



SOUND WAVES

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

VRPS Spring 2019

From the President



Spring has jumped on the metroplex in a big way... leaving the cold of winter and replacing it with the storms of spring. Well, enough for the weather, now the news. The VRPS is alive and well. Our hobby is very healthy as we continue to see numerical growth in our local organization. I have to believe this is due to a couple of things that we are doing locally to promote this hobby. One is our fondness for public auctions in the radio arena...this just gets the word out about our hobby and the vast number of ways we can collect radios and related items. New members come to the VRPS as a direct result of these public auctions. But auctions are not our only resource for getting the word out about our fantastic hobby. Recently, the VRPS

was invited to put radio displays in two local public libraries in the city of Dallas. The main library in downtown Dallas hosted a display on 3 floors of the 8-story complex from late November to late February. As a direct result of this display, we were invited to put a similar, yet smaller display, in a suburban Dallas library for two months. This follows a two month display last year at the Heritage Museum in Plano. Mike Grimes led our organizational effort in each of these displays. Quite a job!! Thanks Mike!

Now a personal note. Many of you are already aware my wife and I have undertaken the arduous task of constructing a new auction facility in the city of Granbury. Though never my intention, circumstances dictated it was probably the right thing to do. Time will tell. This 3000 square foot facility will offer a modern environment in which to sell collectibles of all kinds, not just radios. The closer we get to completion, the more excited we get. We look forward to opening day in early July. Of course, if you do not feel the call to drive to scenic Granbury for your auction fix, you can always bid with us on-line; however, it's more fun to be there in person!! Keep watching my website, www.sargentauction.com, for updates.

A big thank you to Mary Ann Caruth for holding down a number of jobs in our organization at the same time. It has come time for her to share some of her current duties with others. Effective immediately, Beverly Sargent will be taking over the convention registration responsibilities. Beverly has agreed to assume this responsibility at the same pay rate that Mary Ann has been paid...come to think of it, that may be why Mary Ann asked to be relieved....hummm...

By the way, Mary Ann will continue to be the editor of this fine quarterly publication....Again, thanks Mary Ann ...and all the directors for what you do for the VRPS. ---Jim



Notes from the January 19, 2019 Meeting

VP Randy James conducted our meeting, with a very good turnout. Randy asked for a show of hands for those planning to go to Houston for our fellow Texas collectors' annual convention of the HVRA (Houston Vintage Radio Society). Many of them show up for our VRPS conventions. Several were planning to go, and George Potter volunteered to participate in the judging of their contest items. Randy reminded us that our next meeting and the spring auction will be held in the Garden and Arts building as will most meetings this year (See VRPS.org for location details). Mike Grimes reminded us of the "Wonderful World of Radio" exhibit at the Dallas public library, scheduled through February 28. The exhibit items are grouped into period themes. Mike talked about our next meeting – a field trip to UNT in Denton, TX, the purpose being to view a large collection of communication-related items under the care of Professor David Huff, PhD.

Larry Lindsey posed the new SMITR (Smartest-Man-In-The-Room) question – What famous person had a ticket to board the Titanic on its last voyage but didn't go? George Potter knew that it was Marconi, who had left three days earlier on the Lusitania (a ship that was later sunk by a German torpedo). The irony is that he lost his radio operators in the sinking of the Titanic. Larry then introduced George as our first presenter for our meeting topic – Hints and Tips.

George showed us how to replace the tips of headphone cords of several types. The trick is: how to deal with the very thin conductor, similar to foil, wrapped around a string-like core. His tip is to bind the conductor tightly with very fine wire – which can be a strand borrowed from a piece of stranded wire, followed by binding the outer braided jacket with thread. Then, insert it into the tip and solder it quickly.

Walt Zaleski and daughter Caitlyn addressed the business of refinishing wood radio cabinets, displaying a '39 Emerson radio that they had done, as an example. Walt suggested having 3

grades of sandpaper and using them progressively to prepare the cabinet for staining. Then he suggested the use of Minwax brand "polystain", avoiding times when temperature and humidity are high - when it has a tendency to clump, and never using a brush. He suggested following Kenny Black's approach – sanding first diagonally, then with the grain. Walt's step-by-step procedure is as follows: (1) Apply MINWAX stain, (2) Wipe off excess, (3) Apply Krylon-brand clear acrylic finish, (4) Sand with fine paper, (5) polish with rubbing compound, such as used for automobile finish work. Walt's Emerson shows the result of his process, with the fine, glossy finish that he prefers.

Roland Gooch showed a board fitted with clamps to hold a radio chassis in position for restoration work. He gave us a tip for use when we encounter an inaccessible capacitor. If the capacitor has only one visible wire lead, you can cut it, leave the old capacitor in place and connect a new capacitor in series with it, making use of the two visible cut ends. The added cap should be 3 or 4 times the value of the old one, and it will eliminate any leakage of the old one. (This should work for coupling or bypass caps.) He discussed a method of flattening warped plastic (celluloid) dial windows using hot water at 140 degrees F. The part is heated in hot water and quickly transferred to a flat surface, then held flat with a weighted object. He gave a tip for phonograph motors that have worn shafts to drive the rubber-covered idler wheels – shim the whole motor up enough to present a new driving surface. He also described a method of clearing shorts in the mica caps inside some I.F. transformers, the trick being to charge a capacitor enough to blast away the tiny whiskers of metal that have grown on the surface of the mica. The cap is charged and connected between the primary and secondary terminals of the transformer.

Randy James provided a tip for helping to re-connect new components. If a connection point is difficult to access, you can wind the wire of your new component into a spiral that you can slide onto a stub that you leave when you cut out the

old component. This will hold it in place while you reach in to do the soldering.

The author talked about ways to help install or hold fasteners having limited access. Several tools were shown, including hemostats of several sizes (Ace Hardware has them), special screw-holding tools that lock into the slot of slot-head screws, tweezers, and the plastic nut holder that was always supplied



with Heathkit kits - very handy for small-pattern #6 or for #4 nuts. One tip that has been very useful is to use wax to stick a nut, including its washer, if any, to any object that will serve as a handle to reach inside a chassis and position it for starting a screw from the outside. You can stick it to the end of a piece of dowel or onto the flat surface of a Popsicle stick, depending on your access. A small Phillips screw can be held onto a Phillips screwdriver while you reach deep inside or from above a chassis.

The best wax to use is that which covers Gouda cheese. It has just the right strength and "stickiness" for the job. Save the wax covering from some Gouda cheese, roll the wax into a ball and keep "the whole ball of wax" handy.

Eric Kirst described the use of acetic acid, in the form of vinegar, to remove rust from iron or steel (good for steel or iron only). He had used it to remove rust from some shock absorbers that he re-built for his antique automobile. He said that he monitored the parts as they were soaking to check their progress, and they came out totally rust-free. The time required may be hours or days, depending on the condition of the parts. It should work for some chassis rust problems.

Mike Grimes pointed out that the wooden "Q-tips" are handy for holding nuts. He said that Tanner Electronics carries them. You can screw the tip into a nut (part way) and use the stick to position it where needed. Replacing dial strings can be tedious,

so Mike's tip on getting the length right is welcome. The cord should be routed as intended by the radio manufacturer and then, where it bridges the gap in the capacitor drum, knot it together at the center of the gap (See author's expansion on this tip.) Mike showed a way to get better lighting on a dial by using an LED in place of the usual pilot lamp. He shunts the LED with a resistor of about 500 ohms. (Someone in the audience added that direct LED replacements are made for popular lamps). Another of his topics was the elimination of the old line-cord ballasts found in mostly 30's radios. Old-stock replacements are seldom any good, and if they still work, they are hazardous. There are plastic-film caps that can be installed under the chassis - around 7 Mfd. at 250V or more - available from Tanner Electronics or other sources. Another tip is to connect an ohmmeter between tube caps to see if I.F. or R.F. transformer windings are open. You can study the schematic to see the circuit path that you are testing - it will include two transformers.

Author's Notes: Sometimes the manufacturer's diagram calls for the first arrangement below, especially for radios with slide rule dials. This is a simple diagram that doesn't show where the dial pointer is, either on the capacitor shaft or somewhere on the cord - for a radio with a slide rule radio. This way the dial pointer will keep its relation to the drum on the tuning capacitor because one end of the cord is fixed to the drum. Otherwise, if the spring pulls on both ends of the cord, the string can (and will) creep slightly on the drum, causing the station frequency indication to be off. For radios with a pointer right on the tuning capacitor shaft, that's not a problem, and Mike's tip can be used nicely. Below, the manufacture's diagram calls for stringing a radio with a slide rule dial using a single knot. Note that the gap in the drum is very narrow, effectively eliminating any significant possibility of creep.

Some old radios, such as 4-tube sets, need different capacitance values for line-cord ballast replacement purposes. You can try different values while checking one of the filament voltages, using a Variac to make sure you don't apply too much voltage while experimenting.

--Bill McKeown

Photos by Mike McCarty

SOUNDWAVES IS PUBLISHED QUARTERLY BY THE VINTAGE RADIO AND 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
MCARUTH@ATT.NET

WEBMASTER—MIKE GRIMES K5MLG@VERIZON.NET

BOARD OF DIRECTORS

MARY ANN CARUTH

CLEO CHERRYHOLMES

BLAKE DIETZE

MIKE GRIMES

RANDY JAMES

ED JANSSEN

LARRY LINDSEY

MIKE MCCARTY

BILL MCKEOWN

GEORGE POTTER

JIM SARGENT

DAVE SEYMOUR

Notes from the February 16th Meeting

Members took a field trip to Denton to attend a class by doctoral candidate David Huff on the history of sound recording formats and their playback devices with demonstrations of both, utilizing the UNT Music Library's collections. Special emphasis was given to phonograph cylinders, shellac 78 rpm discs, and reproducing player piano rolls.



Photo by Dave Seymour

Scenes from the Spring Auction



Photos by Mike McCarty



The Case of the Gripping Grid

by Billy Smith

My daughter brought me an RCA model G6T to repair for her friend. It belonged to her friend's grandparents and was in horrible shape. Someone had been working on it long ago and it was a mess inside. The switch on the volume control was bad, so they put a toggle switch on the side of the cabinet. The wiring was of the rubber covered variety, and it crumbled off when I touched it. I replaced a lot of it, and some of it I just unsoldered one end, straightened it out, slipped a piece of spaghetti over it, and resoldered it.

The tube lineup was a 6A8 converter, 6K7 IF amplifier, 6K6 first audio amp, 6F5 audio power amp, 5Y3 power rectifier, and a 6H6 dual signal diode, one section used as a detector, and the other side used for AVC. I checked all the tubes; the 6K6 and 6H6 were dead so I replaced them. The 6K6 socket was broken and had to be replaced. Continuity checks showed the power transformer and the speaker field coil were OK, but I did not hear a click from the speaker. The cone was frozen in place. The voice coil winding had come undone and was jamming the cone. I replaced the speaker with a modern one, installed a 2000 ohm 10 watt resistor for the field coil, and put new filter caps in. I cleaned up some wiring and put a new line cord on.

I connected the power cord to a variac and slowly increased voltage. All looked good, and I got some squealing sound but no stations. I stuck my finger on the grid cap of the 6F5 audio output tube, and got a buzz out of the speaker, so I knew the audio was at least partially working. I then put my finger on the grid cap of the 6A8 converter as I usually do to act as an antenna. I got a shock that almost knocked me out of my chair! I measured the voltage with a DVM and it was a NEGATIVE 512 volts!

I probed around and couldn't figure out where it was coming from. The antenna coil winding goes to the grid cap of the 6A8 converter, but the wire from the tuning capacitor to the antenna was missing, so obviously some one else had noticed this problem and was unable to fix it. Continuity was good on the oscillator coil, the antenna coil, and both IF transformers. Everything was just like the schematic, so I was at a loss for what to do. Finally, I pulled all the tubes out but the rectifier, and the voltage was gone, and B+ was fine on all the tube sockets.

At this point I fixed myself a martini, took a nap, and called Mike McCarty to see if he had any suggestions.

Mike thought it might be the converter and/or IF amplifier oscillating. An effect called Q Multiplication can result in very large voltages in resonant circuits, like the IF transformers. This might be rectified by the AVC detector (6H6) resulting in a large negative voltage. He suggested to make sure the ground pin (pin 1) was grounded on all the tubes, which were metal. The shells of metal tubes act as shields, and if they are not well grounded, oscillations may result. They all had good connections. He also suggested pulling the grid caps on the 6A8 and 6K7 one at a time, and then removing both together to test his guess, as this would kill a possible oscillation. None of this had any effect on the 512 volts, so his guess was proven wrong. However, the guess that the 6H6 was rectifying something seemed reasonable, so I decided to take a closer look.

The problem seemed to originate at the 6H6, but I couldn't see how a diode could cause this problem, so I started disconnecting the wires on the socket one at a time with only the 6H6 and power rectifier installed. With only the wire from the first IF transformer to the AVC anode (pin 3) connected, my oscilloscope showed a 400 volt, 60 Hz sine wave, and a 50 volt negative half sine wave on the end of the 2.5 megohm resistor going

to the second IF transformer. The 400 volt sine wave also appeared on the cathode of the AVC unit (pin 4) with all other pins disconnected. This pin goes through a 120,000 ohm resistor to the center tap of the power transformer and then to ground through a 25 ohm resistor. This had to be the source of the problem!

I could measure 25 ohms from the center tap to ground, but the connection was real sloppy so I took everything loose and resoldered it. The 400 volt sine wave was gone! I put wires back on all pins and reinstalled all the tubes. The radio worked fine, but the audio was slightly distorted. I rechecked the 6H6 to make sure it was still good, since it is a signal diode, not a rectifier, and is not intended to handle this much voltage and current. Luckily it was OK. I replaced all the coupling and bypass capacitors, and a few out of tolerance resistors, and noticed that the 10 megohm grid leak resistor on the 6F5 was missing, so installed one. The missing resistor was probably why the audio was distorted.

I restrung the dial cord, and on retest the radio sounded good, and picked up stations well. I checked the IF alignment and it was right on at 455 KHz.

I think what happened was that the wire from the 6H6 cathode was connected to the transformer center tap but not to the 25 ohm resistor because of a bad solder joint. The voltage was being rectified by the 6H6, producing a negative 512 volts on the AVC line. After finding the problem it made me feel dumb that it took me so long to figure it out. But I probably won't see this again.

[Note: There is only one way a radio can function properly. There is a myriad of ways one can malfunction. Troubleshooting consists of making one or more guesses at what a possible cause might be, and then the devising of tests to perform to try to eliminate incorrect guesses. It is often the case that mysterious behavior is "obvious" after the fact. Retaining a mental file of weird behaviors and their eventual solutions is one part of being a good troubleshooter. It provides grist for the guess mill. Weak or non existent grounds caused by corrosion or bad solder joints are a common cause of many weird behaviors. The presence of 60 Hz signals usually indicates a problem in the power supply, or a short to the heater supply. -- Mike McCarty]

I wash and dry your clothes, play your radios, I can heat your coffee pot,
I am always there, with lots of power to spare, 'cause I'm REDDY KILOWATT!

A ROCK STAR AT TEXAS INSTRUMENTS, VRPS MEMBER, JERRY MERRYMAN PASSES

Jerry Merryman was one of the inventors of the revolutionary pocket calculator. Merryman, Jack Kilby, and James Van Tassell created the device at Texas Instruments. He retired from the company in 1994. The prototype for their calculator is at the Smithsonian. Many of our members will remember fondly the presentation Jerry did on the development process that was undertaken by this team of esteem inventors. He showed several of the prototype calculators which are now on display at the Smithsonian. Our sympathies to the family.

--Jim

LOST & FOUND

- Found at the March Auction - one heavy olive jacket
- Found at the November Convention - one HVRA polo shirt

Contact editor to retrieve your item - mcaruth@att.net



"REDDY" KILOWATT
THE ELECTRICAL SERVANT

VRPS, INC.
P.O. BOX 165345
IRVING, TX 75016

SOUND WAVES

MONTHLY MEETING PROGRAMS 2019

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, www.VRPS.org EVENTS page. Programs start at 2pm. unless otherwise noted. Call us on the cell tellie if you get lost: 972-898-7251 or 972-742-8085.

APRIL 20 —SHOW AND TELL — GARDEN AND ARTS -- 2-5 PM

MAY 18 —SWAP MEET — GARDEN AND ARTS -- 8-NOON

JUNE 15— TBA --- JAYCEE SMALL -- 2-5 PM

JULY 20 —REPAIR SESSION — SENTER EAST -- 8-NOON

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 anytime or send an email:

Larry Lindsey email: pipilindsey@tx.rr.com telephone: 817-312-8761..

Membership dues of \$20 are due November 1st every year. Renewals may be sent to the post office address given at the top of this page: **VRPS, INC., P.O. BOX 165345, IRVING, TX 75016**