

SOUND WAVES

Vintage Radio and Phonograph Society, Inc.

July 2009

From the President.....

by Jim Sargent

Aw! Summer in Texas, how great can it be! First we could not get rid of the Spring rains....now we pray for rain, and Summer has only been here a few days as I write this column. Sounds an awful lot like we cannot be happy. Well to tell the truth, I am happy. I have finally moved out of the travel trailer and into our new home in Granbury. I have just about gotten out of the habit of turning sideways as I walk down the hall, so it should not be long before I figure out which light switches turn on which lights!! I can truly appreciate the comment from others who have built their own home, "do it once, but

once is enough!" It sure was for Beverly and me. We are still living out of boxes for a little while longer as we try to make everything fit it's new home, but there is a light in that tunnel. Not intending to get too far off the trail of antique radios, summer reminds me that there are those of us who do take vacations. I like to encourage members to combine pleasure with



pleasure when planning a vacation. That is, look around for a major radio meet and see if it fits your timetable and direction of travel. The Michigan, Chicago and Rochester meets are really worth the effort. If you make those meets and want to give a report on the adventure, I am sure we can find space to run your story. Now, looking locally, we need to begin focusing on the convention. This is our 35th year as an organization. Come help us celebrate a milestone. Elsewhere in this issue you will find hotel details and dates. Please go ahead and make your reservations and plan to join us in November. A lot more information will be forth coming in the next issue of the *Soundwaves*. However, November is still a ways off and we still have an active summer of events to involve you, namely the repair session in July and the swap meet in the cool days of August. I would suggest that you use that time to complete restoration of that contest item or you may find that elusive show piece at one of our swap meets, local flea markets, or antiques shops. Think cool thoughts and good hunting.



IT IS WITH SORROW THAT WE REPORT ON THE LOSS OF KEVIN SCALLY. WHO PASSED AWAY SUDDENLY ON JUNE 29,2009 ,AT THE AGE OF 49. KEVIN WAS A VRPS MEMBER AND A GOOD FRIEND TO MANY OF US. HE WORKED IN THE AUTO PAINT AND BODY FIELD FOR MANY YEARS AND HAD PAINTED RADIOS FOR MANY OF US, NEVER ACCEPTING PAYMENT FOR MAKING THESE OLD PLASTICS LOOK BETTER THAN BRAND NEW. HE WILL BE MISSED BY ALL WHO KNEW HIM.

NOTICE: Will the member who brought the restored Crosley Fiver to the June meeting please contact me. I have forgotten your name and I would like to have "before and after " pictures of your beautifully restored radio to include in a future edition of the *Soundwaves*.

Randy James (817) 292-7435

e-mail: randy-jeannine@sbcglobal.net

Notes from the April 18, 2009 Meeting

by Bill Mckeown

Vice President Cleo Cherryholmes filled in for President Jim Sargent. He reminded us of upcoming events, including his June 20 program illustrating the alignment process for superheterodyne-type radios. He also welcomed new member-to-be Steve Nance. Our Program Director Mike Grimes introduced our program topic – BATTERIES. He talked about the fact that batteries were a very expensive item for the early radios, all of them being battery powered. The “B” batteries lasted quite a while, but the “A” batteries lasted only about 3 months and cost about 3 months’ salary for the average person. Of course the early sets were designed around the use of 1-1/2 volt “number 6” dry cells. This high cost inspired radio design engineers to accommodate their designs to the voltages available from lead-acid rechargeable batteries, 2 volts for single-cell and 6 volts for batteries such as those already used in automobiles. Eventually, vibrator-type supplies were created to convert low battery voltages up to the “B” voltage levels and eliminated the need for “B” batteries. There were also some 32 volt radios designed primarily to run from windmill-generated lighting system power. Mike mentioned that the world’s largest battery is in Fairbanks, Alaska. It supplies backup power for the 42,000 people of Fairbanks – long enough to get the big diesels started up and on-line. The enormous NiCad battery provides a 27 megawatt power source for up to 15 minutes. The battery power is converted to 138,000 volts AC by a huge inverter system.

Mike showed a fascinating video tape from the Modern Marvels series on the History Channel, showing the manufacturing process for modern batteries. It pointed out that we use over 3 billion batteries every year for everything from remote controls to pacemakers. The video showed the processes used to manufacture the batteries typical of the old dry cells that used manganese dioxide and zinc and also the modern alkaline batteries that use potassium hydroxide and a zinc slurry. We are all familiar with the A, AA, AAA, AAAA, C and D sized batteries, but what happened to the “B” size? It was used somewhat in Europe, but was never adopted in the US. The new Lithium-ion rechargeable batteries pack more energy into the smallest weight and are found in most cellphones and laptops nowadays. Mike mentioned the new TESLA all-electric automobile, made practical by these new batteries. It uses 6831 cells to

develop 400 volts, and to provide a 200 mile range. The batteries re-charge in about 3-1/2 hours at a cost of 2 to 3 dollars. There is still a lot of research going on to develop even better batteries.

The term “battery” was said to be coined by Benjamin Franklin from troops lining up in batteries.

Members brought and displayed a large assortment of batteries and related items, such as eliminators and chargers. Cleo Cherryholmes showed a power supply that produces the “A”, “B” and “C” voltages needed by a typical early radio. It produces 22-1/2, 45, 90 and 135 volts. He mentioned that there is a supply available that runs from two “D” cells and creates 45 and 90 volts. There was an article in the AWA Journal about it. Being an oscillator-type supply, it produces some interference.

Mike showed an unusual multiple-tap battery that produces what appear to be bias voltages.

Jon Butz-Fiscina showed a 1949 Philco 4-tube radio. It was designed so that the “A” and “B” batteries would both last about the same length of time – 200 hours. It operates with 4 parallel “D” batteries and a 90 volt “B” battery. Operating from ten 9-volt transistor batteries in series, Jon measured the “B” battery load current to be 8.5 milliamps and the “A” current to be 250 milliamps. Jon showed various other batteries, including a 2 volt Willard lead-acid that was used in the fancy RCA aluminum portable, a “B” size battery, a 45 volt battery made up of 30 “AA” size cells installed in an old case, with a foam filler taking up the extra space. He mentioned that Elliot’s hardware (in Dallas) carries the square 2 by 2 inch 9 volt battery. Also on display was a glass jar battery.

George Potter showed a Mallory bias cell along with an original cell holder for it. He showed a number of colorful, odd-brand batteries, including one made by the FRENCH BATTERY AND CARBON CO. (but not from France). Also on display was a 1925 Leyden-jar style battery – by NENCO (National Electric Novelty Company), and an Edison glass jar battery. Along with the Edison battery, George showed an Edison-brand bottle of battery oil (which was put on the

(Continued top of page 3)

surface of the electrolyte solution to keep the water from evaporating). He says he has WWI era batteries in his large collection.

The author showed an early 6 volt battery charger from around 1925 (based on its having a screw-type power plug to fit in a light bulb socket). Its transformer has a core made up of a bundle of wires, like the old Model T ignition coils. It uses a horse-shoe magnet to synchronize the swing of a vibrating lever (swinging at 60 Hz) to alternately make contact on opposite sides of the transformer center-tapped secondary winding. This provides mechanical rectification in similar fashion to 6-pin auto radio vibrators. The unit has a built-on ammeter, and it produces 6 amps of output.

Author's notes: A friend recalls his father taking the radio battery to town to be charged. Many of the old radio "B" batteries in cardboard cases can be gutted and filled with 9-volt transistor batteries. For example, a typical 67-1/2 volt case can hold seven 9-volt batteries connected in series, resulting in 63 volts - this will run most radios just fine. Big battery packs for portables can also be filled with "D" cells and 9-volt batteries to power Transoceanic or other radios. There are also some big battery packs available that contain inverters and re-chargeable batteries, but they sometimes produce interference with the radio signals. Lithium-ion batteries are rechargeable and are not to be confused with the "Lithium" cells, which are not rechargeable. Batteries Plus has almost any battery that you might need, including many old types. They seem to be priced in accordance with their rarity.

VRPS CONVENTION 2009 CONTEST CATEGORIES

NOTICE THAT THE CATEGORIES FOR THIS YEAR HAVE CHANGED

- 1. CRYSTAL SETS**
- 2. BATTERY RECEIVERS PRE-1928**
- 3. AC TABLE & CONSOLE RADIOS, PRE WW2**
- 4. AC/DC TUBE RADIOS**
- 5. TRANSISTOR RADIOS, PRE 1965**
- 6. PHONOGRAPHS AND RELATED ACCESSORIES, PRE 1928**
- 7. LOUDSPEAKERS-HORN OR CONE**
- 8. MILITARY AND AMATEUR RADIO EQUIPMENT**
- 9. NOVELTY RADIOS, TUBE OR TRANSISTOR**
- 10. TOMBSTONE RADIOS**
- 11. TELEVISION**
- 12. METAL RADIOS**
- 13. TUBE PORTABLES**
- 14. LITTLE KNOWN RADIO MANUFACTURERS**
- 15. OPEN CATEGORY-ITEMS THAT DO NOT FIT IN OTHER CATEGORIES**
- 16. MANUFACTURERS CATEGORY- CROSLY**

2009 MONTHLY MEETING PROGRAMS

NOTE: Programs will be held at the Senter East Building; Irving, Texas, unless otherwise noted. Located in Senter Park, the actual address is 228 Chamberlain St. The park is bounded by S. Shady Grove, Senter Road, S. Delaware, and Chamberlain St. Refer to the WEB site. Programs start at 2pm. unless otherwise noted. Call us on the cell *tellie* if you get lost: 972-898-7251 or 972-742-8085.

JULY 18

Repair Session. Bring your problem radios to our experts for some help. Session starts at 9.00 AM at the Senter East building. There will be no regular meeting afterward.

AUGUST 20

Summer Tail Gate Swap Meet. We will meet in the parking lot of Senter East Park starting about 8am or earlier. Finish by 12 noon.

SEPTEMBER 19

The subject is **Crosley**, the man and his machines. This program will include a video about Crosley and will be hosted by Randy James. Please bring any Crosley items of interest to share with the group.

In 1920 Powel Crosley founded the company that pioneered radio broadcasting and mass market manufacturing around the world. Dismayed with the \$130 price tag for the radio receiver his son wanted for his birthday, Crosley decided to make his own. Upon successfully building a working set for only \$35, Crosley was quick to spot the mass market potential. It was a simple idea - design a fully functioning radio, meticulously craft each unit with obsessive detail and precise accuracy, and of course add a measure of consideration for the wallet.

OCTOBER 17

Capacitors are always of interest in restoration of our old/antique tube radios. They are the first suspects in preparation and replacement parts for a project as they can cause a multitude of problems. Our member, Mike McCarty, will present history and working knowledge of capacitors, especially electrolytics. Bringing us up-to-date on modern replacements and reformation of old capacitors should be of broad interest to everyone.

NOVEMBER 20-22

Annual Convention. Hampton Inn; Mesquite, TX. Make hotel reservations now. **The October issue of the Soundwaves will include the Convention packet.**

DECEMBER 5

Annual Christmas Party. JayCee Center for the Arts. 5-11pm.

Programs are subject to change, contingent on scheduling conflicts. As always, your suggestions for programs/content are welcome. If the programs do not fit your needs and you want something different, let me know. I need volunteers to organize other programs, so consider presenting a program yourself. Call me anytime or send me an email.

Mike Grimes 972-898-7251 (cell) k5mlg@verizon.net

NOTES FROM THE BENCH

by Mike McCarty

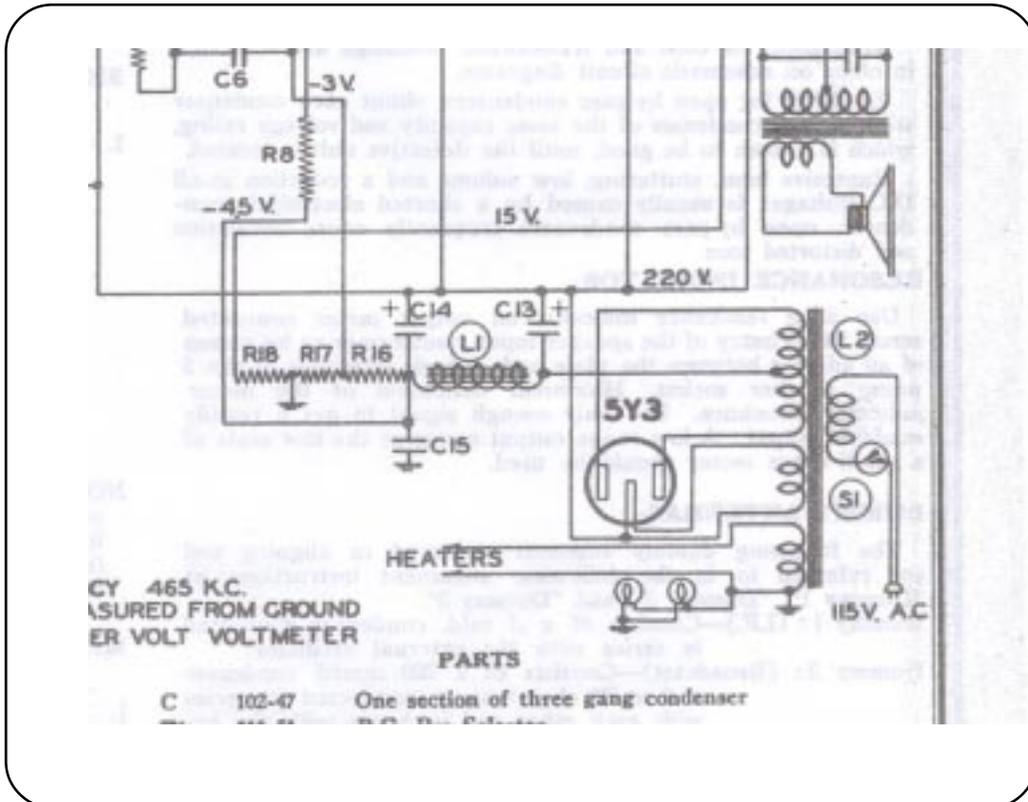
Watch for B- Filtering



Some of the older sets put the speaker voice coil, or a resistor, in series with the B- lead, and then ground the other end of that. This uses the total B supply current to provide a negative bias point for use as a C supply, which must be negative. When replacing filter capacitors in these sets, it is important not to ground the negative leads, and not to use a multisection capacitor to replace individual capacitors, as the negative leads are (almost) always connected to a single common point. Doing either of these will result in a loss of C- bias in such sets, resulting in running the power tubes too "hot" with too much

current, possibly damaging the output transformer, the tubes, or the speaker field coil.

This is something to watch in all sets using B- filtering, both when doing a recap, and also from previous "repair" attempts that may have introduced this error. Sometimes, one may encounter such a set, which has been improperly repaired in the past, leading to B- being grounded when it should not. Perhaps having added extra components, especially additional cathode resistors in the power tubes, or extra filter capacitors trying to remove hum caused by a shorted power supply component, the B- is no longer properly filtered.



NOTES FROM THE JUNE 20, 2009 MEETING

Program Director Mike Grimes reminded us of our upcoming July 18th Repair Session (starts at 9:00 am) and our August swap meet (starts around 7:30) as well as our September meeting, where Randy James will give a presentation on Crosley Radio (Bring your Crosleys!). Our program subject was the alignment process for a superheterodyne radio. Mike introduced Cleo Cherryholmes to present his well-prepared program. He had set up a very effective array of test equipment and illustrations.

Cleo touched on the subject of Resonance, mentioning that Sir Oliver Lodge (a Scot) studied it and defined it in mathematical terms, using parallel conductors. He explained that resonance is responsible for selecting and passing the signals that we want, while rejecting those that we don't. The alignment process is simply one of adjusting the radio's resonant circuits to pass the radio frequency signals that are being amplified by the tubes. Cleo used a breadboard setup and test equipment to illustrate the properties of an L/C (inductive-capacitive) circuit. Using a signal generator and oscilloscope, he showed how the signal voltage across a parallel inductor/capacitor rises to a peak value at a certain signal generator frequency and falls off on either side as the frequency is adjusted. The effect of loading was also demonstrated by connecting an oscilloscope test probe to the circuit and noting that the resonant frequency moved from 130 KHz to 121 KHz simply due to the approximately 10 Pico farads capacitance of the probe. Cleo pointed out the number of tuned circuits in the radio that he had chosen for his demonstration – 6 total (two IF's, with two coils in each; oscillator, and RF). The loop antenna is actually part of the tuned RF circuit, in combination with one section of the tuning condenser. The other section of the tuning condenser is connected to the oscillator coil. Stations are converted to the IF frequency by the difference between the station frequency and oscillator frequency. By tracking the tuning of both the oscillator frequency and the antenna across the dial, optimum performance is achieved. Once the 6 tuned circuits are adjusted, alignment is complete. Cleo proceeded to align the example set, emphasizing that the correct tools are essential. He showed several types of adjustment – adjusting screws, slotted ferrite slugs and hollow slugs with hexagonal holes through them. It is

critical that proper tools are used for the ferrite slugs, which are sometimes difficult to turn or are stuck in place. (Special alignment tools can often be found at our swap meets and flea markets). A steel screwdriver or Allen wrench will de-tune the circuit while you are trying to adjust it. A slotted screwdriver is more likely to break a slotted ferrite slug (the corners are rounded-off on the proper tool). The hollow slugs let you reach through the one slug to the other one, letting you do the IF alignment from above the chassis. You must be very careful with the slugs! If a slug is frozen, it is best not to try too hard to move it, especially if the radio plays OK otherwise.

When do you align a radio? – Only if it's already playing to some extent. Mark the locations of the adjustments before you move them and make a reference mark on you alignment tools so you can turn an adjustment back to the original setting if there is no change in output. Also, mark each device – L1, L2, T1, T2 etc. for quick reference and to avoid accidentally adjusting the wrong thing or undoing one you've already made.

The radio that Cleo used is an RCA training school kit. He showed the result of doing a quick manual adjustment of the tuned circuits without any test equipment. After peaking it all up, it played just fine on the station that was being used as a signal, but the dial ended up pointing to 990 instead of the 1080 frequency of the station, and a station at the low end (570) could not even be tuned-in! This illustrated that the quick way is not a good way. The dial will be incorrect, and at the very least the sensitivity of the radio will vary across the dial because the tracking has been upset.

Cleo showed the procedure for coupling the test signal generator into the radio with a home-made gadget consisting of 5 turns of wire supported on about a 3 inch diameter slotted piece of cardboard. This loop was connected to the signal generator output and placed near the radios' loop antenna (or loop stick, or RF coil). To measure the output of the radio a voltmeter was attached to the speaker terminals and set up for a low-range AC measurement. The procedure started with setting the signal generator up to produce a signal at the IF frequency, modulated with a tone (usually about 400 Hz). Then, all four IF transformer adjustments were made in order to peak the output. (If there is no signal, the signal generator setting may be moved around until you get an output, then moved back toward the correct frequency

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until the signal is very weak, then making an adjustment to bring the output back up. This brings the adjustments closer in a step-wise fashion until you get them set to the right frequency.) Once the IF's were adjusted, the service instructions were followed, setting the signal generator and radio dial to 1200 and then peaking the RF and oscillator adjustments on the tuning condenser. This completed the alignment process, as demonstrated by the radio putting the 570 station "back on the air".

Some sets will have an RF amplifier stage that will need adjustment at the RF frequency used for the tuning condenser adjustment step. The advantage of using the test loop to inject the test signal is that for most radios you will not need access to the underneath side of the chassis. You can use this method, even though the procedure called for in the service information may call for a direct connection through a capacitor from the signal generator. Cleo pointed out a simple test to see whether the RF alignment is OK on a radio with a loop antenna. If you bring your hand near it and the radio plays louder, it is not correct. Your hand capacitance is actually correcting the tuning.

Cleo's final bit of advice – don't start an alignment job if it's midnight!

Authors notes: Sometimes a slug can be freed by taking the correct-size Allen wrench, placing it into the slug and transferring heat from a soldering gun down the shank of the wrench while putting some torque on it. Don't try it too long, as you may burn the transformer cardboard core. As Cleo said – leave well enough alone!

Beware that someone has deliberately moved the pointer on a dial cord or misplaced it when renewing the cord. Sometimes there are paint dots or marks on a slide-rule dial to indicate the proper setting for the pointer with the condenser fully closed. An alternate method of monitoring the output for alignment is to measure the negative voltage on the AVC buss and to maximize the amount of negative voltage while making the adjustments. The volume control can be left turned down. Another advantage to this method is that it helps keep from adjusting the set with nearly saturated conditions. As you go along, you reduce the signal generator output to a level just adequate to get a good reading, something you should do even when measuring the output at the speaker connections. If someone has totally misadjusted the radio (meddled with it), it may be necessary to check the output stage-by-stage, using an oscilloscope to monitor the signal.

NEW MEMBERS

Steve Nance

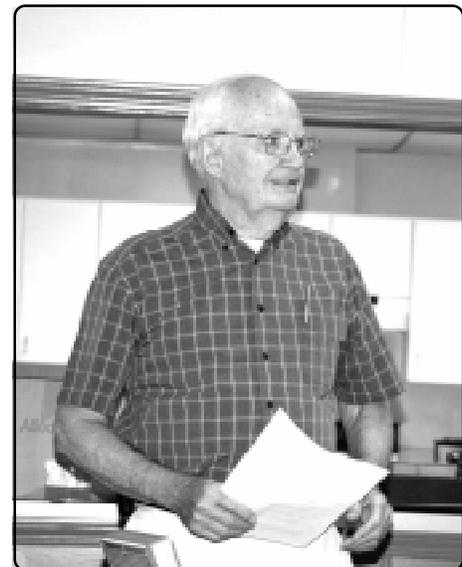
Tom Johnson

Horace Hamilton

The VRPS would like to extend a big *WELCOME!* to the newest members of our club. We hope you will participate in and enjoy the various activities we offer. Don't hesitate to ask any of the Directors any questions you might have regarding club activities.



Cleo Cherryholmes and Mike Grimes setting up the equipment for Cleo's presentation on alignment.



Cleo explaining the function of alignment.

VRPS CONVENTION 2009-NOVEMBER 20-22,2009

It's that time again! Time to start getting ready for our annual convention. This year marks the 35th anniversary of our organization. Some of the early members may remember that when the club was formed in 1974, the original name was the Southwest Vintage Radio and Phonograph Society. The Southwest was dropped shortly after, and the club became known as the Vintage Radio and Phonograph Society.

It's not too early to make your hotel reservations and to start getting your items ready for the Contest. When you call for hotel reservations, tell them that you are a member of the Vintage Radio and Phonograph Society to get the \$84.00 room rate or the \$104.00 suite rate.

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