OKVRC Oklahoma Vintage Radio Collectors Broadcast News

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PRESIDENT'S PAGE

By Jim Collings

Well, it looks like the hot weather is here! But don't let it stop you from attending our next meeting. It's at Swadley's BBQ in Bethany, just south of 39th Street on Rockwell. The meeting officially starts at 7 PM with dinner before that. This month's topic will be Farm Sets. Farm Sets are often viewed as inferior sets, and are fairly plentiful in our area, as well as many rural areas. They were designed to run on batteries before rural America was electrified. Circuits were hampered by not being able to have high B+ voltage because this voltage was supplied by a battery. Some are made in cabinets unique to farm sets, while others are designed to fit in the same cabinet as AC sets. They were made from the early 30's cathedral era up into later bakelite sets of the 40's. Often they have large cabinets, and offer a surprise when you look behind and find a dinky chassis, with the extra room to store the batteries. Some were designed to run from only a six volt car battery with a vibrator, while others used 32 volts, but most common are the sets with 1.5 volt A batteries and dry B batteries. For rural areas windchargers were sold to keep batteries charged and ready to operate the set. For the most common types, the mail order houses, who sold many of these sets when they were new, offered AC power packs allowing the life of the sets to be extended after electrification. So what sounds like a boring topic may end up being very interesting. So bring your Farm Sets and related items. Of course anything else you would like to bring to talk about will be welcomed. Our last meeting had one of the largest attendances we have had in a long time. Bring an item for the donation auction!

Last Saturday was the Summer Sizzler in Broken Arrow put on by the Tulsa club, HLARA. It was at the same location as previous years. We went on Friday evening and were able to unload all our swap and display items, and then enjoy a nice dinner out, afterwards. On Saturday morning the turnout was about the same as last year, but there was still more room for additional people to fill swap tables. I sold a couple of more expensive items and just a few other smaller things. Unfortunately, I purchased 3 tables full of stuff that a local collector was tired on hauling around, and completely filled the car. There was still plenty that wouldn't fit, that I donated to the HLARA for their closing donation auction. There were some nice items displayed in the contest, and I won ribbons for the few items I took. The People's Choice Award was won by a beautiful Scott Laureate that played thru most of the meet. It was a good meet, and I'll be looking forward to next year's.

Next month, I expect to review the MARC Extravaganza meet in Lansing, Michigan.

Report for the OKVRC Meeting 6/9/2012

Summer is here, and temperatures are getting hotter every week, but that did not stop OKVRC members from converging on Swadley's Barbeque restaurant in Bethany for our usual second-Saturday-of the-month club meeting. In last month's newsletter I raved about the food and chided club members for not attending our first ever meeting at Swadley's (only thirteen showed up). I must have gotten through to folks, because we had twice that number this month! All who showed up were rewarded with great food and a good time.

Members began arriving around 5:30-6:00 to order their meals, and almost everyone had finished eating by the time Club President Jim Collings called the meeting to order about 7:00 PM. Jim brought us up to date on some upcoming events, including the Summer Sizzler radio meet (June 23rd) hosted by our sister club in Broken Arrow. I went myself two years ago, driving Route 66 on the way out, and had a great weekend.

Before our main program for the evening we had a show-and-tell session. Jim Collings displayed an ERLA battery set from about 1925, with distinctive doughnut-shaped RF transformers, sometimes called "balloon" coils. Jim also showed us an elaborate, early (about 1921) home-brew set with "Branston" coils. Nick Little brought in two new acquisitions to share with us, both tube-type portables from the late forties. The first set was an Admiral, the second a DeWald. The DeWald has several shortwave bands, a rarity at the time. Apparently DeWald was imitating the highly successful Zenith TransOceanic. Jim Collings showed us one more set: a Sharp pocket radio from the late fifties. Big deal right? No, this tiny radio was tube-type! It was also made in Japan, which leads us into the topic for tonight's program: NOT made in the USA.

Practically every radio bought by consumers in the US today, with the exception of a few specialty or high-end items, is made overseas. But prior to World War II almost all radios, like most other manufactured products the consumer bought, were made in the US. Few overseas manufacturers built products for the US market; their receivers often did not operate on the 120VAC 60 cycle power used in the US. Pre-war foreign radios were therefore an extreme rarity in American homes. By the close of WWII, many European and Japanese electronics factories were in ruins, and American companies continued to rule the postwar US market for years. By the mid nineteen fifties, however, fine radios and stereos from Germany began to appear on the American market. Within a few years after that, radios and other consumer electronics at all price and quality levels began to appear from Japan, heralding a tidal wave of imports from all over Asia that would, in the course of three decades, almost completely take over the US consumer market.

Club members brought in a few early foreign radios to share with the club. Your club secretary didn't have any, but I did bring in an early twenties "High Tension Accumulator" built by the Hart Battery company of London, England. This was a wet-cell unit that provided plate or "B" voltages to early British sets. The wet cells are long gone, but the handsome golden-oak box with attractive labels is a nice bit of early British radio history.

Gary Swymeler showed us a VE301 radio from the mid-thirties, built by the S. Loewe Company in Germany. These were Volksempfaenger or "People's Radios", promoted by the Nazi regime. The chief Nazi propagandist, Dr. Joseph Goebbels, saw the power of radio in indoctrinating the German people in Nazi ideology. These radios, like the Volkswagen "People's Car" were simple and cheap, so everyone in Germany could afford to hear Hitler and Goebbels bawling at them day and night. They also were broadcast only, to prevent the people from hearing what was going on outside the Nazi borders. Indeed, listening to foreign shortwave broadcasts was a serious offense under Hitler and could land you in a concentration camp. Gary's VE301, which is housed in a Bakelite cabinet, is in remarkable condition. Many of these sets did not survive the war; others were tossed when better sets became available in the post-war era. His radio is a remarkable artifact of a dark period in European history.

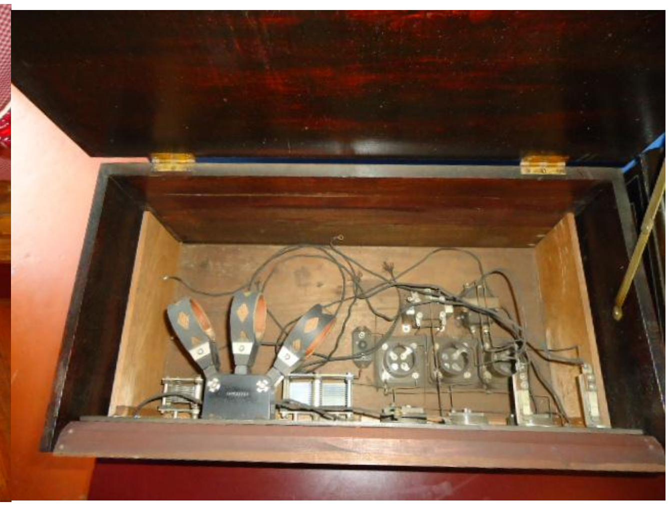
Jim Rice brought in a nine-tube “Kaiser” radio from the late fifties. This radio, with FM Multiplex stereo and six speakers, is typical of the fine post-war German radios offered to European and American buyers in that period. I’ve raved about these German sets every time Jim has brought one in for us to enjoy. They have incredible sound, and they also receive numerous shortwave bands, something most American manufacturers dropped once they added FM.

We also welcomed two visitors: Jerry and Ron Morgan. They had some goodies in their car to sell; we all converged on the parking lot for an impromptu swap meet. Several radios went home with club members. Mike Swinney picked up a real bargain in a 1929 Zenith model 52 console for only eighty dollars!

We wrapped up the evening with the usual donation auction. A panel horn speaker from an early twenties radio, a Rider’s manual volume 2, a Traveler plastic radio from the forties, a twenties radio cabinet, a new-in-the-box indoor TV antenna, A box of odds-and-ends, a Akai VCR, A Webcor portable tape recorder, a computer power supply, and a “Power Shifter” battery eliminator all found new homes.

See you at next month’s at Swadleys’!


OSU




OSU

Post Dinner Car Trunk Swap Meet

Replacing Defective Resistance Line Cords

From Colorado Radio Collector's "The ***Flash!!***"

Larry Weide

4/93

Hi...all you CRCers! This month I'd like to write about a subject that will likely be of interest to collectors who restore low end 1930 radios - the substitution for defective resistance line cords. To begin with, I want to thank Dick Hagrman and his brother Ray for much of the information in this article. In particular, I want to thank them for all the empirical work they did to distill their substitution technique down to a simple procedure and a few component values.

During the 2nd decade of commercially available radios the cost of owning a receiver began to drop dramatically. One reason of course was that by the beginning of the "Thirties" mass production and volume selling was in full swing. At the same time however, cheaper methods of construction were also being implemented. One of these cost reduction methods was the elimination of the AC power transformer - the most expensive, largest and heaviest component on a radio chassis.

Most of us are familiar with the common method of transformer-less operation. The B+, or "plate" voltage is derived directly from the rectified and filtered AC line voltage. At the same time, the filaments of the tubes are supplied with the proper voltage by placing them in series with the input AC line voltage. It turns out however that, during the early years of this filament supply technique, the available tubes, setup in typical arrangements, could not by themselves handle the entire AC input line voltage. Examine Fig. 1 to see how the tube filaments were arranged with a resistor to properly distribute the voltage among the tubes.

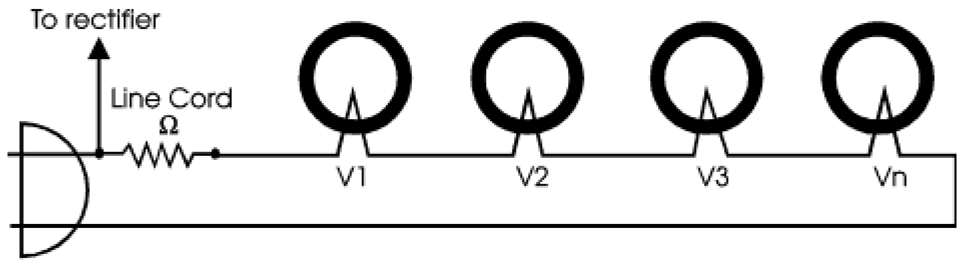


Figure 1

The resistance value of each tube filament, and of the resistor, are designed such that each tube gets it's proper voltage and the resistor gets what is left. The total voltage IS the value of the input AC line voltage. Of course, all of this is under the control of good 'ole Ohms Law.

Until newer tube types became available, and eliminated the need for the series resistor, this system worked pretty well except for one thing - the resistance component dissipated a lot of heat. There were two common solutions to this problem. The more expensive method was to place the resistor in an electron tube style plugable container known as a ballast tube. This "tube", though it got quite hot, was mounted above the chassis and away from most of the other components. The cheaper method was to use a resistance line cord. This cord looked like any other cloth covered AC line cord of it's time, but it also contained a third conductor that was actually a resistive wire (like nichrome) that acted as the required resistor for this type of radio.

There were a few radios of the day that did use a voltage dropping resistor that were typically placed under the chassis near ventelating holes. Even some "modern" tube radios used dropping resistors - particularly where pilot lamp voltage was otherwise hard to create.

The advantage of the voltage dropping line cord was that it would dissipate the generated heat outside of the radio cabinet and eliminated one more component to mount inside the radio. Alas, it had a major disadvantage. These line cords didn't last long due to the effects of heat on the rubber insulation. In fact, it is rare to find any of these cords in good shape today - even unused ones. Since frayed and defective cords of this type are VERY dangerous you will not find them being newly manufactured.

The usual method of repair is to replace the old resistance line cord with a conventional two conductor one and a suitably sized resistor. This method certainly works but it puts us back to square one in terms of the troublesome heat dissipation. Then there's also the problem of where to safely mount a power resistor inside a cabinet not designed for such things.

There is another way!

Simply put, we can substitute the voltage dropping resistor directly with a capacitor. Using Fig 2 let's take a look at how this technique works.

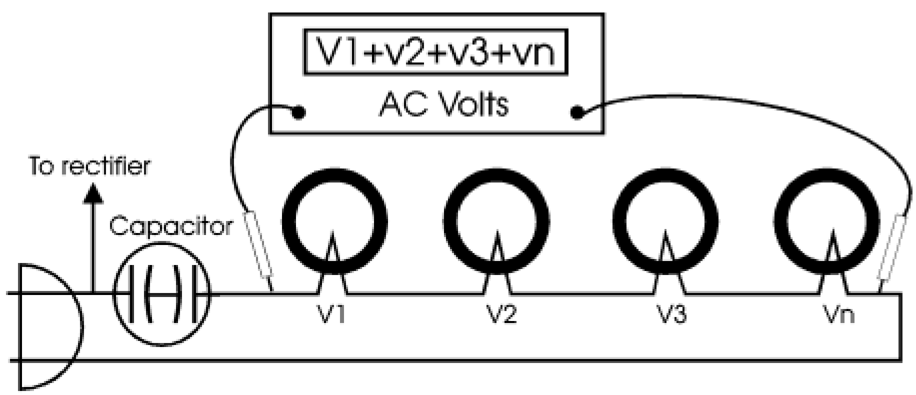


Figure 2

As the input AC current passes through the tube filaments it charges the capacitor, first in one direction then the other. The rate of this charging, and the average value of the resulting current flow, is in direct relationship to the filament resistances and the capacitor value. As mentioned above, the voltage across each tube would be calculated with Ohm's Law as: tube VOLTAGE = capacitor CURRENT times filament

RESISTANCE. Since the trick is to calculate the size of the capacitor for a particular tube lineup (not hard but tedious), we tip our hat to the Hagrman brothers for providing us both specific part values and testing information.

The capacitor must be a special type. It's a non-polarized electrolytic. It's non-polarized to handle the AC current, and electrolytic because of the relatively high capacitance value required. Although it's technically possible to use back to back electrolytics in this service, Dick says that experience shows the ready made non-polarized capacitor is the most reliable type.

In the case where your radio has a tube lineup whose total filament voltage doesn't match one in Fig. A, we suggest you use the following testing and capacitor value locating procedure;

1. Install what you believe to be a suitable size trial capacitor. Remember, this capacitor directly replaces the line cord resistor.

   In many cases the line cord resistor had a low resistance tap that was used as a shunt for a pilot lamp. If your set had such a cord, you will need to replace this shunt resistance with a 5 watt resistor who's value can be found in your radio's documentation, or you can select a cord resistance from Fig. 4, then go to Fig. 5 to find the closest tap value.

2. Attach an AC voltmeter to span the entire filament string as shown in Fig 2.

   YOU MUST NEVER LET THIS VOLTAGE RISE ABOVE THE SUM OF THE CORRECT VOLTAGE FOR ALL THE TUBE FILAMENTS OR TUBE DAMAGE MAY RESULT!

3. Using the proper SAFETY precautions, plug your radio into power through a Variac or similar voltage adjusting device.
4. Carefully monitor the voltage in step B as you SLOWLY bring the Variac output voltage up towards the AC input line voltage.

   * If the voltage in step B reaches the total filament voltage BEFORE the Variac output voltage reaches the line voltage, then the capacitor is too big - too much current.

   * If the voltage in step B is low when the Variac voltage has reached the input line voltage, then the capacitor is too small - too little current.

5. Repeat the above procedure, using different capacitor combinations, until your results (the total filament voltage being measured in step 2 is within +/- 10% of the desired value.

Naturally, you're going to have to find a place to install the capacitor. However, since it runs quite cool, you can mount it anywhere where there's room AND safe access to the AC line. Below you will find a source that Dick has used for his capacitors. The ones that Dick found have the advantage of being fairly small, have axial leads and are shrouded in insulating plastic. The alternative to this capacitor is the AC motor start capacitor. This type is much easier to find, but they're likely to be larger. Again, it is possible to use back-to-back electrolytics, but be VERY careful of observing for situations such as overheating of the capacitors.

By-the-way, this technique works equally as well for defective ballast tubes that can't be replaced (I have however found exact replacements at Antique Supply in Tempe). Once again, you may have to deal with a pilot light shunt in this device as well.

Hagrman Derived Capacitor Values for Common Tube Filament Voltage combinations

Total Filament Voltage	Calculated Capacitor Value
24 Volts	7.2 µfd
68 Volts	10.0 µfd

Figure A

Line Cord Resistance Values for Specific Tube Lineups

Note: n (6.3 V.) = quantity of 6.3 volt tubes in radio

Resistance	Tube Lineup
135 Ohms	25Z5, 43, 4 (6.3 V.)
160 Ohms	25Z5, 43, 3 (6.3 V.)
180 Ohms	12Z3, 43, 4 (6.3 V.)
200 Ohms	25Z5, 43, 2 (6.3 V.)
220 Ohms	12Z5, 43, 3 (6.3 V.)
250 Ohms	12Z3, 43, 2 (6.3 V.) 25Z5, 3 (6.3V)
290 Ohms	12Z3, 3 (6.3 V.)
300 Ohms	12Z3, 3 (6.3 V.)
330 Ohms	12Z3, 2 (6.3 V.) 4 (6.3 V.)
350 Ohms	12Z3, 1 (6.3 V.) 3 (6.3 V.)
390 Ohms	2 (6.3 V.)

Figure 4

Common Values for Tapped Resistance Line Cords

Total Resistance	Tapped Resistance
160 Ohms	24 Ohms
165	30
180	25
200	25
200	40
280	40
360	80
430	80
510	80
560	80
960	80
1950	360

Figure 5

The Oklahoma Vintage Radio Collectors (OKVRC) publishes the Broadcast News monthly for the presentation of historical information and enjoyment of club members and friends. Articles on subjects of interest to radio collectors, news of club activities, and restoration information are always welcome. Articles should be sent to the Broadcast News Editor, c/o OKVRC, PO BOX 50625, Midwest City, OK 73140-5625 or e-mailed RXRADIO@AOL.COM. Unless otherwise noted, articles can be reprinted freely, as long as proper credit and reference is given. Electronic copy of articles can be obtained from the editor of Broadcast News.

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