

# SOUND WAVES

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# VRPS Summer 2022



## FROM THE PRESIDENT

Summer is less than a month old, and if you want to talk about the weather, you can sum it up in a four-letter word...HOT!! Therefore, we will not use this precious space to discuss the weather; rather, we will look at things going on within our hobby. Specifically, I want to bring you up to date on our current convention plans. About three weeks ago, our host hotel, the Comfort Inn and Suites in Plano, notified us

that they have decided to go another business direction...some of us thought they made that decision several years ago but failed to change the name on the marquee outside! Be that as it may, we were given notice their doors were closing. Now, it has allowed us look for another venue for our 48th annual convention in November. Your directors have been busy surveying our options and will soon be making an announcement...I hope. By the way, if you would like to help find a space down the road, here are our requirements....

Lots of space to auction, show our contest items, flea market and eat...all at a very low price! A top-notch hotel is preferred!!! Oh, one last requirement - we want the host location to be close to all those planning to attend. No pressure!!

To tidy up our time together in this column, I traditionally use the space to encourage you to check out one of several vintage radio conventions from July to September. You might want to check out the Wisconsin, Illinois, Michigan, and New York events this summer. I will be calling the auction for the Antique Radio Club of Illinois, so you will find me in Chicago for Radiofest in early August.

Good hunting.

--Jim

## Notes from the April 16, 2022 Meeting

Jim Sargent opened our meeting with a call for us to introduce ourselves and residence cities. He reminded us of our May 21 swap meet - to be held as usual from about 7:30 AM to about noon. He also announced an on-line only auction of his for May 14. Larry Lindsey presented an earlier SMITR award (Smartest Member in the Room). The new question was "what country had both 50 and 60 Hz power after WWII." The answer is: Japan. Just after WWII, during Occupation, there was a lot more modern equipment being imported, and US military bases needed 60 Hz power, adding to the older 50 Hz systems.

The program topic was "early loud speakers", concentrating on the early types designed to replace the high-impedance headphones in use up to then. Some members brought examples of both the horn type and the ones using cones for better sound quality and efficiency. Dave Seymour presented a program showing a number of speakers, including his rare Dictogrand roll speaker - from the 1920s. He talked about the manufacturer, who sold the standard model for \$16.50 and a console named the "Tamborette" for \$40.00.

Dave presented a slide show illustrating his process for restoring his Dictogrand. It could be described as: two heavy paper half-cylinders attached along one edge as a pair, with their outer edges fixed (see photo) and with a

driver operating on the combined edge to move the two half-cylinders. Besides its novelty value, it was said to sound much better than the common cone-type speaker. It was in much

need of repairs, both in appearance and function. The assembly and disassembly processes were very tricky. A tiny 2-56 nut involved with the mechanical connection for

the drivers was very difficult to install. It's interesting that this speaker uses two "cone" drivers, both of which needed attention, along with their mechanical hardware that drives the half-cylinders. The drivers are connected in such a way as to cancel any displacement due to output tube plate current.- a special feature. A frequency response test revealed a peak around 1 KHz, and an impedance of 970 ohms. Dave mentioned that most of the early speakers had a 2000 ohm impedance, much like the early headphones. He showed a number of other examples of speakers. One was a speaker built from a cigar box using a plastic cone another was a 1925 antique speaker with a downward-facing cone; and one was an ACME dual-cone speaker with an adjustment on the bottom for changing the air gap. For the latter he had refinished the frame using a latex, black spackle paint, which looks good. He mentioned that he has successfully made speaker cones from plastic and that Kevlar or plastic cones can provide response for 100 Hz on up. He showed an Optimus LX5 cabinet speaker - a 1980's "cult" speaker, and a Radio Shack foam-surround woofer.

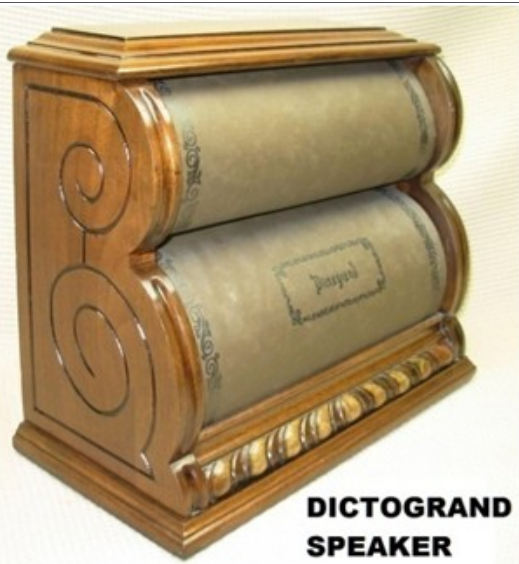
Larry Lindsey announced that we would be having a surprise (secret) event for our June meeting.

Author's Notes: I have a nice-sounding BTH (British Thomson Houston) 3000 ohm horn speaker with a large diaphragm and a knob underneath for adjusting the air gap. For weak signals, such as from a crystal radio, it lets you boost the volume to a listenable level.

I remember that Canada still had 25 cycle power after WWII, being generated at Niagara Falls, but soon after changed to 60 cycle power so they could use fluorescent lighting. At 25 cycles per second, fluorescent lamp flicker is terrible.

I have a Zenith Model 5S119 that originally had an "all-cycle and voltage" power transformer. The lamination stack was more than twice as high to accommodate the 25 cycle power, and there was a pin selection socket for line voltages up to 220 volts. I have a Sears "WLS Special" 3000 ohm headphone set that works great.

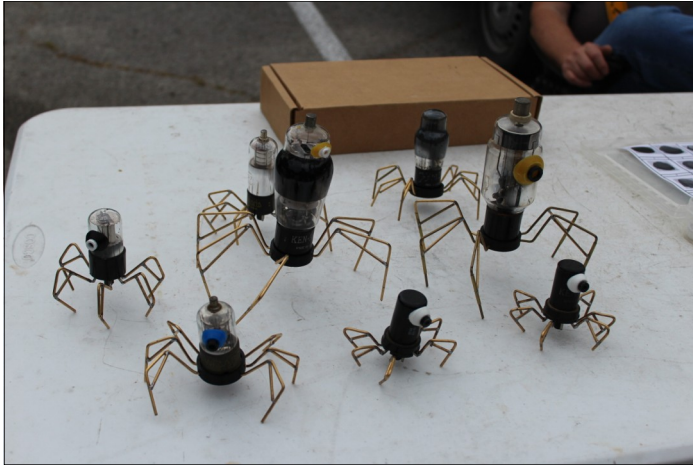
Bill McKeown





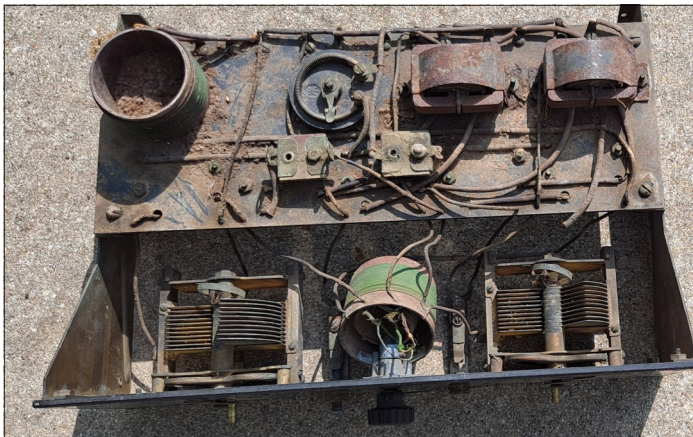
## May Swap Meet May 21st

Interesting pictures

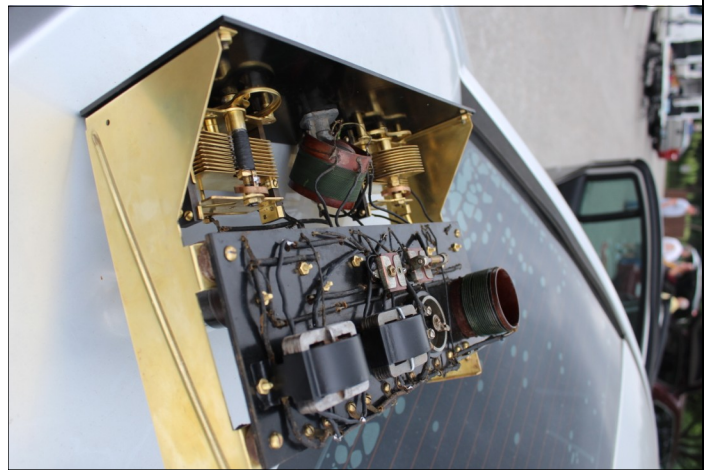


Keith McManus found this at the bottom of a lake-- more details later, in another issue.

Before:



After:





## Notes from the June 18, 2022 Meeting

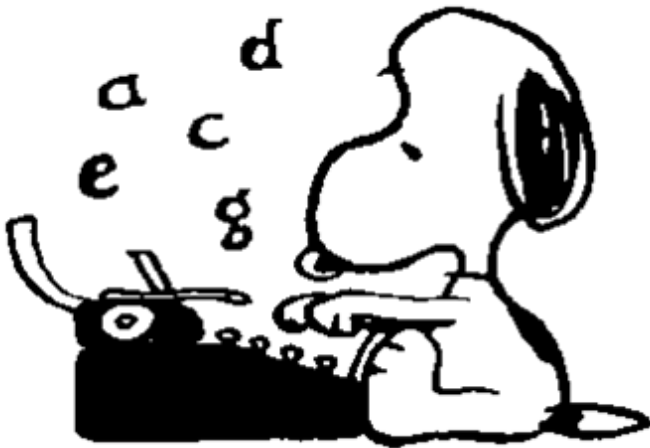
Our program organizer Larry Lindsey organized a "surprise" meeting of our membership at the Top-O'Hill Terrace in Arlington, Texas. It is one of the many attractions in the Fort Worth/Dallas area but it is in a rather obscure location in West Arlington. It is a local attraction that was virtually unknown to our surprised club members. During Prohibition it was a very popular casino, speakeasy and entertainment center frequented by many famous people, famous Big Bands and "high-rollers" like Clark Gable and many other Hollywood stars. Bonnie and Clyde Barrow frequented the place. At the time, it was not located in any city, but in unincorporated County territory, surrounded only by farm land. The Sheriff was the only law enforcer to worry about, and everyone would scurry to the escape tunnel or pretend to be just one of the restaurant diners. The historical presentation in their theater was very interesting. It consists of lecture, photos, footage and artifacts related to the history of the place and its clientele. A highlight of the tour is a look into one of the concrete tunnels, useful for escape from the Sheriff and his officers. There is uncertainty as to how many tunnels exist, because of changes to the property made many years ago. Tripadvisor lists this attraction as number 1 of 42 things to do in Arlington. The Top O'Hill Terrace is known as "Vegas Before Vegas"

Before our tour, we had a brief club meeting. This meeting was a change of pace for our group. You can learn much more about this attraction at the Tripadvisor website. Tours are presented by appointment at a reasonable fee.

Below are photos of the sign near the exit point of the escape tunnel and a peek into one of the tunnels.

Bill McKeown





## Intermittent, Intermittent

By Mike Grimes

It was another dark and stormy night; TV was not an option as the networks had finally managed to fill all available programming time with commercials. My best alternative was to tackle a project set that Ken Stradley had brought over with a peculiar problem. Ken is learning radio repair work, and had recapped, checked/replaced the resistors, and tested the tubes. The radio is a Philco model 50-526.

Problem: radio performed well until it did not. It presented an intermittent drop in output to about one tenth normal volume. At this time the audio can barely be heard in the noise. The drop was inconsistent in that it would come and go for no apparent reason. The radio would operate normally for a few seconds, minutes, or even to perhaps an hour. We will define "failure" as one of these random events of volume loss

First, I checked the audio section by applying a signal to the volume control. No problem was detected. Next, I checked the power supply by measuring the B+ voltage. It was always within the specified range. For thoroughness, I also measured the voltages on several of the tube plates and screens. They were always within the ranges specified in the schematic, even during a failure. This check also watches for leaky coupling capacitors and certain defects in IF transformers, since a plate or screen voltage on a tube is affected not only by B+ but also by the voltage on the control grid. As you can imagine, this process took some time due to the intermittent nature of the failures.

At all times, all voltages were within specifications.

Hmm.

One challenge with intermittent failures is that they are time consuming to trouble shoot, partly because one has to wait for a failure, and sometimes they go away before a good measurement can be made. In other words, it's hard exactly to characterize what has changed. One way to handle this is to find a way to cause the problem. This helps because it shortens wait times, but also it may give one a clue to what is wrong.

So, I tried tapping on the tubes, the chassis, and volume control. I also applied a very strong signal from a signal generator. I found that quickly increasing the signal from the signal generator would cause the failure, but that slight adjustments of the volume control would cause normal operation to resume. Possibly some problem in the volume control?

Resistance measurements revealed no problem with the volume control, but I replaced it anyway. Sometimes, they can be finicky with a small break or discontinuity. There was no improvement. I put my oscilloscope on the volume control's output terminal, and looked at the signal. Cycling through a failure showed no change in signal strength or quality at the volume control. This exonerates the converter, IF amplifier, detector and volume control. The problem must be somewhere in the audio sections of the radio.

What is left: the audio amplifiers, output transformer, and speaker. I decided to try the output transformer and speaker first. I disconnected the primary of the output transformer, and substituted my bench output transformer and speaker for those in the radio, and could not get the radio to fail. Could it be the speaker?

Using a voltmeter on a speaker voice coil would not be as definitive as one would hope because the voltage would be low even during proper operation. Just to be thorough, I checked anyway, and the voltage was indeed very low, in both cases.

How was I going to check?

I reconnected the output transformer in the radio and put just my test speaker in parallel with the speaker in the set. I stimulated a failure, and the problem showed up in both speakers! At last, some progress toward identifying the cause!

With the radio operating normally, I tried pressing gently inward on the cone of the speaker in the radio, near the



voice coil. I found a point where the volume dropped in both speakers, similar to the failure. I was convinced the speaker was the problem. I disconnected the speaker in the radio, and substituted my bench speaker. The failure was gone! I verified this several times.

Does this explain the symptoms?

It seems that the voice coil has rubbed against the magnet and worn through the insulation at some point, and the signal gets shorted to the grounded magnet when the speaker cone makes extreme motions. This could be caused by the voice coil being misaligned. Possibly some dirt or other debris is present and pushes the coil over when the coil contacts it. A problem with the speaker surround could also cause this. Perhaps the coil is simply mechanically sticking until an intense signal would break it loose. A jar or vibration could then loosen the voice coil and normal operation would resume. Any of these could explain the intermittence of the failure. Any of these could explain the randomness of the failure, while all electronic stages of the radio perform normally.

So what exactly is wrong with the speaker? Perhaps we will never know without dissecting the speaker. I speculate that there is a short between the voice coil and the magnet (hence also to signal ground). It is unfortunately difficult to verify.

Pressing on the voice coil moves the coil in the magnetic field of the speaker magnet. This induces a voltage in the coil. These voltages disturb any resistance measurements made on the voice coil. I tried to measure the voice coil resistance while pressing on the cone, but my ohmmeter was going crazy. The best way might have been to measure the inductance of the voice coil while pressing on the cone, but I don't have an inductance meter capable of measuring such a low inductance.

As an alternative, I connected my audio signal generator and oscilloscope to the speaker so the wave form could be observed. (See figure 1.) As I changed the frequency setting (high to low) of the signal generator, I saw that at about 600 Hz the wave became distorted and my oscilloscope could not maintain sync. (See figure 2.) The problem got worse as the signal frequency was lowered. A higher frequency signal would clear the fault and the wave form would return to normal. So, the failure is frequency dependent. This also helps explain why the fault was intermittent. In my experience, such intermittent failures are usually associated with the

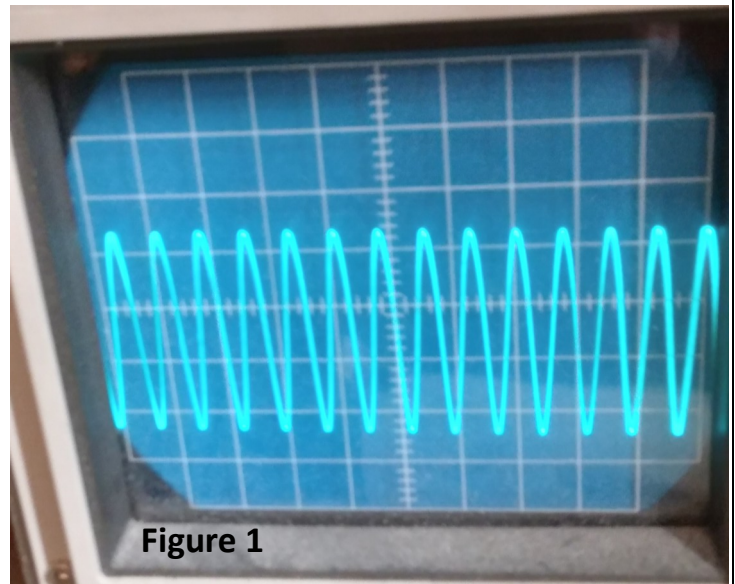


Figure 1

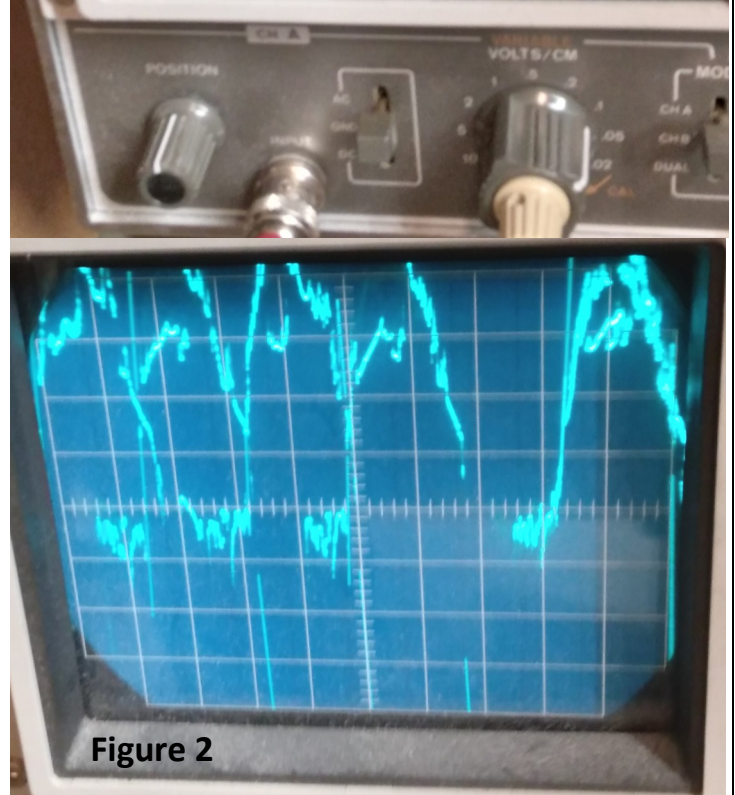


Figure 2

audio amplifier itself or the B+ power supply. The Speaker was replaced with a new one, and all is now well.

OK, lesson learned. Who would have thought that, as the speaker worked well over most of the range of audio

frequencies, it would fail at specific low ones and be sensitive to vibrations? Next time, I will thoroughly check the speaker.

Well, most of the evening has been spent chasing the cause of the failure, and the story is over; all is quiet. I think I'll go to bed knowing I will not have to solve this problem in the morning...

[Note: A test was performed to determine if a short between the speaker frame and voice coil existed, but it could not be verified.]

## 100 YEARS of WBAP

The Theme for 2022 Convention Contest is 100 YEARS of WBAP.  
Below is the list of contest categories.

1. Crystal Receivers Pre 1940
2. One Tube Radios Pre 1928 (No Crystal Detectors)
3. AC Table Receivers Pre WWII
4. AC/DC Tube Radios Pre 1960
5. Transistor Radios Pre 1965
6. Phonographs and Related Accessories Pre 1940
7. Featured Brand- CROSLEY
8. Novelty Radios-Tube or Transistor
9. Radio Related Ads, Ephemera, and Accessories
10. Television Receivers Pre 1970
11. Table Top Art Deco Radios (Includes Catalin, Chrome Front, Others)
12. Battery Radios Pre 1928
13. Foreign Tube-Type Radios
14. Kit Radios Pre 1930
15. Microphones Pre 1960
16. Contest Theme- 100 YEARS of WBAP (Any Items Pertaining to WBAP)
17. Open Category (Radio Related Items Not Belonging In Other Categories)



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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

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

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## MONTHLY MEETING PROGRAMS 2022

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](http://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: **Larry Lindsey email: [pipilindsey@att.net](mailto:pipilindsey@att.net) -telephone: 817-312-8761..**

- JULY 16<sup>TH</sup> - SENTER EAST -8AM - NOON -- REPAIR SESSION
- AUGUST 20<sup>TH</sup> - 9- 4 PM MEET AT 1050 N. DUNCANVILLE RD., DUNCANVILLE --OLDEN YEAR MUSEUM TOUR
- SEPTEMBER 17<sup>TH</sup> - SENTER EAST - 7-NOON - SWAP MEET

News Flash! New, better venue for the Annual Convention Nov. 18, 19, 20. View updates on [VRPS.org](http://VRPS.org)