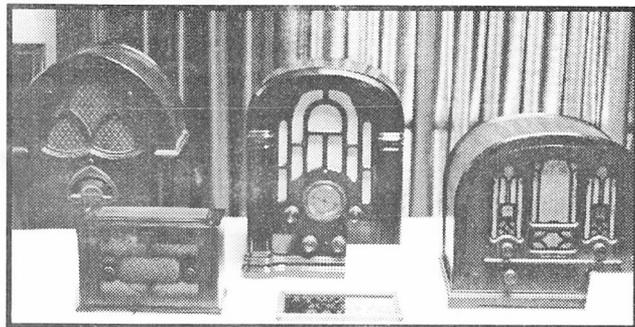


**Barry and Bill and Johnny's Excellent Adventure
by Barry Ethridge**

This year Bill Jackson, Johnny Hubberd and myself went to the meet in Elgin. We left out on Monday and had a good day stopping at all of the antique malls on the way up. I found a nice portable German wire recorder and a Majestic Melody Cruiser. We arrived on Tuesday about 1:00 p.m. after staying the night in southern Illinois. We went inside and picked up our registration packet that told us where our space would be and also included the meet agenda and our tickets to all of the activities.

The meet notice said that there would be no set-up before Wednesday morning so there was a parking lot of people milling around looking at each other. Around 3 somebody said that it was OK to set up and a couple of people started unloading. The frenzy began. A couple of guys from California started dumping box loads of transistor radios on the ground. They were selling them really cheap and were selling them fast. I heard a couple of guys say that they were buying some things just to prop up the price structure of some radios they had brought to sell. Sounds like the currency markets huh? I had brought along David Martins transistor radio collection to sell for him and decided that I had better sell them now before everyone had their fill of transistors. I managed to sell a little over a thousand dollars worth the first day. The rest went slowly over the next couple of days. If I ever promise to sell anyone else's radios again someone please shoot me.

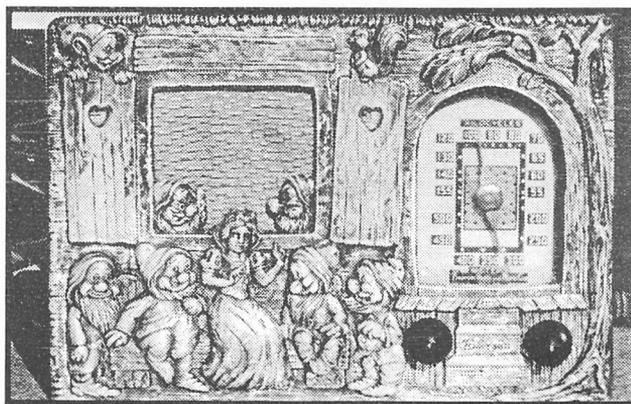


Now on to the rest of the meet. The theme this year was Atwater-Kent and they had an excellent display. It covered all the way from the early days with some automobile type spark coils up to the tombstones. I believe that every type of manufactured breadboard was represented. There was also some excellent advertising pieces. The contest categories covered all of the usual and the entries included some great pieces such as a French crystal set, an RPM brand breadboard, a couple of Air King tombstones, and an excellent display on scanning disk television. I managed to get a second place ribbon in the transistor category.



The meet this year was officially bigger but looked about the same to me. This was the place to come if your collecting interest covers the whole range of radio. In the parking lot you could have bought a DeForest set all the way up to the more common novelty transistor radios. Bill Jackson bought a great Zenith 9S262 console, Johnny got a couple of new catalins and I managed to have my best year ever. I traded my Sparton glass radio for a 7S232 Walton tombstone and \$1000. I then proceeded to spend the money. I got a black TR1 in the auction for 100, a Bendix catalin, a white U5A, a Zenith Radio display rack, Howe crystal set, Black Hoppy, and a yellow Fada Bullet.

We all took the tour of the Muchow museum this year and it was everything we expected. We saw a lot of early battery sets and spark gear, early microphones, tubes tubes and more tubes. Their were some nice horn and cone speakers. The tour finishes up in a room with Scott consoles and even included one in black lacquer with chrome trim. If you ever go to Elgin make sure you take this tour.



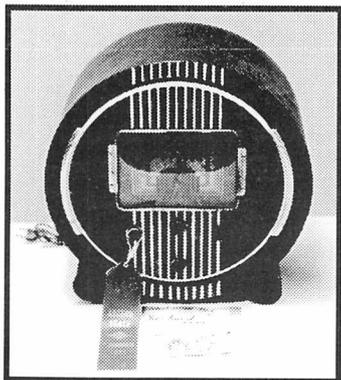
PRESIDENT'S PAGE

In just a few days our Fall Swap Meet will have come and gone. Since our next Newsletter will not be published until December, I think it's appropriate to thank in advance all those who have helped plan and implement "RADIO MEGA-MEET 1994". Thanks also to the members of the Music City Vintage Radio and Phonograph club in Nashville for supporting the concept of establishing one large meet in the Southeast each year. I hope our club has taken the first steps in what can become a tradition in 1995 and beyond.

We had good reports and some pictures from the members who attended Elgin this year. From the looks of some of the merchandise brought back there must have been good shopping for all. Several of us are headed to Rochester and can hardly wait to attend the AWA meet. It's an excellent meet, especially for those looking for vintage items and those interested in the historical side of Radio and Wireless Communications in general. While we're there, I'll be persuing the information necessary to establish S.A.R.S. as an AWA Chapter.

For those who've not already heard, we are being forced to find a new location for our monthly meetings. Shoneys restaurant is closing and will not be available for our use. We've obtained agreement with the Picadilly Cafeteria, 3400 Holcomb Bridge Rd to use their banquet room between 6 and 9 PM on the second MONDAY of each month. Tuesdays were not available. I hope this change in days is not too inconvenient for you. Finding a location in the same general area as Shoneys was not easy. (The Picadilly is about a mile west of Peachtree Industrial Blvd. where Holcomb Bridge becomes Jimmy Carter Blvd..) However, the meeting room size is better and more private. We can now get 60-70 in the same room— so lets fill it up on October 12th. A closing reminder: The club needs your continued support. Become involved by attending meetings, contributing newsletter articles or even suggesting topics for the monthly meetings. By working together our club becomes stronger and more supportive of its members. See you next time.

Charlie Milton
Charles Milton
President



Prize Winner at Elgin

SARS member
Carl Shirley of
South Carolina
shows a really
clean Airline
at Elgin.



SUPERHETERODYNE RADIO CIRCUIT BY TIM ADAMS

This basic five tube super, uh what's so super about this schematic? There is nothing super about this circuit at all whatsoever. The term "superheterodyne" has been an accepted name in the realm of radiodom but the word "super" was probably coined by a salesperson trying to impress a customer. It was bad enough back then for the customer to wade through the seemingly countless "up to date" radios in the showroom, but I digress. Back to the original subject. This is a heterodyne radio. Heterodyne means "to beat together". This radio takes the incoming signal that you have tuned in and mixes it with the signal that is generated by a local oscillator circuit. Sorry, got ahead of myself. Back to the beginning. The manual says that it has five tubes. Okay, but do you realize that this is the result of many years of refinement to get this down to a compact size? The earlier radios had many more tubes to perform the same duties as these. The earlier circuits were much less efficient and speaking of the number of tubes, some manufacturers put in extra tubes that did nothing more than light up! The customer of that day was led to believe that the more tubes that the radio had, the better it was. That however was put to a quick end.

select amplitude-modulated rf signals. Ferrite is a name for powdered iron which is pressed together at a great deal of pressure. This rod is then wound with multiple turns of wire which in turn was connected to the tuning capacitor. A variable capacitor or condenser is a device whose effective capacity is varied by the turning of a shaft. This shaft is connected to a series of plates. There is a set of stationary plates which are fastened to the frame of the unit and these two sets of plates slide between each other without touching and therefore the capacitance between the plates is varied. The combination of this cap and coil comprise an LC (capacitor and inductor) tank circuit. This tank circuit connects to the grid (pin 7) of the 12BE6. There is also an LC tank circuit for the local oscillator. This is comprised of T1 and C3. This is the Armstrong feedback circuit. This provides the heterodyne signal to mix with the signal that you desire.

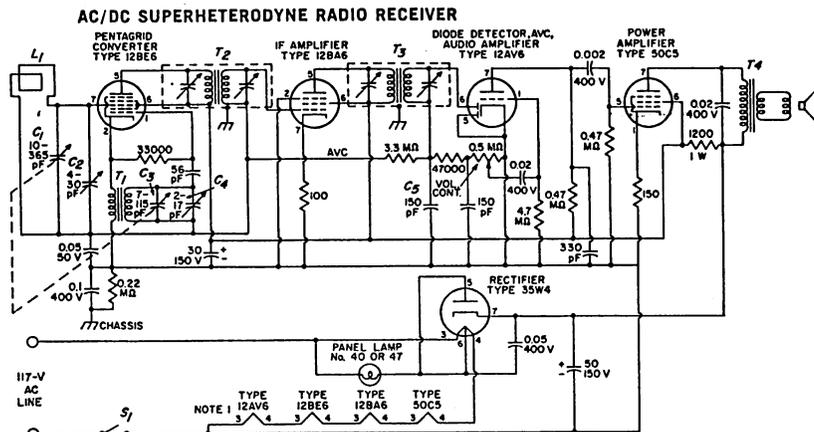
There are two trimmer caps labeled C2 and C4 and these are used for alignment purposes, to insure proper tracking across the entire broadcast band. The 12BE6 is called a pentagrid convertor tube. In the earlier designs there were three tubes that did the same thing. One for RF amplification, one for mixing and the third for the local oscillator.

Now when the signal that you desire and the signal from the local oscillator are combined, you wind up with a result that has both the sum and the difference of both frequencies. The IF or intermediate frequency that comes out of all this is 455 khz. No matter where you set the dial the result will always be 455 khz.

If I have the dial set to 1600 khz, the local oscillator is producing a beat signal of 1145 khz, these two are mixed together in the 12BE6 and the difference is now 455 khz or if the dial is set to 750 khz then the local oscillator is now producing 350 khz and still the resultant IF frequency is 455 khz. Again earlier designs had IF frequencies varying from 90 khz on up. Radios for cars usually have IFs around 250 khz. This is used to keep interference from the

ignition system down to a minimum.

This new frequency that we now have is amplified by a 12BA6 IF tube. This is a pentode (it has five elements like a triode has three). This tubes function is to amplify the IF signal up to a usable level where it can be detected and ultimately be converted to an audio signal and then sent to the speaker. But notice the 3.3 meg resistor connecting to T2 the IF transformer which connects to the control grid of the 12BA6. This is a bias voltage that is created by the 12AV6. This voltage is negative in reference to zero potential and varies in accordance to the strength of the signal received. The stronger the signal the more negative



L₁ = Loop antenna or ferrite-rod antenna, 540 to 1600 KHz (with specified values of tuning and trimmer capacitance)

T₁, T₂ = Intermediate frequency transformers (include IF trimmer capacitors), 455 KHz

(permeability-tuned type may be used)
T₃ = Audio output transformer matches impedance of speaker voice coil to 2500-ohm tube plate load

This radio operates on an AC power supply or a DC supply of 117 volts. This was a good thing back then for some communities still had DC for their electricity and some people who bought radios that operated only on AC were in for a rude shock. These radios had transformers in the power supplies and these, of course did not work on DC. It is no coincidence that the filament ratings of the tubes added up to the AC power line and for the households that used DC, there was no transformer to hassle with. You plugged in the radio and if it didn't work, reverse the plug and it came to life.

A ferrite-rod or loop antenna L1 and tuning capacitor C1

continued on page 4

MEETING NEWS: Remember the new nights 2nd Monday of each month
 OCTOBER 10:REGENCY TO SILVERTONE
 NOVEMBER 13:SONY TO WESTINGHOUSE
 DECEMBER 12:WILCOX-GAY to ZENITH

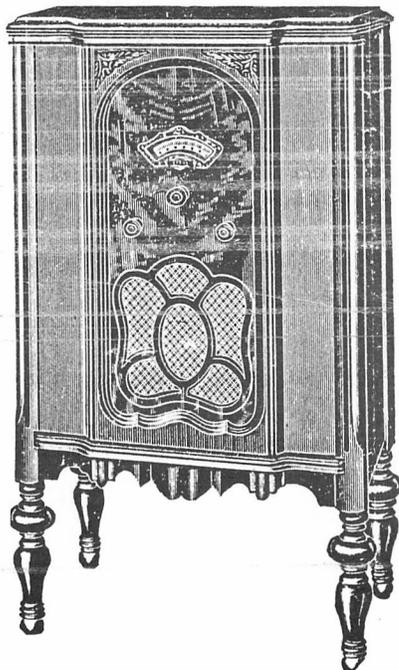
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the bias voltage becomes and the gain of the IF amp is reduced. This tends to level out the volume of the stations received and reduces blasting and fading.

The 12AV6 is a combination RF detector and audio amplifier. This is pretty simple, convert the IF frequency to an audio signal and the amplify it. This tube generates the bias voltage for the AVC. This is taken off of the volume control and fed to the IF amp. The volume control forms a voltage divider that varies the audio level to the 50C5 power amplifier. This amp uses RC (resistor capacitance coupling) to couple the audio from the first amp (12AV6) to the power amp (50C5).

The last part of this circuit is the output transformer. This provides proper matching between the 50C5 and the speaker. The output impedance (AC resistance) is 10,000 ohms and the speaker is anywhere from 3.2 ohms to 16 ohms. This is not a good match and you would not have a good power transfer between these two. You would have low volume, distortion and since you would be feeding high voltage through the output tube to the speaker you would have a blown speaker.

So there you have an explanation of how the AC/DC All American Five "Super" heterodyne radio works. This was interpreted from the "RCA Receiving Tube Manual" from 1967 and I know this is probably the 1000th version of the theory of operation but it is meant for those that are just starting out and wanted something a little less dry and more filling.



Speed tubes are widely advertised throughout the country. It is a laboratory tube that radio technicians have been using for years. WE KNOW OF NO TUBE WITHOUT EXCEPTING ANY, that can touch the Speed tube for performance, and we are willing to prove this statement to you. A trial will convince you.

CLUB CLASSIFIEDS:

Wanted : Metal tube cover for RCA Radiola 26 portable or will purchase junker set or cabinet to get this part.
 For Sale: Philco 640 semi-tombstone (rare model with longwave) electrically restored, reconed speaker, cabinet ready to refinish, \$100. Tektronics 532 'scope, working, with cart, manual, probes, B,D, and M plug-ins; \$45. Tektronics 532 'scope with 53/54c plug-in; \$20. Heathkit 0-6 'scope, working. Dave McClellan 1086 Trailridge Lane Atlanta, GA 30338 (404) 399-6704

Wanted: Good used VT-VM with manual. Also want Zenith Shutter Dial radio-Waltons?
 call Paul Irwin (404) 487-4278

Wanted: RCA Radiola model 80 console cabinet also RCA Victor model 29K2 console cabinet. Need 2 Philco plastic face plates 8 buttons and 4 knobs I don't need the buttons or the knobs. the plate is about 6x9 1/2. Any help will be appreciated. Joe DeBari 194 Ramah Church Road Barnesville, GA 30204 (404) 358-0798

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