The Oscillator

"All the Electrons that are Fit to Flow . . . "

THE OFFICIAL NEWSLETTER OF THE DVHRC SPRING 2020

Pandemic Planning

DVHRC along with all of you has been rolling with the punches making the best of these strange times. A lot has happened in the past 8 weeks since our March Telford face to face meeting running from our underestimation of Covid19 to cancellation of April's meeting and Kutztown XLII. It is our sincere hope that you have maintained your physical and financial health of your families and also your sanity and as America begins to "re-open" in a different world. We will all do our best at DVHRC to support decisions that work towards that goal. The DVHRC board met via *Zoom* online on April 15th since the cancellation of our April Telford meeting. Discussions centered around the obvious cancellation of Kutztown XLII and Renninger's offer to reassign your pre-payment to next September (9.18-19.2020). We are hopeful the social DX situation at that date will enable us to exercise our pent-up demand for buying and selling items from our collections. We all know that Kutztown is a social event that cannot be duplicated online and we look forward to bringing it back to you!

Above: *Raffle Radio in Waiting. This stylish RCA model 143 was the top of the line in 1934 and will be offered at Kutztown in September. Many thanks to Rick Mills who solved some tricky technical issues and restored electronics of this beauty.*

Inspired by wide acceptance of the *Zoom* meeting platform, DVHRC plans to hold our May 12th meeting on this application. NJARC and other regional clubs have shown that it is not only possible but can be a great experience with a high participation rate. Please note that there are also methods to utilize telephone audio (need free long distance) if you have no local internet. If you have not yet used the Zoom product here is what you'll need to do to install on a PC or Mac (best AV experience):

** Download free program version from https://zoom.us/support/download. Download the free version.*

** Open the file to install software. You do not have any planned meetings at this point. You can test video and audio settings within the app. Seldom will video webcam driver re-installation be necessary.*

** Acquire link for a meeting as sent from DVHRC, click on link at time of meeting.*

For those new to the process, I have included the most excellent tutorial provided by the fine folks at NJARC for their members below. http://www.njarc.org/documents/NJARC_Zoom_Meeting_Quickstart_Guide.pdf

This is just another reason to have *Zoom*- to attend other clubs' meetings (as invited) all over the region or US and perhaps become a member of that club as well!

You can help to enable our invitation contact directory by supplying your current contact information to any current board member. We will look at the current reflector contacts as well as any other directory including most recent membership listing. After we determine that current information, we'll establish a meeting code which you use to access meeting within *Zoom*.

There may be first time user issues and solutions that first night, so it is expected that we'd open a practice session prior to the live meeting @ 7:00. We will keep in touch before this meeting; planned themes and show and tell are encouraged!

Delaware Valley Historic Radio Club
PO Box 5053
New Britain, PA 18901
www.dvhrc.com

The Oscillator is the *quarterly* newsletter of the Delaware Valley Historic Radio Club.

Articles on radio and television history or collecting can be submitted by the 25th of month prior to quarterly issue dates of April, July, October and January to the editor at gdottor@yahoo.com.

Dues are $20 per year and can be paid at a meeting or mailed to the above address. Meetings held 2nd Tuesday of each month at Telford Community Center.

DVHRC Board of Directors

Meeting of March 10, 2020

Drone FAA part 107 Licensing and Operation.

Here is something a bit different from our normal radio topics. Jarret Brown recently passed the FAA part 107 test to become licensed as a certified commercial drone pilot. The following is a summary of the presentation including the various disciplines you need to understand at an intermediate level including aviation, flight planning, weather and some radio technique. Preparation will require a few hours of study daily over several months and is quite involved. Since the test contains a good portion of the FAA knowledge base pilots master, the FAA can limit licenses to those with expert knowledge (no triflers), reduce public risk and FAA air space enforcement efforts. Here are some operating rules under 107.

Operating Rules

- Part 107 applies to the operation small unmanned aircraft for hire
- Part 107 does not apply to flying for fun
- sUAS must be registered with the FAA
- Cannot be operated at night
- Minimum visibility, 3 statute miles.
- Minimum distance from clouds must be no less than 500 feet below 2000 feet horizontally
- Cannot be flown faster 100mph
- Cannot be flown higher than 400 feet above ground level (AGL)
- You may not operate directly over people (Waiver)
- May not be operated from a moving vehicle

https://www.faa.gov/uas/

sUAS refers to small Unmanned Aircraft Systems. If part of your employment, you must get this license to qualify for these responsibilities. The hobbyist can buy a drone and operate but may not be hired to do gainful work without such licensing and must register it with the FAA. AGL refers to above ground level which includes height above structures.

Abnormal and Emergency Situations

- SUAS frequencies are 2.4GHz and 5.8GHz- Line of sight.
- Dealing with emergency situations, flyaways, loss of GPS, battery fires
- Not responding to a low battery may result in an immediate landing at a site not of your choosing
- Overhead wires & birds/wildlife
- Accident reporting

You may use your smartphone or tablet computer as your controller and it typically shows a map of where it is, GPS coordinates and other control information. You are usually bouncing back and forth from the controller view to the visual view to maintain the dual contact and keep track. If the GPS signal is interrupted you can easily fly manually/ visually within reason. There are battery life alarms on the controller and LI battery life averages about 25 minutes. The controller will automatically bring the unit back home depending on the battery life internal to the program or will even land automatically if an obstruction is encountered, hopefully over land! Maneuvers around wildlife such as birds can be a challenge; the advice is to move higher as birds fly downward to avoid stuff flying their way. Drone accidents must be reported to the FAA.

Knowledge of national airspace security requirements and the difference between controlled and non-controlled airspace is key to operating in a populated area or near military training routes.

National Airspace System

AIRSPACE CLASSIFICATIONS

- Controlled Airspace
- Uncontrolled Airspace
- Special Use: Military Training Routes, Temporary Flight Restrictions (check NOTAMS)

Controlled Airspace

- Class A, B, C, D and E airspace.
- Must obtain ATC clearance prior to operating via LAANC System*
- Cannot contact ATC by phone or Radio

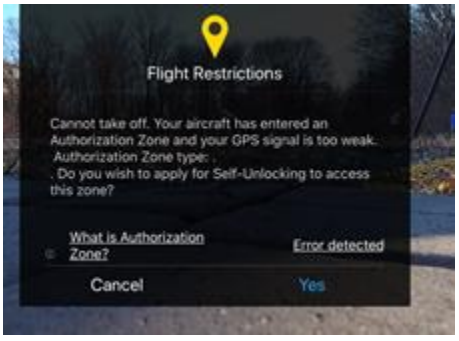
*Low Altitude Authorization and Notification Capability (LAANC)

NOTAMS means “notice to airmen system” where alerts of events are found in planning of flights. Also, if near an airport, you need to acquire flight permissions from the LAANC system via an online app. The system returns a flight authorization plan with restrictions of maximum altitude given your location as compared to flight paths used by the local airports.

to me

Automated FAA Controlled Airspace authorization accepted for flight with confirmation number ARMZZ17HW. Please fly in accordance with Part 107 rules and regulations. https://www.faa.gov/uas/getting_started/fly_for_work_business/

Another potential limiter of the drone controller is geo-fencing which is a GPS-defined no-fly zones for some security reason. A waiver must be applied for and granted in these cases since the controller will not allow flight.



The most complicated section of the part 107 knowledge is the understanding of aeronautical section charts which are maps of an area with many overlaid markings pertaining to airports, flight rules for all areas up to 4400 ft., geography, towers and obstructions, contact frequencies along other vectors and markings. The test draws upon your ability to interpret all those markings, make correct decision based on them in planning flights in any area shown.

Sectional Charts

Airport signage is all part of the exam. The test is geared towards airport operations possibly in case drone operator working at or near them.

Operation Near Airports

Towered Airport
Non-Towered Airport
Heliports
Seaplane Bases
Traffic Patterns

Knowledge of communications and radio technique may be of more interest to some of us who monitor such frequencies near an airport. Again, this is what the FAA expects pilots to know.

Communications Around Airports

Common Traffic Advisory Frequency (CTAF)

- For carrying out airport advisory practices when operating from an airport without an operating control tower.

Universal Communications (UNICOM)

- 10 miles from the airport, inbound pilots will report altitude, aircraft type and ID, location, intentions

Common frequencies are 122.7, 122.8 MHz.

MULTICOM

- At uncontrolled airports without a UNICOM, pilots are to self-announce on the MULTICOM frequency.
- In the United States, there is one MULTICOM frequency: 122.9 MHz.

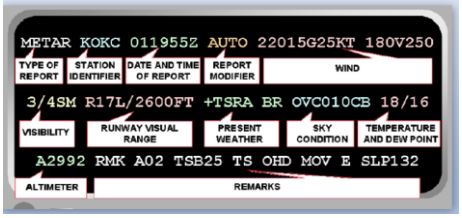
Automatic Terminal Information Service (ATIS)

- The continuous broadcast of recorded non-control information for high traffic airports.

If you are a weather enthusiast, you will be happy to know the test includes a knowledge of micro-meteorology concepts such as cloud types, storm genesis, stages and effects of weather on flight performance. You will also need to know how to interpret METAR airport flight weather reports.

METAR (1800wxbreif.com)

- Provide local weather conditions near an airport.



There are several other sections on crew planning, substance abuse and aircraft load concepts to master. So after three months, you have studied and learned all these concept and now it is time to take the test!

TAKING THE EXAM & GETTING YOUR CERTIFICATE

- Be at least 16 years old.
- Be able to read, speak, write and understand English.
- Be in a physical and mental condition that would not interfere with safe SUAS operation.
- Fulfill testing requirements 60 Questions 72% Correct- $150.00

Finding a Test Center- FAA.gov list (Somerset Airport)

Upon successful completion you will be licensed to commercially operate a drone. The license has a two year term and must be

retaken upon expiration. The test really does not include too much specific to drone flying skills and operation too much but Jarret assures us that may be the easiest part! So during this time of social distancing, why not stretch out that plastic in your brain and become a licensed drone pilot and qualify for a new job! The club can make this Powerpoint presentation available; please contact the editor to request such copy.

Here is a link for a commercial application of drones. Check out the embedded video from our local PPL utility: https://stories.pplelectric.com/2019/10/22/drones-assisting-in-power-line-inspections/

beginnerz

What's the Buzz?

Radio frequency interference on the AM band seems the norm in certain areas with frequent "hot spots" as witnessed on most any drive while listening to distant AM broadcasts in your car. But when one of those hot spots is in or near your house, what can you do? Let's explore methods to locate the RFI source. This 2004 article is written from the viewpoint of an electric utility but still relevant.

A Smarter Approach to Resolve Power-Line Noise

Although the problem has been around since the dawn of radio communications and broadcasting, power-line noise issues are on the rise. The law requires utilities to rectify power-line interference. By using proper approaches, utilities find that dealing with a power-line noise complaint is seldom time consuming or expensive. Power-line noise can interfere with radio communications and broadcasting. Essentially, the power lines or associated hardware generate unwanted radio signals that override or compete with desired radio signals. Power-line noise can impact radio and TV reception, including cable TV head-end pick-up and Internet service. Disruption of radio communications, such as amateur radio, can also occur.

Sparking or arcing across power-line related hardware causes virtually all power-line noise that originates from utility equipment. A breakdown and ionization of air occurs, which results in a current flow between two conductors in a gap. The gap may be caused by broken, improperly installed or loose hardware, which causes inadequate hardware spacing, such as the gap between a ground wire and staple.

There are obvious reasons why utilities should be concerned and aware of potential issues. To begin, interference impacts quality of life. It's a matter of good customer service to be diligent in responding to customer complaints. Next, it's in a utility's best interest to act immediately, because most power-line noise is caused by arcing conditions, which can lead to utility equipment or material failures. Last, interference issues must be addressed. FCC Part 15 regulations require utilities not to cause harmful interference to licensed services and to cease operating any device, upon notification by the FCC, that is causing interference. These rules specify three classes of emitters that may apply to power-company equipment. Most interference complaints from power-company equipment result from an *incidental emitter*, such as an electric motor or sparking power-line hardware. Incidental emitters don't intentionally generate radio energy but do so incidentally as a result of their operation. *Unintentional emitters* intentionally generate an internal radio signal, but do not intentionally radiate or transmit it. Examples include some types of "switch-mode" power supplies and microprocessors used in some power-company equipment. Unintentional emitters have specific limits on radiated and conducted emissions. *Intentional emitters* are

transmitters that intentionally radiate RF. In general, they are not found in power company equipment, although some remote-reading usage meters may use intentional emitters. *Most radio noise on power-company equipment comes from incidental emitters*. These have no specific limits on conducted or radiated emissions. But all unlicensed emitters of radio energy have a requirement not to cause harmful interference. If they do, the operator of the device causing the interference must take whatever steps are necessary to correct it. Keep in mind, electric utilities are responsible for correcting only the noise generated by the equipment and hardware that they actually own. In cases where utility customers use an appliance or device that generates noise, they must correct the problem, even if the noise is conducted and radiated by the utility's power line.

Locate Source of Interference.
A good first step is to eliminate the device itself as the source of the problem. If the device is suspect, remove the antenna connection to the radio to see whether the noise goes away. Proceed with the following steps to determine if the source of interference is located within the home or business.

1. Go to the main breaker panel or fuse box. Check the presence of the noise with a battery-powered radio.

2. If the noise is present, shut off all power to the premises by turning off the MAIN circuit breaker or by pulling the MAIN fuses or meter. If the noise on the AM radio stops while the power is off, the source of the interference is within the residence. If the noise continues, you can assume it is coming from a point external to the customer's home.

3. Restore the main circuit breaker or fuses or meter.

4. If the noise stopped while the power was off, locate the circuit supplying the power to the noise source using an AM radio as before, and de-energize the individual circuit breakers one at a time until the noise stops.

5. Next, determine what is on the circuit by going from room to room to isolate outlets, appliances and lights until the offending device is found.

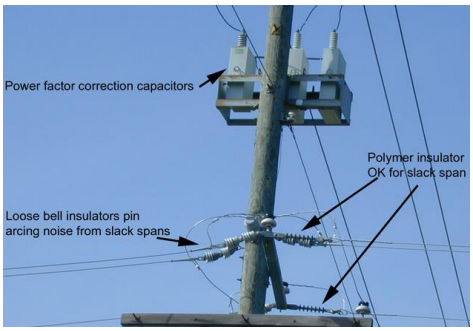
If the noise source is not in the customer's home, check with the closest neighbors. If one of the neighbors has a similar problem, ask them to run the breaker test to try to locate the faulty equipment. A household appliance or electrical device rarely causes interference that extends beyond a few houses on a secondary system. Note that if the source is not in the customer's home or a neighbor's home, the noise is originating from an outside source.

Direction-finding techniques may then be used to isolate the noise to a particular residence or an area of the utility's power-line system.

Noise that varies with the time of day is related to what people are doing, usually pointing to an electrical device or appliance. Noise from consumer-type devices often comes and goes with periods of human activity, frequently correlating with evenings and weekends. Unless it is associated with climate control or an HVAC system, an indoor RFI source is less likely to be affected by weather than power-line noise. The importance of maintaining a good and accurate interference log cannot be overstated. Ask the customer to record dates, times and weather conditions. Correlating the presence of the noise with periods of human activity and/or weather often provides important clues to identifying power-line noise.

If the interference appears and *varies in intensity depending on weather conditions*, and if a breaker test excludes sources inside the home, the interference may be caused by faulty components associated with the electrical power lines near the home. Wet weather may temporarily reduce or eliminate the noise by shorting out spark gaps on the power line. Windy weather may cause the noise to vary or even stop

for a while, as loose hardware is affected.



Virtually all radio noise originating from utility-company equipment is caused by a spark or arcing. The radio noise is only generated during the times when a breakdown and ionization of air occurs. Once an ionized path is established in the gap, current flows at all parts of the cycle where the voltage is higher than the breakdown voltage of the gap. This typically occurs only near the positive and negative voltage peaks, the times of highest instantaneous voltage. Sometimes the gap may break down on only one polarity of the waveform. Because power lines carry 60-Hz ac, the voltage on them passes through two peaks each cycle (one positive and one negative) and passes through zero twice each cycle. This gives 120 peaks and 120 zero crossings in each second. Power-line noise follows this pattern, generally occurring in bursts at a rate of 120 (sometimes 60) bursts per second. This gives power-line noise a characteristic sound that is often described as a harsh and raspy hum or *buzz.* Because the peaks can occur twice per cycle, true power-line noise usually has a strong 120-Hz modulation. Check this fine site for additional details. https://www.w8ji.com/power_line_noise.htm

Typically, power-line noise is a broadband type of noise starting at the low end of the radio spectrum and is usually stronger at lower frequencies. It occurs continuously across each band, up through the spectrum to some upper frequency where it tapers off.

Once you've eliminated the possibility of an internal noise source, always start the RTVI locating process at the interference site using the customer's equipment. Attach a Defect Direction Finder (DDF) receiver to the customer's antenna.

This specialized equipment enables you to monitor the symptoms as received by the customer's antenna. The setup should include a broadband AM receiver that covers the frequency range affected by the problem, an oscilloscope (scope) and an attenuator or RF gain control to adjust the RF signal level. With these tools, utility personnel can monitor the sound and pattern produced by the RTVI source(s).

Once armed with the customer's noise fingerprint, start the search in front of the customer's residence. Travel in a circular pattern around the customer's house, block-by-block, street-by-street, until you find the noise pattern matching the one recorded at the customer's house. Use VHF or UHF if you can hear the RFI at these frequencies. The longer wavelengths associated with the AM Broadcast Band (and even HF) can create misleading “hot spots” along a line when searching for a noise source.

At these frequencies, you may find that the noise peaks at certain poles with different types of hardware mounted on them. As a general rule, only use the lower frequencies when you are too far away from the source to hear the offending RFI at VHF or UHF. Work at the highest frequency on which the noise can be heard. As you approach the source, keep increasing the frequency (Fig. 6). Once you've matched the pattern obtained at the customer's house with one in the field, you're close to locating the structure containing the source.

The investigator must be able to pinpoint the source on the structure down to a component

level. An investigator also can use a hot-stick-mounted device to find the source. An ultrasonic dish is useful for pinpointing the source of an arc. An unobstructed direct line-of-sight path is required between the arc and the dish. It is only useful for pinpointing a source once it has been highly localized and is ideally suited for pinpointing the arcing hardware once the offending pole has been isolated. Note that transformers are not listed among the most common power-line noise culprits. Despite their reputation, only a small percentage of transformers are actually found to be the cause of an RTVI complaints. Many times transformers are replaced because they are believed to be RTVI sources, when in reality, the transformers' loose hardware merely needs to be tightened. Sometimes, locaters are fooled by the hardware associated with a transformer pole. A transformer pole has a driven ground conductor, lightning arrestor, and often a down guy or other hardware that can act as an antenna to radiate noise. This can cause a high level of noise at the pole, but it is actually being generated by another source.

At this writing, I knew the source was outside, having driven the road and hearing the peak at a certain section and walking the street using a less sensitive receiver on the AM band. The interference was being radiated a quarter mile up the road on this line even to a newly installed 5G tower high on the hill. An earlier attempt to DF with a sensitive receiver caused overload on all HF frequencies along this line so a lesser receiver with directional ferrite antenna solved that. I was able to isolate to this utility pole.

A call was made the utility's outage/problem line. Supplying the pole numbers, I explained the problem and was told they would be out in the next 3 days. I mentioned the problem goes away when it rains which sure makes me feel the problem is the insulator pin tension or invasive vegetation. We'll see!

How Radio Can Turn Lemons" Into Lemonade

by Paul Jacobs ·April 29, 2020

Growing up in Detroit in the 1960s, we always looked forward to September, when the new car models made their glitzy debuts. We used to walk around the new lots at neighborhood dealerships, checking out the latest and greatest that came out of the factories of the Motor City and in factories in and around the state of Michigan. From our inbred, narrow perspective, Detroit made the best cars around, and at the time, we were right.

Of course, back then, there wasn't really much in the way of competition. The result turned out to be American cars designed with "planned obsolescence" – in other words, vehicles that weren't built to last, frequently rusting out, and even breaking down after just a few years. The worst of these were nicknamed "lemons," a euphemism for cars that were losers or just plain sucked. Despite their dubious quality, Detroit kept selling a lot of cars, because what came off those Big 3 assembly lines were the only available choices most Americans had.

All of that changed in an instant in the early 70s, when the oil embargo hit the U.S. and gas prices skyrocketed. All of a sudden, American consumers woke up to the fact their cars not only were substandard, they were "gas guzzlers" – many getting less than 10 miles a gallon. That wasn't problematic when gas was 15¢ a gallon. But when prices hit a dollar – and more – consumers began looking around for a better deal – and more efficient cars.

And out of a crisis, the auto industry changed forever. Detroit's Big 3 automakers had to rethink everything, from design to engineering to the dealer experience. Thankfully, they eventually got around to retooling from top to bottom, but they never recaptured the historical dominance they enjoyed in the 50's and 60's. Their weaknesses, borne out of a lack of competition and an excess of hubris and arrogance, became exposed. In time, foreign automakers built factories in America, becoming part of the fabric of the U.S. economy. And today, while Ford, GM, and (Fiat Chrysler) cars more than hold their own, vehicles from Japan, Germany, and South Korea make up a huge share of the market.

Fast forward to today's COVID-19. A recent article in Media Insider from Dave Morgan, "TV Must Retool Now: Lessons Not Learned by US Automakers In The '70s," brought all those memories back to me in a V-8 rush. While Morgan focuses on the television business (which arguably is in worse competitive shape than radio), the lessons are universal. He summarizes Detroit's big vulnerability this way: "U.S. automakers never returned to the kind of market share and consumer loyalty they had pre-1970. Why? Because they were so in love with their own products, they had long since stopped worrying about their consumers' problems: boring cars that were expensive to drive, rusted out, broke down, and had to be replaced every 3-5 years."

In many ways, the radio broadcasting business here in America has held up much better than the Big 3 in the latter stages of the 20th century. Despite a torrent of new competition these past couple decades, radio's overall reach and cultural impact has held up surprisingly well. But among younger consumers, in particular, radio has challenges it has failed to overcome or address – some of which are self-inflicted. We see this slow leak in our *Techsurveys* – conducted among radio fans – with each passing year. Many radio stations are tagged with having excessive spotloads, tiresome music repetition, and bland, predictable programming. Specific surveyed reasons include more audio options in car (42%), too many commercials (37%), more Pandora/Spotify/ streaming (35%), SiriusXM satellite radio (28%).

Yet, broadcasters often turn a blind eye to digital competitors, in much the same away the Big 3 ignored Japan. A case in point? In perceptual research conducted by some of the biggest and best companies, it is still a screen-in requirement that respondents are regular AM/FM radio listeners. That would be akin to GM, Ford, and Chrysler commissioning research in the 70's that excluded Japanese car buyers. Ultimately, you see what you want to see. And as a result, some of broadcast radio's congenital problems remain, unaddressed year after year. In the meantime, consumer perceptions take hold, making it ever so difficult to get this audience back.

That's why events of the past two months are so telling. Since COVID-19 hit the U.S., many radio stations have done themselves proud. Some of the best have not only provided important local information, but they've been supportive of local businesses, organized food drives, and provided support to frontline workers, including healthcare professionals, wait staffs from local restaurants, and more. During this phase, some broadcasters have truly demonstrated the importance and benefits of live and local. So, let's assume for a moment this pandemic can be the same sort of seminal moment for radio as the energy crisis was for Detroit automakers. Instead of enduring a decade or more of incredible economic pain suffered by the Big 3, broadcast radio began planning now for a new, more customer focused, robust future.

Prior to the pandemic, some of radio's biggest broadcasting companies have faced bankruptcies, flat revenue growth, and significant layoffs. Plus, the competition is now well-developed – SiriusXM, Spotify, podcasts, and more frequently earn bigger slices of the audio pie. So, the case can be made that it's imperative the radio industry take this unique, game-changing opportunity to retool and emerge stronger and more competitive as the pandemic fades, and hopefully, is in our collective rear-view mirrors.

To that end, here are a few suggestions.

Live and local needs to be more than a slogan. It's the lifeblood of the industry. Radio needs to recapture its hometown zeitgeist – not just during the pandemic but 24/7/365. And it starts with developing, embracing, and empowering its talent. This is the singular benefit of broadcast radio that cannot be replicated by digital competitors, and as the global pandemic has reminded us, people care a lot more about what's happening in their hoods than what's going down in Wuhan or Wales.

Radio sounds better with fewer commercials. Let's keep it that way. As a sales guy, it pains me to hear about the cancellations stations have endured. But as a listener, stopsets are shorter, and the listening experience is significantly better. Broadcasters have a unique window to rethink clocks, avails, inventory, and pricing. A commitment to a leaner commercial load will not only help stations sound better, but with reduced inventory rates might actually start increasing.

Stop selling just the terrestrial audience. Our COVID-19 research shows the ways in which consumers are listening to the radio since being homebound are changing. They are spending less time in the car and at work, and more quarter hours at home, where apps, smart speakers, and laptops have taken the place of radio "receivers." Yet, increased listening via the stream is either not being measured or marketed with any degree of emphasis or expertise. Digital shouldn't be devalued. In fact, it's a proof positive that so many brands are making the transition to digital. Why should it matter to an advertiser if a consumer hears their ads on the air or in an app? It's time to take a holistic approach to audience delivery and begin to optimize the value of a station's total reach and connection.

Simplify the media buying process. If I can buy a car or a pizza online, each customized to my specifications, and delivered to my doorstep, why can't an advertiser buy an ad schedule online? If Google, Facebook, and others can make it dirt simple for any small business person to access and use their vast marketing platforms, why does broadcast radio make it so difficult? It's time to elevate and streamline this process, because the simpler and more DIY it is, the more money will flow back into radio, especially post-COVID.

Decades ago, it took Detroit carmakers way too long to respond to the gas crisis, and the fallout that ensued. The result was economically devastating here in Michigan for years and years. Today, radio finds itself in a similar position. An existential crisis is slamming the advertising environment in ways that were unimaginable back in February. So, why let a perfectly good crisis go to waste? Why not use this opportunity to reinvent and reinvest in what makes radio great and vital, so the industry can emerge stronger from the pandemic?

Please pass the lemonade!

Tubes Needed for DVHRC Kutztown Inventory

Dave Dean has some types of tubes in very short supply. During your spring cleaning, donate some of your unneeded stock by placing into DVHRC's tube program. Following are a list of the tubes the club is looking for.

Any and all Globe tubes,

Any high end audio tubes ,

Any "unusual" transmitting tubes.

5751	10
5842	12A7
6AQ8	2A3
6AZ8	45
6BD8	6Q7G
6DC8	6U7G
6BK8	85
396A	12AX7
417A	83
6072A	6SN7GT
EL37	1L6
6A3	50A1
6F5	6L6GC
6F6	6L6GAY
6L6GA	6L6GB

Your Story Desired! Please send me a story or picture of a radio project done or adventure you had during this period of social distancing /Covid19 break in the radio hobby. Send them to me at: **gdotttor@yahoo.com**

Meeting Themes- *Meet us on **Zoom** for Now, see page 1*

Apr 14 (cancelled, revisit) Kutztown XLII Planning, *Vintage Phonographs.*

May 12 via Zoom- *FM-only radios*

Jun 9- *Vintage Books and Paper Brochures, printed materials.*

Jul 14- *Tailgate Auction at Telford Community Building TBD.* 7:00 PM

Aug 11- *Atomic Age Radios, Articles and Designs.*

Sep 8- *Kutztown XLIII Planning, Theme: Early Wire and Tape Recorders.*

Oct 13- *Early/Vintage Audio.*

Nov 10- *Your Best Restoration. This is the one you're most proud of!*

Dec 8- X-mas Party at Stove N' Tap.

Upcoming Regional Events

Following are some links for events future events! Paste links into your browser or call for updates.

Kutztown Radio Show XLII (42) rescheduled from Spring **Friday, 09.18.20 through Saturday, 09.19.20 opens 7AM on those days; Vendor setup starts 12 noon Thursday. Early buyers will not be permitted on Thursday without a dealer tag. Free parking and free admission for shoppers.** Where: Renningers Farmer's Market, 740 Noble St., Kutztown, PA 19530. Antique radios, parts, and related items. Audio and Ham welcome. Tables, electric available. Dealer spaces 10' x 10' incl table $45. **Auction 6 PM Fri. 09.18. Exhibitor reservation advised: Phone M-Th 570.385.0104; F-S 610.683.6848.** See links at: www.dvhrc.org to download or facebook.com/renningerskutztown

2020 AWA Annual Conference

Tuesday, August 11 to Saturday August 15, 2020. AWA will be held at the RIT Inn and Conference Center, 5257 W Henrietta Rd, Henrietta, NY 14467.

This year's theme will be "The Evolution of Amateur Radio".

Interest has been expressed in presenting session topics including:

124 Years of Amateur Radio Innovation
The History of the Amateur Novice Class
Hiram Percy Maxim
Amplitude Modulation at the ARRL HQ
Tales from a Heathkit ham Collector
Sounds of the Telegraph
AWA Ham Radio Activity
Westinghouse Broadcasting On The 100th Anniversary of KDKA
Philadelphia Radio
Organist Rosa "Queen of the Soaps" Rio
Audio Pioneer McIntosh
AWA History
Moonlight Restorations
Membership meeting & FabLab (STEM) update

Contact Info at:
http://www.antiquewireless.org/annual-convention.html

RadioActivity 2020 NEW DATE!

Thursday, 10.01.20 4PM through Saturday, 10.03.20. *RadioActivity* will be held at the Sheraton College Park North Hotel in College Park, MD. *The theme will be the 100th anniversary of licensed commercial broadcasting.* The Sheraton College Park North Hotel is off of Exit 29B (Rt. 212) of I-95 between Washington and Baltimore, at 4095 Powder Mill Road, Beltsville, Maryland, 20705. *Continued next page:*
The hotel is on the southwest corner of the interchange. Subcategories and info on website:
http://www.maarc.org/MAARC_Docs/Flyers/RAInsert2020.pdf

This is Gary Owens coming to you remotely from my basement, wishing you safety and health! We'll all be back soon! DVHRC signing off.