

The
Indiana
Historical
Radio Society



BULLETIN

Vol 38

June 2009

2



Indiana Historical Radio Society

**FOUNDERS AWARD
BEST OF SHOW
2009**



The *BULLETIN*

A Publication of the Indiana Historical Radio Society
Thirty-Eight Years of Documenting Early Radio



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The INDIANA HISTORICAL RADIO SOCIETY is a non-profit organization founded in 1971. Annual membership dues of \$15.00 includes the quarterly IHRS "BULLETIN." Radio-Ads are free to all members. Please include an S.A.S.E. when requesting information. Send applications for membership and renewals to Herman Gross, our treasurer as noted above.

The Indiana Historical Radio Society Bulletin – June 2009

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The Indiana Historical Radio Society Bulletin - June 2009

The front cover - The Cardinola – Michael Feldt’s “Founder’s Award – Best of Show” entry in the IHRS Spring Meet Old Equipment Contest. The radio, entered in the Indiana Made contest category is an Indianapolis product.

On the back cover is Garry Tidler’s well presented “Telegraph” entry”. “Telegraph” was awarded a first place ribbon in the contest Open category. See the center fold for other “Old Equipment Contest” entries.

Note on page four a location change for the IHRS Summer Meet – South Central Indiana – Bartholomew County Fairgrounds - Columbus.

In this issue of the Bulletin Jeremy Schotter provides insight and details on “Restoring a Philco 38-116”. You can see more of Jeremy’s restoration work at radiorestorer.com.

Also Andy Ooms provides in detail “The Long and The Short of Listening to Antique Radios” Andy admittedly prefers listening to, rather than repairing, radio. In addition to the “Bulletin” Andy is published in DX News, Monitoring Times, and the Arizona Antique Radio Club News.

Arrangements are in process to return to the Kokomo Event Center again for Spring 2010. Thanks to many helping hands the Spring 2009 Meet ran without a hitch. Special thanks to Bill Morris for his Vintage Radio Tech Talk and Michel Feldt for his AM transmitter setup allowing “Operating Vintage Radios.” A real plus to the Meet.

Fred Prohl, Bulletin Editor

Indiana Historical Radio Society
2009 Summer Meet
4H Fairgrounds - Columbus, Indiana
Saturday, August 8 - 8 A.M.
I65 to SR46 (exit 68) East to SR 11,
South on SR11 to Fairgrounds

Family Arts Building (east end of Fairground buildings)

Swap N Sell Fair weather –set-up out side – rainy, in side set-up.

In the building:

Vintage Radio Contest (Popular Vote)

Category 1 – ARVIN Radio

Category 2 – Open – you decide

Tables will be available for display of radio and communications related equipment.

Silent Auction of vintage radio equipment.



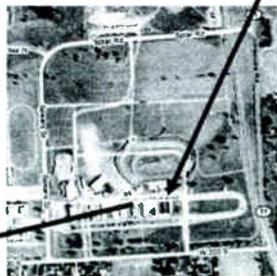
General admission is free. Swap N Sell vendor

fee is \$10.00 for current members of the

Indiana Historical Radio Society and \$15.00 for non-members.



Family Arts Building



Things to do in the Columbus area (after the IHRS Summer Meet):

Exit 76 Antique Mall – 8 miles north on I65 (exit 76)

Edinburgh Outlet Mall – 8 miles north on I65 (exit 76)

Historic Nashville – Art, antiques, shops – 16 miles west on SR46

Dog Show - 4H Fairgrounds (several buildings west of the IHRS Meet)

City of Columbus – Architecturally significant churches; Cummins

Manufacturing; Once upon a time Noblet Sparks (Arvin) building sites.

Many choices for Lodging and Food at I65 exits 68 and 76

The Indiana Historical Radio Society Meeting Schedule

Summer 2009 –August 8 - ARVIN Country!

Bartholomew County (4H) Fairgrounds, Columbus, Indiana

Fall 2009 - Riley Park, Greenfield – October 10

Winter 2010 – Hornet Park, Beech Grove – February 6

- - - Regional Events of Interest to Members - - - -

Cincinnati Antique Radio Society

Radiatorama - June 26-27 VOA site

I75 to exit 22, Tylersville Rd East, ¼ mile

East to Crosley Lane

Vendor Raffles, Donation Auction,

Friday Eve Fellowship 4-8pm

Swap Meet at Dawn, Saturday, June 27

Contacts: Bob White 513 385 8291, Bob Sands 513 858 1755

Antique Radio Club of Illinois www.antique-radios.org

RadioFest July 30-Aug 1, 2009

Michigan Antique Radio Club www.michiganantiqueradio.org

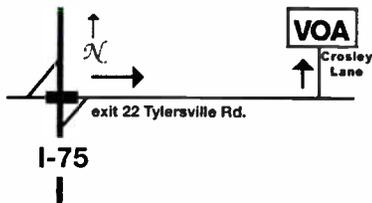
Extravaganza July 10-11, 2009 Lansing, MI

AWA-Antique Wireless Association www.antiqewireless.org

Annual Conference – August 20 – 23, 2009 The original and largest historical radio group. The AWA publishes a quarterly AWA Journal.

Membership is \$25 per year. Write to: Antique Wireless Association, Inc.

Box 421, Bloomfield, NY 14469



Antique Radio Classified (A.R.C.) is celebrating twenty-five years of publication. May you have 25 more!

Thank you ARC for supporting the Indiana Historical Radio Society with free IHRS Meet announcements.

Those of you not familiar with A.R.C., write for a free copy at Antique Radio Classified, P.O.Box 2, Carlisle, MA 01741

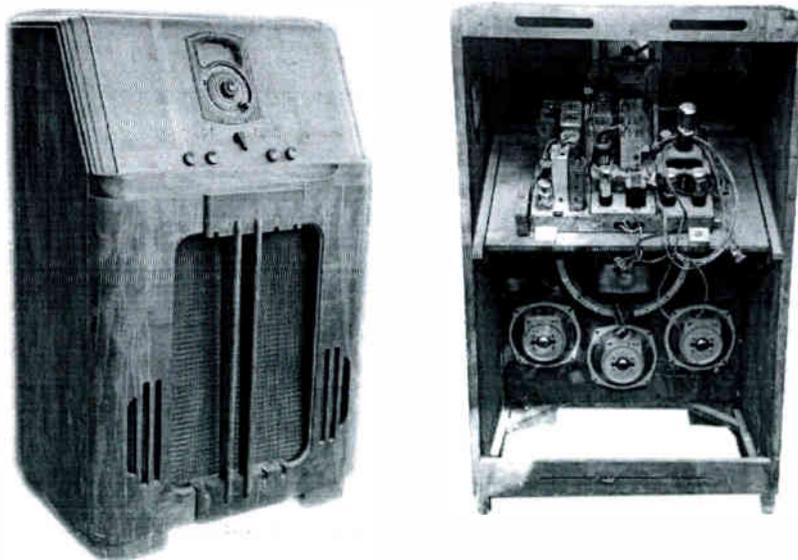
Restoring a Philco 38-116

Jeremy Schotter

Project Beginings

In February of 2006, Philco expert Ron Ramirez was selling several radios on eBay. Since he lived only an hour away from me, I figured I could buy a few and save on he shipping. Not quite sure why I bid on this one. Per the auction, this radio needed a lot of work to piece it back together. Many of the radios Ron was selling were pretty close to being parts radios only. One I ended up winning, a Philco 3118B, had been parted out already.

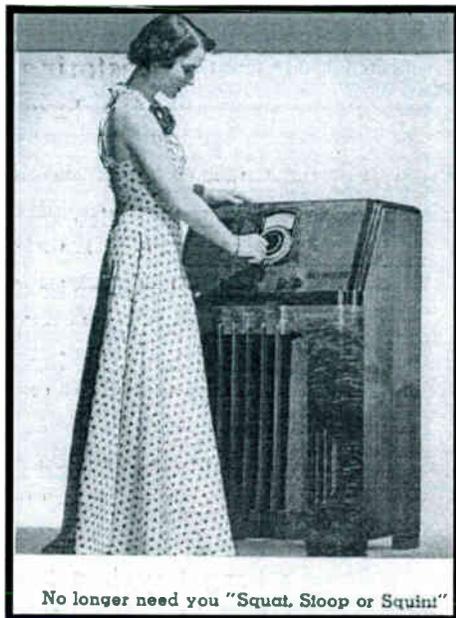
So on a miserable cloudy and cold day I made to trek to Evansville to pick up this beast. Naturally a blizzard blows in when I start heading back, a good test for the new set of all-terrain tires I had recently put on my Ranger. Long story short, I made it back and packed this beast down to my basement storage area on my own. At the time I did a little bit of preliminary work, mainly getting a list together of missing parts. Other than being moved from one side of storage to the other, this radio would sit patiently until fall of 2008 when restoration would begin.



The cabinet and chassis prior to restoration in August 2008

About the 38-116

The 38-116 is one of Philco's "No Squat, No Stoop, No Squint" line of radios, with around 25,600 manufactured.. The whole idea behind that slogan was the slanted or inclined control panel and dial. It made it easier for a person to see the dial, without bending over or squatting down. According to Philco Radio 1928-1942 by Ron Ramirez (Yes, the same guy I bought my 38-116 from!), this advertising campaign was targeted for women. The 1938 dealer catalog states, "Here is a radio that a woman can tune with ease and grace...." Hey, the Great Depression is going on, whatever works to sell a few more radios! Selling at \$200 new, not a lot of families could afford one of these.



PHILCO HIGH-FIDELITY RADIOS *with* AUTOMATIC TUNING

Everything you could ask or hope for in a radio!
These two High-Fidelity Philcos are complete in every detail . . . with all the latest Philco developments including:

Philco Automatic Tuning . . . dial the call letters once, and CLICK . . . there's your station.

The Inclined Control Panel . . . inclined for tuning with ease and grace whether sitting or standing.

Philco High-Fidelity . . . more than double the tonal range of ordinary good radios . . . for glorious realism.

Philco Inclined Sounding Board . . . brings every note up to ear-level while Acoustic Clarifiers eliminate "boom."

Philco Foreign Tuning System . . . doubles the number of foreign stations you get and enjoy. Five Spread-Band Tuning Ranges cover all that's interesting in the air!

Never before have you been offered such a combination of Power, Selectivity, Tone and Range . . . for radios to match these Philcos have never before been known!

This model and others from the 1938 year featured an Automatic Tuning Mechanism. This consisted of a large round dial with a tuning knob on the edge of the dial. To tune a station, you simply grasp the knob and turn the dial around until it stops. The dial stops because there are up to fifteen selector stops on the mechanism. Other features were three acoustic clarifiers, which are called passive radiators in today's terms. These are basically speakers without voice coils or magnets, and were meant to "assist" the main speaker during operation.

Philco 38-116 (continued)

A monster chassis that utilizes 15 power hungry tubes, a power output of 15 watts, and receiving 5 bands, make up this beast of a radio. Truly a stunning example of a technological achievement of its time.

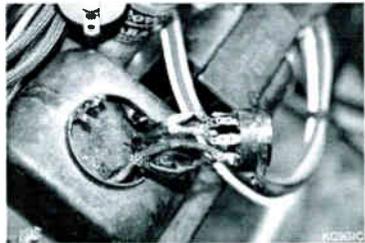
Any observant repairman will quickly notice that there are two different schematics for this model, a 38-116 code 121 and a 38-116 code 125. The main difference I can find is a change in the tube lineup. This being the mixer tube was changed from a 6L7G in the 121 to a 6A8G in the 125, and the RF tube being changed from a 6K7G in the 121 to a 6U7G in the 125. My radio is a code 125.

Electronic Restoration

No project is more intimidating than a 15 tube chassis that has been hacked up by a previous repairman. Perhaps that is why I put off restoring this radio for almost three years. My first task was to begin tracking down missing or damaged parts. Original replacement parts that had to be found included:

- 5 Tube Shield Bases, someone had hacked up the originals to accept metal or GT style tubes.
- 4 New filter cans and mounting brackets to restuff, the originals were completely removed.
- A five pin plug and socket for the speaker, these had been replaced with a Molex type plug and socket.
- Several tube shields, these were missing.
- A complete set of G style tubes, just wanted the chassis to look good and original after restoration.
- 2 new tube grid caps, two were replaced with some big gawdy black plastic ones.
- A new dial scale, the one with my chassis had been broken and I would later find out was the wrong one entirely.

Several sources were used to find these parts. Most were purchased from [Mark Oppat's Old Radio Parts](#), Gary at [Play Things of Past](#), with quite a few other parts being purchased via a wanted ad on the [Antique Radio Forums](#) classified section.



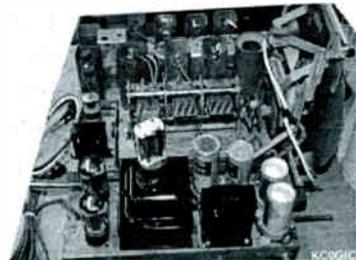
Repair of the rectifier tube socket

Much of the original wiring also had to be replaced. While the cloth covered wire in radio of this vintage usually holds together pretty good, it will easy crumble if flexed too much. The wiring harness going to the speaker had to be replaced. Modern cloth covered wire rated for 600V was used for this, keeping the colors the same as the original if possible. Other wires needing to be replaced included all of those going to tube grid caps, feeding the pilot lamps on the dial, and the wiring harness going to the two switches on the Automatic Tuning Mechanism. Once this was replaced, and a new reproduction cloth covered cord was installed, it was time to prepare for powering up the radio.

Once everything was put together and the speaker was reglued, my radio was carefully powered up using a isolation/variatic power supply and carefully observing the amperage draw. The radio was showing signs of life, receive stations on most bands.

There still were a few nagging problems, like intermittent shorts causes by bad wire insulation and corroded connections on the band selector switch. One problem in particular was sparking and a loose connection inside of the rectifier tube socket, mounted on top of the power transformer. In the past someone rewired the socket so that a 5U4 could be used as a rectifier, as the 5U4 is an acceptable replacement for the 5X4, but the 5U4 uses different pins. Fixing this problem required the use of some heat shrink tubing to keep the sharply bent wires inside from shorting out, as the original insulation was falling apart.

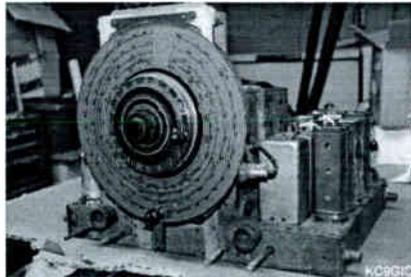
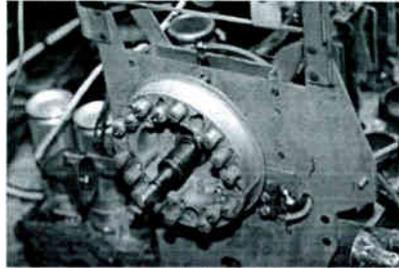
At this point the radio was working extremely well despite its history of rough repairs. Apparently the only thing someone hadn't messed with in the past were the trimmer capacitors, as no alignment was needed. At this point it was time to get the chassis looking better cosmetically. Some NOS tube shield bases were acquired to replace those that had been hacked up. The rivets holding down the originals had to be drilled out, and flathead 6-32 screws and nuts were used to bolt in the replacements. The black paint on the transformers was chipped up, so a new coat of black lacquer was sprayed on to spruce them up a bit. Finally using a Dremel and a wire brush the entire chassis was lightly cleaned, using Brasso on some parts. The final results don't look too bad for a seventy year old piece of metal.



The restored chassis.

Philco 38-116 (continued)

The last repair to the chassis was the replacement of the dial scale. The original wasn't in bad shape when I started restoration. During the process though, the delicate dial scale was cracked. There is a certain procedure that has to be followed when disassembling the automatic tuning mechanism, which is detailed in the Philco Service Bulletin no. 273. The bulletin, along with a wealth of other hard-to-find information can be purchased from [The Philco Repair Bench](#). The entire tuning mechanism was disassembled, cleaned, and rewired. A replacement dial scale was purchased from [Mark Oppat's Old Radio Parts](#). Mark manufactures near perfect reproductions of many dials, including one for my 38-116. While comparing the original dial to the reproduction, I noticed a difference in the frequencies. Doing some searching online, Ron Ramirez made a post on the [Philco Phorums](#) back in 2005 talking about this very radio. He mentions that he had to replace the entire automatic tuning mechanism.....Thats it! Researching the part number of my original dial, I found out it is a dial for a 37-116 model that has different circuitry, thus the frequencies on the new "correct" dial didn't match up entirely.



NO SQUAT



NO STOOP



NO SQUINT



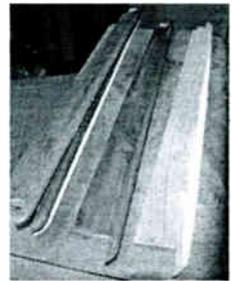
KC9GIC

Cabinet Restoration

The cabinet had been stripped in the past, a sloppy job though. A liquid had been splashed on the sides and top, resulting in big bleached looking spots. My largest concern was if these spots could be removed or covered up. Washing and scrubbing with different chemicals had no effect. Some orange Citistrip was brushed on over the spots, and was allowed to soak in for half an hour or so. Once the stripper was removed, and the cabinet was washed down, the spots seemed to be completely gone. Photo to the right shows the cabinet before being cleaned up showing the spots.



The other obstacle was replacing the two missing vertical bars in front of the speaker grille. A close family friend who restores antique furniture knew of an Amish woodworker who could reproduce about any obscure part as long as he had a pattern to go by. So they took one of the remaining bars to him, and a few weeks later I had two perfect reproductions. As for a price, the woodworker wouldn't accept more than \$10 for the job. All of the bars were sanded and the grain was filled. They were then toned with Mohawk extra dark walnut and then medium brown walnut so that they would match.



The bars were then reglued to the cabinet. With no other repairs needed, it was time to refinish the cabinet. The whole cabinet was sanded prior to refinishing, and any dust was blown away with an air compressor followed by wiping down with a tack cloth. Deft brand gloss lacquer was used, sprayed on with a Critter spray gun. The lacquer was thinned down, using three parts lacquer and one part thinner. After several coats of lacquer, the decals were ready to be installed. All of the decals needed for this model were purchased from [RadioDaze](#). These decals were a royal PITA to apply! There is a word in the shape of an arc over each knob that designates the function of that particular control. These were very hard to match up and keep a consistent distance between them all. Applying these was a tedious process, but the final result turned out pretty good. Once the decals had dried, a layer of clear lacquer was sprayed over them.

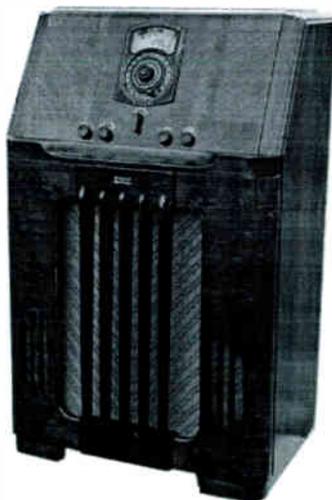
Philco 38-116 (continued)

Originally this radio used a "V" pattern grille cloth. This was long gone on my radio, and replaced by something that almost resembled a plastic mesh. A reproduction cloth was also purchased from [RadioDaze](#). Pattern # 41, Chevron "V", was used, the same type as the original. The grille cloth would also prove to be a royal PITA to install. If the cloth was slightly off centered or warped, it would be very obvious with the vertical bars in front of it. After several tries, I was able to get the cloth positioned so that it was pretty close, but it was still slightly off in places. Messing with the cloth too much would risk damaging it.

At this point it was time for complete reassembly. This radio uses a odd method to hold down the chassis. The chassis has four pins on each end of the sides that fit into a wooden block. The wood block has a carriage bolt that goes through the mounting board that the chassis sits on, and a nut is tightened below. Three out of my four mounts were gone. Replacements we made using 2X4 lumber and 1/4" carriage bolts.

Final Results

I am quite satisfied with the outcome of this restoration. I have always wanted a high end radio for my collection, but never wanted to pay the high price as these sometime command. When all said and done, I have around \$200-\$300 invested in this project. A very reasonable amount to me, and the final results were definitely worth the money and effort. There are still a few minor flaws that need to be fixed, such as finding a replacement back panel. But until then, this radio is pretty much complete. *Jeremy*



**Look for IHRS members Janet and Jack LaVelle
at www.chicagotribune.com/radiomuseum
(a three minute video of their radio display)**

The Long and The Short of Listening to Antique Radios

by: Andy Ooms



If we have an antique radio in working order, we probably know what we will hear on medium wave (usually referred to as the AM band), 520 through 1710 KHZ.

This article will cover other parts of the radio wave spectrum, long wave and short wave, and is submitted to this magazine because some antique radios have bands that receive these frequencies and you may want to listen to these bands.

My standard disclaimer is that many of you know more about the subject than I do. In fact, those of you who are "hams" may well be users of short wave technology on a very frequent basis. So if I am too simplistic, please bear with me. Also, I may not know everything that I think I know, so in the case that our understanding differs, there is a good chance that you are correct.

Many people interested in radio, either the technology or the information carried by the signals, became interested while young. Why? Maybe it is because the idea of sounds surrounding us all the time invisibly to be captured by wireless technology under our control has a feel of magic to it. It does for me, although the feeling of magic can disappear temporarily when the sounds are bad or boring or when the equipment is not doing what I want it to.

In my case, the sounds I could hear carried across the prairies to a small northern Midwestern town were a wonderful thing. And that was just on the AM band. I occasionally had access to radios that also had short wave bands. Since AM signals were very interesting to me (I could easily have listened to the radio 20 hours a day, much to the dismay of some of my nearest relatives) my imagination told me that short wave would be even more interesting, with sounds of who knew what kind coming from who knew where. But I never had good short wave equipment and South Dakota not being the best place to receive trans-oceanic transmissions meant that listening to short wave was only a possibility and never much of a reality for me.

The Long and Short (continued)

Plus being totally enchanted by AM radio meant that I didn't have much time to wish that I had better short wave access.

Back in those days, about 1948 to 1955, many AM radio dials went as far up as 1800 or 1900 KHZ, although AM broadcast stations did not exceed 1600 KHZ. Some police organizations used the 1600 to 1800 spectrum, and some radios showed that area on the dial, sometimes marked "Police Calls". I scanned that spread at times, but don't remember hearing much, possibly because of a lack of crime in those days in that cornfield country. I expect that listeners in larger cities did find some action there, and if any of you did, maybe you could write a piece about what you heard for the rest of us.

After I finished my Army duty in 1960 and reluctantly returned to college I bought a Hallicrafters set and listened to a lot of foreign stations while studying. Many of those stations have disappeared as the short wave broadcasts of many countries have permanently signed off for cost reasons, reinforced by the belief that Internet audio streaming will serve all the listeners that they need.

Without getting into any further historical aspects of short wave broadcasting, let's see what is on the long wave and short wave bands now. The receptions I will mention will generally be those than can be received in the western United States with a moderately good short wave radio or communications receiver and a modest antenna, such as a 10 foot wire attached to a whip.

Few radios are designed to receive long wave frequencies lower than 100 KHZ. There are a variety of signals below 100 KHZ of interest to military communications experts and some low frequency hobbyists, sometimes known as lowfers.

Some European, Asian, African, Australian, and New Zealander stations broadcast commercially on long wave frequencies from about 150 KHZ to 280 KHZ. DX magazine loggings show that both east coast and west coast DXers in this country can hear some of these stations. I have not caught any of these signals in Arizona, however. That may be because my antenna is insufficient, or it may be that we are too far inland. I have listened to commercial long wave broadcasts while in Germany, Australia, New Zealand, and the Philippines at various times. It puzzled me when I was in the Philippines 2002-2004 that I could listen to long wave commercial stations carrying normal music and talk formats, but the few radios for sale that I looked at in stores or malls did

not have long wave bands. Oh well, that isn't the only thing that puzzled me there.

When working in Alaska a few years ago, I could always receive aircraft weather stations from various Alaskan airports, such as Anchorage, Kodiak, and Homer. These stations would continuously loop information about precipitation, visibility, and wind. I am unaware of any of this kind of broadcast here in the lower 48.

Long wave in the rest of the United States now consists, to a large extent, of airport beacons, heard from about 200 to 530 KHZ. These broadcast 3 letter call signs repetitively in Morse code (CW for Continuous Wave).

My last comment about long wave is that I believe that it has been used for quite a bit of marine communications. If true once, those days are over as other spectrums and other technologies have taken over.

Now on to the short wave sounds available on the HF (High Frequency) band running about 1.8 to 30 MHZ (1800 to 30000 KHZ).

I would like to know more about what was available for listening before World War II and during that war. There likely was quite a bit available before the war because so many radios had short wave bands. There were several American broadcasters on short wave. During the war, U.S. short wave broadcasting was curtailed for national security reasons, as I understand it. I am sure that some interesting broadcasts could be heard here from Europe unless the BBC and others did not transmit to North America.

During the 60's I listened to short wave quite a bit for 2 years. My knowledge of radio, other than AM programming, was limited so I didn't even know what the MHZ numbers on my Hallicrafters related to. I know now that my AM plus 3 bands covered short wave from 1.6 to 30 MHZ. Why some foreign broadcasts were clustered around certain areas on the dial and why some parts of the band had the best reception days and others nights and why major portions of the band were usually silent were questions that I did not trouble myself enough with to do the research to find the answers. Trying to escape college with a degree was my main goal at that time.

I didn't listen to hams as my set did not have sideband capability. Although I heard hams and could rearrange the sounds of the unintelligible voices by tweaking the BFO (beat frequency operation) knob, I didn't bother to learn much more about the hobby.

The Long and Short – continued on page 18



Mike Feldt – An operating
1925 Supertone 1st^s Pre-1940 's



Tom Williams
GE 1932 Compact"
Portable – Pre 1940's



Jeremy Schotter's Philco 38-116
Restoration Project – FINISHED!
See page 3 for details.



Mike Jones – SOLAR Capacitor
Analyzer – Open



Ed Taylor – Lucite
Neon Radio
1st Transistor Radio

IHRS Spring Meet Contest Results



Tom Williams – Philco 84
Pre – 1940's Radio



Tom Williams "Signal
Seeking Panasonic"
Transistor Radio



Fred Prohl – "Metro
Junior"
1st – Crystal Radio



Joe Farkas
Victor Micro-Synchronous
2nd – Pre-1940's



Pete Yanczer –
A reproduction
"RADIO Coin Op
Arcade Machine"
2nd Open



Mike Jones –
"Ross Desktop"
Transistor Radio



Bill Morris – "Swedish
Concertone"
2nd Transistor Radio

The Long and Short (continued)

Morse code and other sounds were scattered sporadically on the bands, but my main listening was to English language programming. Almost all of that programming was from stations owned and operated by a government. I cannot think of many privately operated stations in those days. One was the quite famous HCJB, Quito, Ecuador. HCJB (Heralding Christ Jesus Blessings) was, and is, a Christian station owned obviously by a non-governmental entity.

The only other private station I remember was CFRX, Toronto, Ontario which simulcasted CFRB, a Toronto AM (1010KHz) station. This uniquely Canadian situation still exists. CFRX is still on 6.07 MHz reachable in the upper Midwest and East, but difficult in Arizona. Calgary, Winnipeg, Edmonton, and Vancouver also had or still have AM stations simulcasting on short wave. It seems that this situation will not last too much longer and I have read that as transmitting equipment wears out, some of the stations are deciding not to replace it.

Since my 60's listening was at a fairly critical period of the Cold War, a lot of broadcasting was related to that war. Pro-Soviet stations were numerous, broadcast in English (and other languages) at some length, and sounded quite a bit alike in that most of their content consisted of attacking the nasty United States and its imperialist dog Yankee government. Stations heard easily in Michigan, where I did my listening in those years, included Sofia, Bulgaria; Budapest, Hungary; Radio Moscow; Radio Havana, Cuba; Bucharest, Romania; Warsaw, Poland; Prague, Czechoslovakia; Belgrade, Yugoslavia; and Tirana, Albania.

Stations on our side of the Iron Curtain included our own VOA (Voice of America), Radio Canada, BBC (British Broadcasting Corporation), Switzerland, Germany, Netherlands, Austria, and Sweden. Other European stations with English programming included Denmark, Finland, Norway, France, Italy, Spain, and Portugal. These stations were less openly propagandistic and actually broadcast a broad range of interesting music, news, and general info programming. Jazz programming on VOA had a huge audience in the Soviet Union in those days.

I don't remember picking up any Asian, Australian, New Zealand, or African stations there, using only the whip on my Hallicrafters.

Now we move on four decades to a much more western part of our country and describe what this somewhat more informed listener can hear.

The short wave spectrum (1.8 to 30 MHz) now contains some relatively unused areas, ham bands, broadcast stations, utility broadcasts, pirates, and CB (citizens band) allotments.

The elements most affecting what is being broadcast include time of day, dial position, and international agreements.

Quite a few radios sold with short wave capabilities do not cover the entire HF or short wave spectrum. Knowledgeable hobbyists want the ability to listen to any HF frequency, but persons new to short wave listening may be satisfied with the spectrum portions used by regularly scheduled short wave programmers. In fact, the Zenith Trans-Oceanics did not include all of the 1.8 to 30 MHz band, but only those portions likely to have regular programming. Excluded in less than full spectrum radios are those band portions frequently silent but occasionally used for utility signals.

Short wave band designators may vary by manufacturer, but this is how my Drake SW8 World Band Shortwave Receiver owner's manual defines them:

- 2.3 -2.5 MHz: 120 Meter Band
- 3.2-3.4 MHz: 90 Meter Band
- 3.9-4 MHz: 75 Meter Band
- 4.75-5.06 MHz: 60 Meter Band
- 5.8-6.2 MHz: 49 Meter Band
- 7.1-7.6 MHz: 41 Meter Band
- 9.5-9.9 MHz: 31 Meter Band
- 11.6-12.1 MHz: 25 Meter Band
- 13.57-13.87 MHz: 22 Meter Band
- 15.1-15.8 MHz: 19 Meter Band
- 17.48-17.9 MHz: 16 Meter Band
- 21.45-21.85 MHz: 13 Meter Band
- 25.6-26.1 MHz: 11 Meter Band.



A Drake SW8 World Band
Shortwave Receiver

This article references MHz since I am a short wave listener and not a ham; those are the designators that come most naturally to me. Hams use Meter Band references although, of course, they mentally convert to MHz with ease.

The frequencies between the bands listed above are included in better short wave radios and contain utility broadcasts, pirates, and some out-of-band broadcasters while some of the frequencies listed above are used by broadcast stations as well as hams. Antique radios manufactured for the mainstream market will likely cover only some of the bands listed above.

The Long and Short (continued)

Antique military and other communications gear will include the entire spectrum.

Now I will discuss the five categories which include most of the short wave spectrum usage, followed by generalizations about scanning the band from 1.8 to 30 MHz. The five categories I am covering are: 1. Ham; 2. Program Broadcasters; 3. Utilities; 4. Pirates; and 5. CB.

Ham: One of you patient readers who is an amateur radio operator should really write this section. You know the facts; I'll be writing what I believe to be true, which hopefully will be basically accurate, but will definitely lack some of the data that you amateurs are familiar with.

There is some voice, also known as phone, ham activity between 1.8 and 2 MHz. I rarely hear anything there (my current listening location is Pine, AZ) and consequently don't dial down there much. Propagation physics provides for the best distance reception at the lower MHz frequencies after dark and the higher ones during daylight hours. Therefore broadcasters and hams will use the frequencies accordingly. I just don't scan under 3 MHz much day or night because I have not found much there.

From 3.8 to 4.0 MHz more or less there is a lot of ham activity, almost all of it lower sideband, but occasionally I have heard AM mode instead of sideband.. These frequencies are used primarily during the darkness hours.

7 to 7.1 MHz is reserved for hams using code, although Spanish speaking individuals can be heard there occasionally. Voice hams are heard from 7.1 to 7.3 MHz, mostly daylight, but sometimes after dark, and almost always using lower sideband. This region also has foreign broadcasting after dark, and there is occasional interference between the two modes. I think I have read that in the near future, by international agreement, 7.1 to 7.3 MHz will be reserved for hams, no longer available for broadcasting stations.

14 to 14.1 MHz is reserved for CW (code) and 14.1 up to about 14.4 MHz is for voice (phone) ham operator use. These frequencies are most active in daylight hours and almost always using upper sideband.

There are other ham usage areas below 30 MHz, but the above are the most active. Heard on ham bands are discussions between individuals, nets involving persons with mutual interests checking in daily or weekly with others in the group, and contestants calling CQ, attempting distance

contacts or a high number of contacts during a specific time such as a 24 hour period or a weekend.

Program Broadcasters: This category is likely what most short wave listeners think of when they think of the HF band. Antique radios are more effective for listening to these international stations than to ham or utility stations since regular broadcasters program AM voice and music features whereas other spectrum broadcasters may use transmission modes which antique radios were not manufactured to capture.

Unfortunately for the short wave listener, the use of the spectrum for international broadcasting or other programming is in serious decline. In other words, listen while you can.

Why this decline? The peak of international short wave broadcasting, I think, was from the Second World War until the fall of the Iron Curtain and the rise of the Internet. The need for, and effectiveness of, propaganda broadcasting has declined with the decline of Communism and the form and style and strategies of those who are not friends either of our country or of democracy or of freedom have moved on to other means of communication and persuasion.

Some examples: Voice of America captured the ears, and some of the hearts, of many people around the world, with news reports more accurate than many non-democratic governments were broadcasting, and with jazz, later rock and roll, both music genres immensely popular in the Soviet Union and its satellites.

Now, Voice of America programming is greatly reduced both in number of hours broadcast and in the variety of languages used. Instead, the Board of Governors, responsible for Voice of America, has chosen to expand more regional broadcast efforts, such as Radio Marti (for Cuba), Radio Free Europe, Radio Free Asia, and an Arabic language service for the Mideast. Also, they have added television for some areas, so ultimately the reduction of short wave VOA broadcasting is an economic decision involving ways to best expend a finite amount of money. Naturally, decisions of this nature are extremely controversial politically and therefore they may change.

Another example is the world famous British Broadcasting Corporation World Service, once famous for accurate reporting of current events around the world on a huge number of frequencies. BBC was responsible for positively affecting the morale of many European populations during the miserable days of World War II and the depressive days of the Cold War.

The Long and Short (continued)

Consequently, it was generally banned by both Nazi and Communist governments. Owning radios that could catch BBC frequencies was sometimes illegal and getting caught listening to the BBC in some countries could have severe consequences.

Five years ago, approximately, BBC stopped short wave broadcasting to North America and some other areas. Their logic was that short wave listening was down, and that the BBC was available on the Internet and on quite a few U.S. public radio stations. Now BBC is also available on XM and Sirius satellite radio.

Their statements were accurate, but the lack of strong BBC short wave signals almost full time here is still a loss. Yes, I can listen to them on XM and yes, I can listen to them on Internet streaming audio. There are no public stations that reach Northern Arizona at least that program BBC; I expect that Los Angeles and New York listeners may be able to listen to BBC on regular radio at least part of the time.

The BBC programs toward the Caribbean and we can listen to that stream on short wave for an hour or two in late afternoons.

Germany (Deutsche Welle), France (Radio France International), Belgium (Radio Vlanderaan International) Switzerland (Radio Suisse International) and most of the Scandinavian countries have discontinued all of their English programming to the United States.

After 70 years, the easiest South American catch, HCJB, Quito, Ecuador stopped broadcasting in English from Ecuador due to a space conflict involving their tower and an airport expansion. They still broadcast in Spanish to South America with a shorter tower, but have moved their English and other language transmitter to Australia. I think they direct mostly to the Southern Hemisphere; I haven't heard them since they moved their signal to Australia.

What can we still get? Clear signals in English can be heard regularly from Australia, New Zealand, Spain, Canada, Taiwan, Korea, North Korea, China, Viet Nam, and Japan (although it is being reported that NHK, the Japanese national radio service, will stop broadcasting English to North America in 2007). Unfortunately, Radio Havana Cuba still booms in on several frequencies every night, and sounds like it did in the 60's with their full-time preoccupation with anything involving that undesirable Yankee government up north, occasionally interspersed with glowing reports of their wonderful country. Some other Cuban stations, Radio Rebelde for example, have a lot of decent music, without

much propaganda. For financial, not ideological, reasons Radio Moscow, now called the Voice of Russia, is not heard often here anymore.

The references to foreign broadcasts here are to English language broadcasts. A variety of other languages can be heard here often and regularly, especially Spanish and several Asian languages. I don't have much comment about them as I generally only listen to English, although I will listen to music of almost any variety and language.

Here in Arizona, European, Australian, New Zealander, and Asian stations predominate. But I have heard Nigeria, South Africa, and Israel with English occasionally, showing that there may always be a new listening experience coming up when one is scanning the high frequency spectrum. My latest surprise was recently catching Israel for the first time in 11 years of Arizona short wave listening. Hearing them around noon added to my surprise.

The Federal Communications Commission does not particularly encourage American domestic short wave broadcasting. As I understand the situation, for many years no domestic private stations with programming aimed at domestic audiences were authorized. Consequently, the U. S. located broadcasters claimed to be aiming for foreign audiences, and American listeners were incidentally listening to programming theoretically meant for much further away. However, there are an increasing number of American commercial or private short wave stations, so it seems that the foolish fiction of foreign consumption only has wisely been dropped. This is not to say that the stations don't mind claiming listeners around the world and on seven continents, but their commercials and content would generally be of little interest to citizens of other countries.

With a few exceptions, much American private short wave broadcasting is mediocre or worse. Programming too often consists of hard core begging in the name of Christianity, conspiracy theories, radical political rhetoric, ridiculous economic statements, often sponsored by sellers of dubious medical products and gold. If gold is so valuable, I wonder, why do so many marketers want to trade their gold for dollars?

The exceptions include WEWN, Birmingham, AL, a conservative Catholic station, which regularly programs good music. Some Protestant broadcasters also have decent choral or contemporary Christian music and not all of them push for contributions.

The Long and Short (continued)

Hucksterism in the name of the gospel is extremely irritating to me, especially when the contributions result in the purchase of ever more air time. I won't go any further into the 24 hour daily broadcasts of guys named Brother Stair, and Dr. Gene Scott, who died about 2 years ago but whose voice goes on and on.

It is hard to give someone an accurate feel for what listening experiences can be heard on short wave without handing that person a receiver with the suggestion to start turning dials.

Basically, the best broadcast listening I have found on the Arizona short wave dial can be heard at 3.1 to 3.4, 5 to 5.1, 5.7 to 6.2, 7.1 to 7.8, and 9.3 to 10 MHZ after dark. Daytimes, try 11.5 to 12.2, 13.5 to 13.9, 15 to 15.8, and 17.5 to 18 MHZ daytimes. The 7 and 9 MHZ frequencies have some day or night signals. Remember though that 7.1 to 7.3 MHZ are used by amateurs during the day, so don't expect much else there until dark.

Upper frequencies at 21.6 to 21.9 MHZ are sometimes active daytimes, but usage is rapidly declining. At one time, 25.6 to 26 MHZ had some broadcasting action, but is totally inactive to this region now.

Some other comments about foreign broadcasting: hearing the name of the audio service doesn't necessarily mean that you are listening to a transmission from the country mentioned. Many international broadcasters, including the Voice of America, have transmitters in other countries or lease time on transmitters in other countries. A strong Radio Japan signal heard here will usually be from Okeechobee, FL. The Voice of Vietnam program you can hear will likely be from Sackville, Ontario. However, the excitement of short wave listening is that you never know when you may catch a signal transmitted from an unpredictable location. Distance and direction of the transmission both play a part, but so do atmospheric conditions and the angle of bounce of the signal off of the stratosphere back to earth.

We realize how important free speech is when we notice that non-free countries have a paranoiac, or legitimate, fear of what their citizens may hear. Consequently, Cuba jams Radio Marti from the United States. Hearing what sounds like a very discordant sound, somewhat like classical music played backwards, means that you are hearing the Firedrake, or Firedragon sound of China jamming the BBC, the Voice of America, and Radio Taiwan to prevent their citizens from hearing something that could negatively affect their feelings toward their

government. The Firedrake sound continues for hours, uninterrupted, with no identification or other human voice. It starts and stops abruptly, depending on the transmission hours of the station being overrode. The jamming can be heard at almost any frequency, depending again on the station being jammed. Hearing the sound and looking up broadcasting schedules and frequencies, the station being jammed is easy to identify. So some of these countries have not quite joined the modern era in spite of wishing to be perceived as equal partners with the leading countries of the world.

Another situation involving the lack of freedom of expression in some countries impacting short wave broadcasting is that there are quite a few clandestine, or opposition, stations. These stations may be criticizing the regime of a country or just trying to get accurate information to the citizens of a repressed country. These services will broadcast to a country from outside the borders of that country. Clandestine countries broadcast to include some African and Asian ones. These stations may be located in the United States, Europe, or closer to the country of intended audience.

All of the above notwithstanding, what is being heard right now in the United States, and how does one find out? Some sources with logs or schedules include the magazines Monitoring Times, Popular Communications, and The NASWA Journal, a magazine for members of the North American Short Wave Association. .

Logs listed in a recent issue of Popular Communications sent in by listeners from a variety of locations throughout the lower 48 states and Canada, some of whom have high quality receivers and antenna systems, include reports from these countries or states broadcasting in various languages and with varying degrees of signal strength: Alaska, Albania, Anguilla, Argentina, Ascension Islands, Australia, Austria, Bolivia, Botswana, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cuba, Czech Republic, Djibouti, Ecuador, Egypt, England, Equatorial Guinea, Ethiopia, Finland, France, Gabon, Germany, Greece, Guam, Guatemala, Hawaii, Honduras, Hungary, India, Iran, Israel, Italy, Japan, Jordan, Kazakhstan, Kuwait, Libya, Lithuania, Mauritania, Mexico, Moldova, Morocco, Netherlands, Netherlands

Questions about broadcast and shortwave listening? Bob Pote regularly has DX News samples available at our meets – ask him about DXing the airwaves

The Long and Short (continued)

Antilles, New Zealand, Niger, Nigeria, North Korea, Northern Marianas, Oman, Palau, Peru, Philippines, Portugal, Romania, Russia, Rwanda, Sao Tome, Saudi Arabia, South Africa, South Korea, Spain, Sweden, Syria, Taiwan, Thailand, Tunisia, Turkey, Ukraine, Vatican State, Venezuela, Vietnam, and Zanzibar.

. **Utility Stations:** Utility stations can be found almost anywhere on the HF spectrum, especially between 3 and 20 MHz. These stations do not generally follow a schedule. These broadcasts may be private aircraft, or government services of many nations for many kinds of agencies: weather, military, aviation, intelligence, foreign affairs ministries and others. Voice or phone broadcasts are almost always in upper sideband mode. Other types of signals include: automatic link establishment, advanced narrowband digital voice terminal, facsimile (maps and charts sent by short wave), TADIL-A (a secure military mode, radio teletype (RTTY), SELCAL (selective calling), SITOR-A ((also called AMTOR), SITOR -B, and PACTOR.

In order to effectively capture messages other than voice, CW, or sideband, a communications receiver with many modes is required. A Multi-Reader, produced by MFJ Enterprises, Inc a Mississippi company, is advertised as capturing "mysterious chirps, whistles, and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC)" that can be turned "into exciting text messages" that "scroll across an easy-to-read LCD display."

A recent set of Monitoring Times and Popular Communications for one month show loggings heard in the United States from 3175.5 to 25950 KHZ. Transmitting organizations include: Argentine Navy, Canadian Forces, U.S. Military Amateur Radio Service, U.S. Navy/Marine Corps, Marine weather station WLO in Alabama, Gander Newfoundland Aviation Services, U. S. Coast Guard from Puerto Rico, Aviation weather from Shannon Ireland, a Sealand container ship, a Dole Honduras ship enroute from Ecuador to Peru, French Navy in Tahiti, U. S. Army, Ohio National Guard, Cuban numbers station, Canadian Coast Guard, Israeli numbers station, Chemical and oil products tankers registered in Bahamas and Panama near Louisiana, Singapore and Marshall Islands registered tankers near Columbia, an unidentified vessel attempting to contact Hong Kong, Japanese and Panama and unidentified ships contacting Brazil and Sweden, Greek news to ships, unidentified CW numbers station, Aviation weather from Honolulu and

Auckland New Zealand, New York airline support services, U. S. Air Force, Moscow time station, more vessels involving China, Bahamas, Columbia, Singapore, Panama, Jamaica, Mexico, Louisiana and Miami, Studio to transmitter link for AM station KOA Denver, U. S. Federal Bureau of Investigation, unidentified commercial fishermen in the Atlantic, U. S. Drug Enforcement Agency, French Air Force, U. S. Center for Disease Control, United Kingdom numbers station, and Marine weather station KLB in Washington.

The U. S. National Bureau of Standards has broadcast the time continuously (all time, all the time) for decades. Their Colorado or Hawaii stations, WWV and WWVH, use frequencies of 2.5, 5, 10, and 15 MHZ. In Arizona, we can also hear the Canadian time station, and as noted above, the Moscow time station was heard in this country. Other countries also have full-time signal stations.

Numbers stations are also logged, as noted above. These are stations that broadcast a series of digits or letters repetitively. The sequence or changes in patterns are a code known only to the intended recipient. These stations, using CW or voice in various languages, have been broadcasting for many years, sometimes at regular frequency locations and times, and frequently in what seems to the uninformed listener in an erratic pattern of times and frequencies. These are also called spy station, and are almost certainly clandestine agencies of various governments. The United States, United Kingdom, Cuba, and Israel get most of the credit for these broadcasts.

The studio to transmitter link for KOA, a Denver AM station, means that a frequency of 25.95 MHZ was used, probably in FM mode, to send the broadcast from the studio to the transmitter. These links are also used to send signals from remote sites to a studio or transmitter. Links of several commercial broadcast stations can be heard at various times around 26 MHZ. I doubt that stations would be likely to respond to a reception report with a QSL card, and I doubt that KOA's business stationery would be headed: KOA-AM- FM- TV-SW if they have FM and TV call letters.

Pirate Stations: These stations are what their name implies. They are unlicensed stations, therefore illegal broadcasters. They are known as Free Radio, by some of their fans, free as these stations are from regulatory influences.

The eastern United States seems to have most of these, although Europe has some as well. They are erratic as to schedule; weekend

nights and holidays are the most likely time to catch them. Most of them broadcast at around 6.92 to 6.97 MHz. The FCC does not seem to expend much effort or resources to stop them, possibly a prudent use of tax dollars as these broadcasters almost never interfere with legitimate broadcasting since they use otherwise unused spectrum.

Some pirates send QSL cards to reception reporters through third party mail drops. Names of these broadcasters, reported by loggers in a recent Popular Communications issue include: Altered States Radio, CKLW (even pirating the name of a famous AM rocker in Windsor, Ontario now a talk format with the same call letters), Dr. Who, MAC Shortwave, North Woods Radio, Radio First Termer, Robot Radio, Take It Easy Radio, The Crystal Ship, Touch Tone Radio, Voice of Bozo, and more. Formats vary, but don't expect a lot of quality programming or well engineered tone modulation. Some can be heard in the west, but catching these guys is a lot easier in the east.

CB: Citizens Band broadcasting still exists, but time, cell phones, scanners, and the Internet have done a lot to reduce the popularity of this mode. CBers can be heard around 27 MHz, in AM regular or upper sideband mode probably more easily if one lives near a freeway as truckers are still the heaviest users of CB. Late afternoons in the fall and spring can sometimes bring in distant signals because of the sporadic "e" wave phenomenon. Distant reception is infrequent because CBers are legally limited to low transmission power. Some CBers increase power in order to communicate at greater distances; the FCC doesn't do too much about these violations either as a cost/benefit analysis won't show much value for resources expended.

Well, that's it from here for now. Maybe now you have the urge to electronically restore your Trans-oceanic or communications receiver, or to try one of your already working sets to see what the long and the short of it is for you.

Andy Ooms
oomspine@msn.com
Pine, AZ

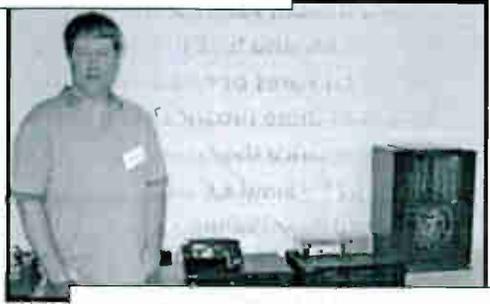


Dial glass from a Sonora multiband set.

IHRS Spring 2009 Meet - Kokomo



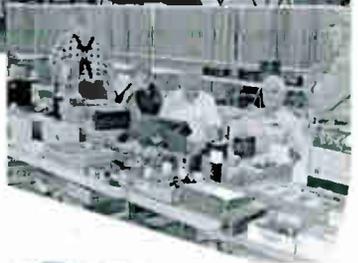
Bill Morris and a "Tech Talk" on batteries for 1950's radio



An IHRS Spring Meet service we've become accustomed to – Mike Feldt and his AM transmitter set up – with vintage music.

Thanks, Bill and Michael

Below – Radio activity in the Kokomo Event Center Exhibition Hall



The IHRS Summer Meet final activity – a Donation Silent Auction





For Sale: Antique Radio Collection-- 135 radios -- mostly Zenith. Test and repair equipment for sale with many tubes and capacitors. Jack Crider 317-745-2920

jandnc@sbcglobal.net 03/09

Needed: Circuit diagram for an International Kadette model 87 radio. Am fixing it up for a friend and have gone about as far as I can without a CD.

George B. Clemans, 851 West Wooster St., Bowling Green, OH, 43402

(419) 352-7198 03/09

For Sale: A real Treasure Trove! A 1960s RCA Tube Caddy filled with 166 (NOS) tubes in original boxes. Miscellaneous items in Caddy include a Heahkit Color Generator IG-5240, soldering iron and solders, assorted fuses, alignment tools and chemicals. \$125.00. Ray Andrejasich, Carmel, IN 317-846-6977 03/09

FOR SALE: 1947 Admiral 7T10-C, White, \$35.00; 1932 Aetna, Walnut, \$65.00; 1948 Aircastle 5050, \$35.00; 1947 Airline 05BR1525B, \$45.00; 1932 American, \$65.00; 1936 American Bosch 515, \$40.00; 1932 Avalon, \$65.00; 1933 Crosley 4C1, \$65.00; 1934 Crosley 5M3, \$115.00; 1953 Crosley E20GY, Gray, \$55.00; 1953 Crosley D-25-MN, Maroon, \$125.00; 1934 Detrola, \$125.00; 1948 Emerson, Black, \$20.00; 1948 Farnsworth GT-051, White, \$125.00; 1935 Grunow 470, Walnut, \$100.00; Hot Dog Radio, \$22.00; Jackson multimeter, \$12.00; 1948 Magic Tone, Walnut, \$45.00; Peerless Headphones, \$15.00; 1930 Pfansteihl, Walnut, \$225.00; 1930 Philco 20, Walnut, \$250.00; 1931 Philco 70, Mahogany or Walnut, \$350.00; 1931 Philco 90, Walnut, \$500.00; 1924 RCA103 Tapestry speaker, \$175.00; New bonnet \$15.00 each; 1934 Silvertone 7110, \$60.00; 1949 Truetone D905, \$45.00; 1949 Zenith 7H920, Brown, \$45.00. All radios are subject to prior sale and are restored unless otherwise noted. Bill Arnold, 1 Cindy Kay Dr, Washington, In. 47501 or call 812-254-1702 before 10:00 PM Eastern time or email bbarnold1@aol. 06/09

Interested in TV history? Want to see how it started? Try this Web site. www.televisionexperimenters.com You'll be amazed how far we've come. Pete Yanczer, 635 Bricken Place, Warson Woods, MO 63122-1613 03/09

Write!



Radio ads - Free to IHRS members. Unless we are advised otherwise, we will run ads for two issues. The exception would be where services, etc. are being listed. Please send your ads to the editor at the address shown on page 2. If you cannot submit an electronic copy, we can scan in a typed copy.

Articles for publication. Radio history or restoration and repair of radio, your own radio collection; someone else's radio collection; your recent or memorable radio find; your experience at a radio event. Pictures are encouraged. We can scan good quality color or B&W prints. Sending jpeg pictures on CD-R works well. Fred Prohl

Treasure's Report – Spring Meet, Kokomo 24&25 April, 2009

Receipts: coffee/donut donations	\$25.80
Silent Auction	144.00
16 Bulletin Sales	32.00
Pizza/cokes	72.00
87 registrations (111 attendees)	435.00
Table rentals	367.00
	Sub total 1075.80
Memberships (6 new) and renewals	240.00
	total receipts \$1315.80

Expenses:

donuts	donated
pizza/cokes	113.77
name tags	13.00
insurance	35.50
facility rental	425.00
	total expense 587.27

Meet results (excluding memberships) $1075.80 - 587.27 = \$488.53$

Herman Gross – IHRS Treasurer



Periodically, at IHRS contests, an entry is presented that should be on permanent display for all to appreciate. **Garry Tidler's "Telegraph"** is such a display. An IHRS Spring Meet Blue Ribbon in the Open Category was awarded to Garry for the visual and audio detail of his presentation.