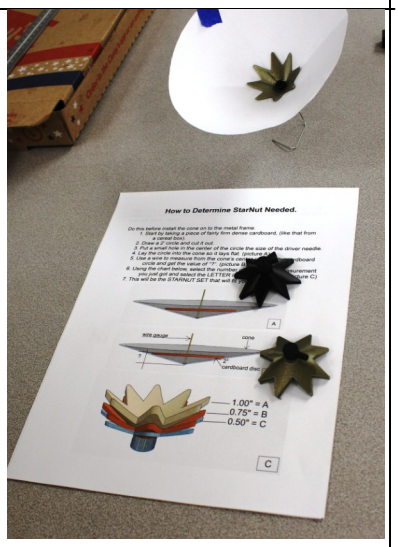
Closer to home, we are getting ready for our own annual radio event, our 52nd VRPS convention at the end of October. We have a great line up planned for this year, so you would will want to make plans to attend. A lot more info is available on our website.

Please welcome aboard two new members since our last edition of the ***Soundwaves***. **Mark Forgue** from Weatherford, Texas and **Larry Linville** from Lake Charles, Louisiana.

As I close out, I would remind you of three of our members who are continuing to battle severe health issues. **George Potter, Wayne Jones and Keith McManus** continue to fight the good fight. Please remember them in your prayers.

See you at a monthly meeting…but at the convention to be sure. In the meantime, stay cool and good hunting.

Jim



June 20 Meeting Notes by Mike McCarty

Jim Sargent started the meeting with introductions of the 27 attendees. Next, Ron Carroll showed us his 3-D printed "Star Nuts" for reconing/repair cone speakers. These are hard-to-find parts for replacement.

Larry Lindsey presented techniques to straighten pot metal. The origin of the term is "put everything in a pot and melt it together," so the exact composition is unknown. Pot metal has a very bad reputation for warping, breaking, disintegrating into powder and rotting. Also it is not easily glued, soldered, welded or brazed. It frequently composed of copper, lead, and antimony. Larry said it was like a "Louisiana cookout".

He displayed a special instrument he devised to straighten pot metal. He has a video showing how to use it. If the part breaks, superglue and baking soda make a great repair. (see photo below)

Kelly Casey discussed selenium rectifier myths:

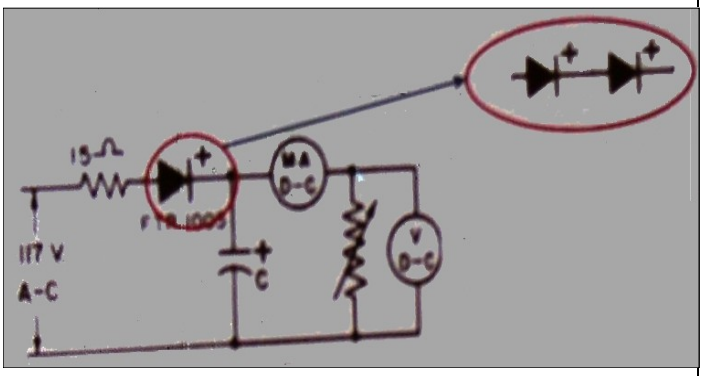
1. **Selenium rectifiers are Inherently unreliable** -- Actually, they are good for 60,000 service hours, compared to 5,000 hours for tubes.
2. **Powering up a radio with old selenium rectifier is not a big deal** You must use a Variac and reform the rectifier (oscilloscope required). Keep reverse current < 20 mA (0.3 V across the resistor). Keep temp < 60° C on the fins. When you reach full voltage and the current is < 10 mA, you are done.

If the rectifier has corroded, rusted, or has blistered paint it must be replaced. If the SR must be removed, it can be replaced with 1N4007 diode. The SR has a 7V drop, but silicon diodes have 0.7V drop, so B+ will be higher. The 15 Ω current limit resistor is not needed. Use a 150 Ω 3W or 5W resistor to limit B+. If there is no corrosion, or blistering of the paint, then just put in a 1N4007 silicon diode in series with the SR. Remove the wire from the + solder tag on the SR, solder the anode of the 1N4007 to the tag, and solder the wire removed to the cathode of the 1N4007.

The SR is what made the television popular.

Mike Grimes reminded us that the Convention is in Grapevine on October 23, 24, 25.

Larry Lindsey special tool for straightening pot metal.



Selenium rectifier schematic

July 18 Meeting Notes by Mike McCarty

The July meeting was the "Repair" Session meeting for this year. We call it the "Repair" Session (note the quotes) because the goal is not actually repair, but rather diagnosis and recommendations for further work, should any be needed. We had four "Experts" in attendance, Jim Sargent our President, Mark Blackwood our Program Director, Mike McCarty, and Roland Gooch. Coincidentally, four pieces of equipment were brought in by four owners. This article is a reconstruction of the work performed by the "experts" based on summaries written by them, and should be substantially accurate.

Majestic 50 from Radio Attic Archives

Jim Brownlee brought in a Majestic model 50 Tombstone style radio in as-found condition to get advice on how to start repairing it. No service literature was available for that radio at the meeting. Jim Sargent was the "expert" in charge of this one. Cursory examination showed that the power transformer likely had some damage due to heat, because some of the high melting wax (which looks like tar) used in them had melted and oozed out. This can be caused by shorted turns in the transformer windings, requiring replacement of the transformer. Many of the capacitors (paper and electrolytic) were in potted cans filled with similar high melting wax. All paper and electrolytic capacitors must be replaced, but the ones in potted cans present a special challenge, due to the necessity of removing the potting wax. Jim advised Tim that this is not a suitable radio for a beginner to attempt repairing, and arranged that John Dusek should do the repair for Tim.

Greg Hall brought in a five tube AC/DC "hot chassis" receiver in which he had replaced all paper and electrolytic capacitors, but which he believed needs alignment to improve performance. The symptoms were that stations came in weakly and at incorrect dial locations, which are certainly symptoms of misalignment. Jim Sargent took this one on. No safe alignment tools had been brought by the "experts", so no alignment could be attempted, but Jim discussed the procedures used to perform an alignment on such a radio, including the safety issues in working on an AC/DC set.

There are special safety issues present when working on an AC/DC set which don't occur with transformer sets. When working on AC/DC equipment, one needs to safeguard both the technician and the equipment from shocks due to raw AC possibly being present on the chassis or other components, including circuit "ground", which may be at 120 VAC relative to true ground. In this case, special insulated adjustment tools are necessary to protect from shock, especially in this radio which has the chassis connected to one side of the AC power. Greg will later proceed with the alignment, possibly with telephone assistance from Jim Sargent.

The VRPS web site has a detailed description of alignment procedures along with theory which may be downloaded or read on-line at http://vrps.org/documents/Alignment.html.

Diana Cangelosi brought in a Heathkit TC-2 tube checker. Tube checkers usually have an adjustment to account for variations in AC power line voltage variations, and this one is no exception. However, no matter how the "Set Line" adjustment was varied, the meter pointer could not be made to rest at the required location, but only below it. Mark Blackwood rose to the occasion. He opened the case, and immediately noticed there was an old, original paper capacitor remaining in the circuit. He replace it with

Heathkit TC2 from Rex and the Bass Memory Lane

a modern compatible component. Although this repair needed to be done because vintage paper capacitors are notoriously always bad, this did not resolve the problem, because that capacitor is used only for the shorts test which does not involve the meter.

Unfortunately, Mark had to leave early, but just just then Mike McCarty, who arrived late on the scene, walked up, and agreed to continue from there.

First, he verified the reported symptom. Indeed, the "Line Adjust" could be used to move the needle around near 1/4 of full scale at most, but the adjustment was supposed to put it at 1/2 of full scale. The way this works is that there is a wire wound rheostat in parallel with a portion of the primary of the power transformer. It is used to adjust for variations in line voltage, so the voltages on the secondary windings are always the same. There is a nominally 100 VAC winding in the secondary which has two resistors across it to select a portion of it. These feed a selenium (Se) rectifier, which then supplies pulsing DC current to the 1 mA movement. The next step was to test the resistors.

Vintage resistors are notorious for increasing in value. Mike unsoldered some wires to eliminate interference from other components in parallel, and verified that the resistors were within tolerance. This eliminated the resistors as a source. Next, the 110 VAC secondary of the power transformer was checked. It was providing 109.3 VAC, which is "spot on". That left the meter and the Se rectifier as candidates for the cause.

Mike borrowed a digital meter capable of measuring current from Jim Sargent (thanks Jim!) and put it in series with the meter in the TC-2. In this way, the current in both would be exactly the same. He turned on the power, and measured the actual current flowing through the two meters. The TC-2 meter indeed showed approximately 1/2 of the current the digital meter showed.

The meter in the TC-2 has a movement named for its inventor Jacques-ArsÃ¨ne d'Arsonval, hence a d'Arsonval meter. The way this works is the needle is connected to an armature which has a coil of fine wire wound around it. This coil is in the magnetic field of a permanent magnet. Also connected to the armature is a flat spiral spring, which positions the needle over the 0 mark on the scale. When current passes through the coil, the resultant magnetic field applies a torque to the armature, which moves against the restraint of the spring. The needle comes to rest when the magnetic force and spring force balance one another. More information may be found at https://en.wikipedia.org/wiki/Galvanometer.

Unfortunately, the magnets in some of these meters are known to lose strength over time, so that the magnetic force is reduced, causing the meter to read "low". That is very likely the cause of the problem with the TC-2. Jim Sargent came by to see how things were progressing, and was told of the diagnosis of a weak meter magnet, and volunteered the information that he had some meters that could be used to repair the TC-2, though they would be cosmetically different.

Mike walked away, to return the borrowed equipment, and heard an exclamation. When he returned, he found that Diana and Jim had decided to test an eye tube, for which the meter is not necessary, and the eye tube's heater had lit up brightly and burnt out, ruining the tube, though the settings were supposedly

correct. Mike checked the knob on the heater voltage setting control switch, and found that it was loose on the shaft and was not correctly aligned with the markings. After repositioning the knob on the shaft and tightening the set screw, Mike checked the voltages on the heater pins of one of the sockets, and verified that the heater voltages were now correct on all settings. Presumably, although the knob was pointing to the 6.3 volt mark, the shaft was positioned on a much larger voltage.

A lesson to be learned is: after repairing vintage equipment, always fully check it for proper operation before using it. For example, often people use a so-called dim bulb when first testing a repaired radio. Mike recommends doing so with a bulb rated about twice the necessary power for the radio, and letting it run like that for a hour before trusting it for use without a limiter like a dim bulb.

Atwater Kent 217 from Radio Attic Archives

Mitch Staab brought in an Atwater Kent model 217 for investigation. The symptoms were no reception, though all tubes had supposedly tested good. Some preliminary capacitor replacement had been done. Roland Gooch took up the challenge. Injection of audio into the volume control resulted in weak sound; presumably there is a problem in the audio amplifier (AF amp), but that does not explain the no reception at all.

Concerning the AF amp, all easily tested components were tested and found to be good. Possibly the AF tubes, though tested good on a tube checker, actually cannot amplify adequately, or the speaker or output transformer has a problem.

Injecting a signal at the intermediate frequency (IF) into the antenna terminal resulted in strong output from the IF amplifier, indicating that it was performing adequately, and that the mixer was capable of amplifying at the IF, suggesting that the local oscillator (LO) might have a problem.

Roland performed a commonly used test for operation of the LO by measuring the voltage on the LO grid. The voltage was -0.2 volts, indicating that the LO was not working. Normally, the LO derives the voltage on the grid by rectifying its own signal, resulting in a grid voltage usually between -5 volts and -12 volts. All coils in the radio frequency (RF) portion of the circuit were checked for continuity and reasonable resistance, and all seemed to be ok. The plate load resistor in the LO circuit, nominally 15 K ohms, was found to be 33 K ohms, which is out of tolerance and bad. However, experience tells us that while this might result in a weak LO signal, it should not kill the LO altogether.

So, the lack of performance in this set is still something of a mystery. The path forward is to replace the LO plate load resistor and audio tubes with some known to be good, and continue diagnostic efforts.

Something to think about after the VRPS Convention October 23, 24, 25 in Grapevine!

The HOUSTON VINTAGE RADIO ASSOCIATION (HVRA)
ANNUAL 2027 CONVENTION AND AUCTION
APRIL 23RD AND 24TH
MARRIOTT HOUSTON WESTCHASE HOTEL
2900 BRIARPARK DRIVE HOUSTON, TEXAS 77042
COMPLETE DETAILS AVAILABLE AT HVRA.ORG AFTER OCTOBER 1, 2026

SOUNDWAVES IS PUBLISHED QUARTERLY BY THE VINTAGE RADIO & PHONOGRAPH SOCIETY, INC.

PRESIDENT—JIM SARGENT (972) 742-8085 BSARGENT @SWBELL.NET

VICE PRESIDENT—RANDY JAMES (817) 881-0974 RANDY-JEANNINE@SBCGLOBAL.NET

NEWSLETTER EDITOR—MARY ANN CARUTH MCARUTH99@GMAIL.COM
WEBMASTER—MIKE GRIMES K5MLG@VERIZON.NET

SoundWaves

MONTHLY MEETING PROGRAMS 2026

NOTE: Programs will be held at various locations in Irving, Texas. Make note of the location as they may change from time to time. Senter East, 1000 Senter Road; or Garden and Arts, 906 S Senter Rd. Maps are located on the WEB site, www.VRPS.org EVENTS page. Programs start at 2pm. unless otherwise noted. Call us if you get lost: 972-898-7251 or 972-742-8085.

Programs are subject to change, contingent on scheduling conflicts. As always, your suggestions for programs/content are welcome. I need volunteers to organize other programs, so consider presenting a program yourself. Call anytime or send an email:

- AUG 15TH -- 1 PM - 5 PM - SENTER EAST - HISTORY & DEVELOPMENT OF FM RADIO
- SEPT 19TH -- 1 PM - 5 PM --SENTER EAST--TBD
- OCT. 23, 24, 25 -- GRAPEVINE CONVENTION CENTER, GRAPEVINE, TX
- NOV 21ST -- 1 PM - 5 PM - GARDEN ARTS CENTER -- TBD
- DEC 12TH -- 1 PM - 5 PM --SENTER EAST-- ANNUAL CHRISTMAS PARTY