

SOUND WAVES

VRPS Spring 2015



From the President

Awhhhh!!!! The smell of spring is in the air. We did not have much of a winter in the DFW Metroplex this year, so, realizing that she was running out of time, Mother Nature rushed to squeeze it all into the last two weeks. Sure glad that is over. Ice and snow are two of my least favorite weather-related words.

Those cold and wet days did allow me to complete some long delayed projects, as I always try to use the winter

indoor days to work on radios or my display area. I added some shelving for displaying radios and accessories, and I also spent some time with a soldering iron repairing a few radios that have been long neglected.

Your Board of Directors and I met in January (as we have for years) to discuss the year we just completed, identifying what went well and what needed improvement. However, we spent the majority of the time looking at what we are going to do in the current year - everything from selecting monthly meeting topics to the contest categories we will use in the annual November convention.

Larry Lindsey was added to the board this year. He will be taking over the role of monthly meeting planner. This is a critical role because our monthly programs need to be entertaining, informative, and useful to the hobby. Then you need someone to take the lead on the meeting presentation. Mike Grimes has been our meeting planner for more years that most could remember, so this as a way to help clear his workload. This did not leave Mike with nothing to do. You see, for many years Mike has been doing double-duty as our web master for our website. Thanks, Mike, for your many years of faithful service and welcome aboard to Larry.

Until next time, good hunting!

—Jim

Notes from the January 17, 2015 meeting

Club V.P. Randy James conducted our meeting – held at the Senter East building in Irving, TX. After a round of self-introductions by the attendees, he introduced our program presenter, member George Potter. George has become well known as our long-time expert on Watterson radios and the history of the Dallas company that sold them. He has been collecting them for over 40 years. In addition to presenting a very interesting history of the founder and family, he brought along a number of examples from his collection.



The founder, John Watterson Davis, Sr., had a hotel in Dallas and many other businesses, including Dallas Brass, which made parts for trolleys and trains. J.W. Davis and son J. Watt Davis decided to create a "Radio Bargain House". They bought an entire carload of Silver Marshall \$240.00 radios and it took them a long time to get them sold. They had to sell an antenna kit to make them function away from town. They got many of their supplies and sets from J.W.'s connections with Chicago businesses (Warwick Mfg. for example). Some sets were bought from O.E.M sources – although all but the tombstones were made in Dallas. To make money they started out by selling farm sets and the batteries to operate them. In El Paso, they sold batteries to Mexico from across the border. They produced about 1000 Model 500 Texas centennial sets for the 1936 Texas centennial celebration. It was a 4-tube set with a huge dial. The only Watterson identification is on a brass tag. They also made a 5-tube model in a different style.

Somehow they managed to have vacuum tubes available during WWII, even when no one else had them. For the war effort, they made generators for aircraft. Being in the furniture manufacturing business, they always had a good source of wood cabinets. They often put wood backs on their radios using scrap material, something that brought complaints from radio service men. In 1949, the company was sold to a consortium which produced AC radios for about a year and a half and then went bankrupt. J.W. bought it back and enlisted a radio circuit designer friend to develop an FM set. It was introduced as the Model 4800 (Manufactured by Warwick). Watterson made only one model bakelite set. It had a rainbow-shaped arch over the dial with an insert that was usually melted by the heat of the dial lamp.

During '58 and '59, when transistors had come into use, they made 3 models having 6 transistors and 2 diodes from Texas Instruments. In 1953 son J. Watt Davis became the new president of the company. He was primarily interested in "HI-FI" so they made speakers, public address and sound systems for buildings. That business was eventually sold to Talk-a-Radio, who made home radio/intercom systems. During the height of their business, they were producing about 20 chassis and cabinets per day. It was a big family operation. Dalbar Radio was a spinoff of Watterson. Son J. Watt passed away in 1973.

Author's note: There is a Model 1014 vacuum tube Talk-a-Radio system in my house, which was built just before such systems were all solid-state.

Bill McKeown



Notes from the February 21, 2015 meeting

Club president Jim Sargent conducted our meeting – held at the Garden and Arts building in Irving, TX. After self-introductions by the attendees, Jim reminded us of upcoming events, the first being our big Spring Auction on the 21st of March. The cost amounts are: Registration, \$5.00; Seller's fee, 10%; buyer's fee, 5% and a \$10 minimum bid (except for club-donations). Something new – there will be free coffee and donuts.

Jim introduced our newly-inducted Program director Larry Lindsey, who is taking on the job that Mike Grimes has nicely shouldered for many years. Larry outlined the planned programs for the future, including two presentations by Mike McCarty on step-by-step repair methods (first session Apr 18, second – June 20). Mike suggested accessing the club website, prior to the repair methods meeting (s), to view the previously presented material on radio components. Larry conducted an "I.Q" test, handing out sheets containing a multiple-choice set of questions. Club members checked their answers and handed their papers in. The winners were to be announced near the end of the meeting. Jim reminded us that the July 18 Repair session will start later than usual – at 1 PM.

The meeting topic for the day was "Batteries". Jim Sargent presented the program. He displayed a number of batteries from his collection, and members also brought some of theirs to display and discuss. Jim started by asking who coined the term battery, and the surprising answer was Benjamin Franklin. He dis-

cussed open-circuit vs. closed-circuit batteries, showing examples. Battery development started about 1860 when a Frenchman (LeClanche) invented the carbon/zinc cell. Jim demonstrated one lighting a small lamp after submerging the electrodes in a glass jar containing ammonium chloride.

Many of Jim's batteries were very early glass-jar types using variously shaped electrodes, such as a "crow's foot" type. He said that there are still such batteries used for backup power in some telephone exchanges. His collection includes a large number of glass bottles that were used to contain "battery oil" – some with the Edison brand. The oil was put onto the surface of the battery electrolytes to prevent evaporation of the water. For a time, there were radio "B" batteries that used an array of cells that were basically chemical test-tubes with electrodes dipped into an electrolyte. The "dry cell" came around in 1898 with the Columbia brand (National Carbon Company) no. 8 cell. The no. 6 cell became the popular size. Many manufactures sprang up (e.g. Burgess), producing batteries for all applications with many different and colorful jackets - there were many examples that Jim and other members had brought. Jim invited members who brought items to show and discuss them.

George Potter showed a "French brand, a '20s "Ninco", Sears B and C, and a Southwestern Bell 45 volt battery. Mike Grimes showed a bias cell and some more modern batteries from China (Hong Kong). Jimmie Conners showed a number of farm sets, 8 in all, that he has installed power supplies or ganged

continued on page 4

batteries to make them operate. His RCA set has a blinking neon lamp for a "pilot light". It shows that the radio is turned on, and the battery condition is indicated by the blink rate of the lamp – it slows as the voltage goes down. Several sets had ganged series 9V and parallel-connected D-size batteries to power them. He also showed a TR77 Military battery and a Zenith Transoceanic battery. He had also obtained one of the A.R.C power supplies delivering 22, 45, 67, 90, 135 and 1 ½ volts. He showed us a board with 9 volt and parallel 1 ½ volt batteries, fitted with a 3-prong connector that mates with the one found often in farm radios. Ed Janssen showed a big red ATLAS transistor radio, ca. 1963, which looks like a car battery. David Seymour showed a Philco that has a family history, and also an AK30. Billy Smith showed a very nice and very big farm radio. Les Sims showed a FADA '40s portable, AC or battery, obtained through e-Bay. The 67 ½ volt battery consists of seven 9volt batteries in series.

In the I.Q. contest there was one question that caused disagreement among the members. The question was – how many colored stripes display the value of a resistor. Two sets of winners were announced – one group for those who chose 4 and another for those who said 3. (e.g. some include a tolerance stripe; there are 4 or more for precision resistors from Europe).

Author's notes: I visited the Swift meat packing plant next to the Fort Worth stockyards, about 1970. My host pointed out that their fork lift trucks were still using their original Edison nickel/iron alkaline batteries from 1903. You can sometimes save the case for a 67 ½ volt battery and install seven 9V batteries inside. Most radios play just fine on the 63 volts supplied.

Bill McKeown

Old Equipment Contest Categories for the 2015 Convention

- ◆ 1. Crystal Radio Pre 1940
- ◆ 2. Battery Receivers Pre 1928
- ◆ 3. AC Table Receivers Pre WWII
- ◆ 4. AC/DC Tube Radios Pre 1960 Any Style of Cabinet
- ◆ 5. Transistor Radios Pre 1965
- ◆ 6. Tube Type Audio Equipment
- ◆ 7. Phonographs and Related Accessories Pre 1928
- ◆ 8. Speakers and Microphones Pre 1960
- ◆ 9. Novelty Radios Tube or Transistor
- ◆ 10. Radio Related Ads, Ephemera, and Accessories
- ◆ 11. Televisions Pre 1970
- ◆ 12. Open Category—Radio Related Items Not Belonging in Other Categories
- ◆ 13. Art Deco Radios
- ◆ 14. Vacuum Tubes
- ◆ 15. Homebrew / Kit Radios
- ◆ 16. Telegraphy
- ◆ 17. Theme Radios (Emerson)



Pictures from the March 20, 2015 Spring Auction



A Note from the President

Our annual spring auction is over, the lights are out, the building is quiet, and all the items offered for sale either went home with new owners, or in

a few cases, actually returned with the person who brought them. As March Madness is all over the television this week ...and next, I got to thinking about how easy our auctions could turn into "madness" if it were not for the volunteers who assist with so many aspects of it. I just felt compelled to mention those who I know carried a heavy load today. Mike McCarty opened the doors at 6 am. Ron and Cheryl Daniel manned the registration desk, and Ron did double-duty by getting the donuts and making coffee. Early birds like Richard Shanks, David Hickman, Larry Lindsey, Mike McCarty, and Randy James set up the tables and chairs. Mike Grimes was called away, but he can rest assured that, while he was missed, his "stand-in's" did an exceptional job. Cleo and Wanda got up with chickens to make sure we had the required forms. The folks working the "back room" were awesome and kept stuff flowing for the 3 and 1/2 hour auction. Randy James, Scott Kennedy, John Cowart, Larry Lindsey, Steve Nance, and Ed Janssen are true "back-room" warriors. Wanda Cherryholmes and Beverly Sargent "manned" their stations, recording all the items that sold or passed during the sale. Jim Collings and Jim Fields rotated the flawless computer input. I am reminded that the auction is not over just because the final item is gavelled. There is clean up and Tony Quinn and Steve Nance were right there to lend a hand. What a terrific team! These auctions, while we are used to doing them, do not just happen. It takes team work. If you see one of these team members, say thanks!



The Case of the Mysterious Modern Values by Mike McCarty

One of the first things the novice vintage equipment repairman encounters when selecting modern replacements for defective components is that exact value components are often not available, and the modern values seem "oddball". A ubiquitous component needing replacement is the $0.05\mu\text{F}$ capacitor, for which the nearest modern equivalent value is $0.047\mu\text{F}$.

Whence this oddball value, and why the change?

In the very early days of radio, manufacturers were very protective of their receiver designs, and concealed the actual values of components by using color codes. Atwater Kent was notorious for this, identifying many components only by color, even in the parts list. Engineers computed values, selected rounded versions, and components were custom made for each set.

Eventually, Reason overcame Fear, and the Radio Manufacturers Association (RMA) promulgated a standard color code which encoded actual values of components, and component manufacturers immediately started producing a range of "standard" values.

No manufactured device is perfect, and no component has a value exactly one of the standard values. Most electronic circuitry is very tolerant of variation of exact value, and using components deviating as much as $\pm 20\%$ from a computed "perfect" value causes little or even no noticeable change in performance in most cases. Coupling and bypass capacitors often may be doubled in value with no

noticeable effect on behavior. Component manufacturers soon settled on $\pm 20\%$ as a normally acceptable tolerance for component values.

If one is manufacturing components with a nominal value of 1.0 with a tolerance of $\pm 20\%$, then the actual value may be in the range of 0.8 to 1.2. It makes no sense to offer a component with a nominal value of 1.1 as well, since this lies in the acceptance range for a nominal 1.0 component. It doesn't even make sense to offer a component with a value of 1.2, since there would still be a significant overlap of tolerable values.

What makes sense for the manufacturer is to make the tolerance ranges just "touch" so that all manufactured components fall into some acceptance range, and to minimize the number of standard values necessary to do so. So, the values should be such that $1.2 \times \text{Nominal}$ is the same as $0.8 \times \text{Next Nominal}$. This occurs when the Next Nominal value is exactly $1.5 \times$ larger. Unfortunately, this does not result in exact multiples of 10. Each decade range would have a different set of numerical values. See the column labeled $1.5x$ in the table [page 7].

If we use a multiplier of 1.467799268 , then we do end up exactly on 10, and the numerical values in each decade are the same. Rounding the values results in theoretical best component values. Slightly fudged values somewhat closer to the $1.5x$ values were chosen as the standard, to allow a higher proportion of manufactured components to fall into an acceptance range, improving yield. See the table.

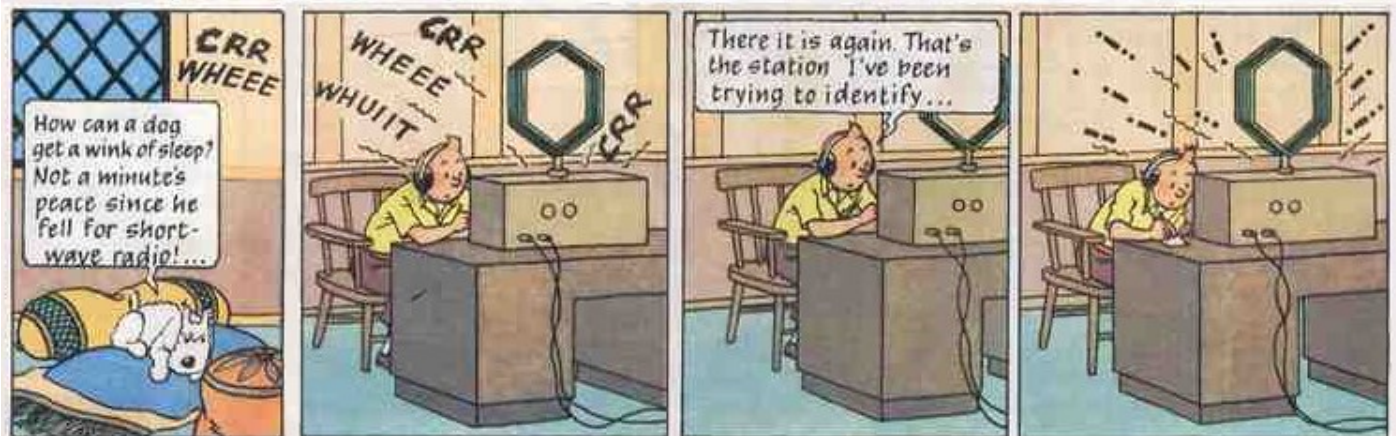
After WWII, the RMA recommended these standardized values, and manufacturers followed suit, changing their standard offerings to the new recommended values. That's why you can't purchase a 500K ohm replacement for a bad grid leak resistor, but must use a 470K ohm as the nearest standard value modern component. Note that the acceptance range for a modern 470K ohm 5% part 446.5K to 493.5K lies entirely within that of a 500K ohm 20% original part of 400K to 600K, and the modern component actually is very likely nearer in value to 500K than was the original part.

continued on page 7

Table — The Case of the Mysterious Modern Values (continued)

1.5x	1.467799268x	Rounded	Standard
1	1	1	1
1.5	1.467799268	1.5	1.5
2.25	2.15443469	2.2	2.2
3.375	3.16227766	3.2	3.3
5.0625	4.641588834	4.6	4.7
7.59375	6.812920691	6.8	6.8
11.390625	10	10	10
17.0859375	14.67799268	15	15
25.62890625	21.5443469	22	22
38.44335938	31.6227766	32	33

From the Adventures of Tintin



Oklahoma Vintage Radio Collectors Vintage Radio Swap Meet Contest and Auction
 April 11, 2015 8 AM at the Midwest City Community Center, 100 N. Midwest Blvd. (North of Tinker AFB)
 For details see: <http://www.okvrc.org/>

Reminder—VRPS dues of \$20 are payable November 1st and not prorated.

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MONTHLY MEETING PROGRAMS 2015

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, 228 Chamberlain St.; or Garden and Arts, 906 S Senter Rd. Maps are located on the WEB site, EVENTS page. Programs start at 2pm. unless otherwise noted. Call us if you get lost: 972-898-7251 or 972-742-8085.

April 18, 2015 Senter East Building 2pm

Mike McCarty will continue with his series on radio electronic restoration fundamentals, part 1.

May 16, 2015 Senter East Building parking lot

Spring Tail-gate trade day. Bring items to swap

June 20, 2015 Senter East Building 2pm

A continuation of radio electronic restoration fundamentals, part 2, by Mike McCarty.

July 18, 2015 Senter East Building note time start of 1pm.

Annual repair session. Bring your troublesome projects for expert help.

Programs are subject to change, contingent on scheduling conflicts. If programs do not fit your needs and you want something different, let us know. We need volunteers to organize other programs, so consider presenting a program yourself. Call anytime or send an email: Larry Lindsey email: pipilindsey@tx.rr.com telephone: 817-312-8761.

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