Radio Servicing During WW II

A Personal Experience.

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When the United States entered the war in 1941, radio had already begun to play a major role in American life. The 1930's brought rapid development of radio technology bringing home radios to the status of a household necessity. Radio broadcasting had also achieved a degree of sophistication with networks providing reasonably high quality programming. Rural communities were now brought into contact with the big cities. Nightly news broadcasts suddenly became the focal point of everyone's attention bringing the progress of the war into the home. Television broadcasting had actually begun on a limited basis in 1939 and by 1941, 23 stations were on the air throughout the country. They essentially ceased operation during the war since not enough receiving sets were in use to make it pay.

With this increased interest in radio, both for entertainment and news, came an increasing demand for radio sets. Early in 1942 domestic radio production ceased and radio companies either switched over to war production or went out of business. Many small radio companies simply closed up shop since they were nothing more than loft operations that were ill equipped to handle military work.

With home radio production stopped, attention was directed toward keeping existing sets in operation. By about 1940 nearly every block of medium and large sized cities contained a radio repair shop. Radios were not very reliable and as a result this was a good time to be a radio repairman.

I got my start quite by accident. When the Pearl Harbor attack took place I was a 15 year old Chicago high school junior. My interest in radio was triggered by my physics teacher who recognized that I had a technical leaning. I started with crystal radios and graduated to battery operated one and two tube broadcast and short wave sets. Since parts were relatively expensive I scrounged as many parts as I could from discarded sets. As the war went on, however, the supply of discarded sets dried up since people were having them repaired.

Late in my high school junior year I was getting tired of such after school jobs as grocery delivering and clerking so I decided to try my luck at radio repairing. My evaluation of my capabilities was somewhat inflated and after a few interviews it became painfully apparent that I was not adequately prepared for this work. I did manage to land a job as a "gofer" for a radio shop in my neighborhood. The shop was located under the elevated train tracks in Chicago across the street from the Jarvis Avenue station. The shop owner, Sam, was an old time radio man with less than scrupulous business methods. I later discovered that he had been run out of several neighborhoods for poor business practices.

His shop was piled high with boxes of parts and old radio carcasses and he lived in a curtained off section in the rear of the shop. This was not only my first exposure to the business of radio repairing but also to business ethics "Chicago style." Since new parts were in short supply it was common practice to rewire sets for alternate parts especially vacuum tubes. Sam was quite good at selling rewiring jobs when they were not needed and charging customers for work not done. He was really quite good at troubleshooting and fascinated me with his method of checking voltages in small AC/DC table radios. He would upend a chassis on the bench and place his thumb on a terminal in the negative return circuit and then with his callused forefinger he would touch tube pins to check the presence of plate, screen and other high voltages. I tried it once and quickly discovered that without calluses this can be an exciting and painful experience. After this I used a volt meter.

After I had been working for him a few weeks and seeing how he bilked customers, I asked him how his conscious would let him do this. His reply was, "kid, when a man walks through the shop door with a radio under his arm he has only one thing on his mind. He knows that he is going to get taken. Even if you did the work for nothing he would still think that he is being taken. So, the only practical thing to do is to take him!" A few days later I quit and looked for other work.

I then managed to land a job in a store that did radio servicing and sold phonograph records. The owner took me on as an apprentice. My job was to sell records and help the serviceman owner repair sets. I developed a keen interest in the work and found that I could soon handle quite a bit of the shop work. He was a very honest business man and it was refreshing to work in this environment. It was here that I learned the radio repair trade that would eventually lead me into electrical and mechanical engi-

neering. So much for me, now let's talk about servicing during the war.

It wasn't until mid 1943 that part shortages really began to appear. Some hoarding took place but most of the repair shops were legitimate. About this same time radio repair shops began rummaging through radio carcasses in their basements which had been abandoned by customers a few years back because they were either too old style or too costly to repair. Household radio sets changed considerably during the period of 1930 to 1941. The old round tops and highboys consigned to the attic because they were old fashioned were now given a second life. These were now dug out and repaired and sold for good prices.

Starting about 1943 the government allowed the manufacture of a certain number of electronic components, principally tubes, for repair of domestic radios. These were marked "MR" which stood for "Maintenance and Repair". Some of these were rejects from military production lines. It was against the law to use these parts to build new sets. Most of the tubes were of the more popular types like the "All American Five" and found a ready market both in direct replacement and in rewiring tasks. Old stocks of tubes like 01A, UX99, 47, 50, etc., gathering dust suddenly found their way into the previously abandoned sets mentioned above.

Rewiring sets for different tube types was a very common and profitable business. If you look at certain tube types such as the 57, 78, 6D6, 6K7, 6SK7, loktal types,6SG7,12K7, and 12SK7 you will find that their performance is similar except for heater voltage, current and basing. The same is true for other tube categories. The rectifier tubes 5Y3 and 5Y4 are identical except for base wiring. Plug-in adapters were also good sellers when only base or wiring changes were needed (i.e., octal to Loktal). (Current radio collectors may run into some of these modified sets.)

Another popular modification was the conversion of automobile radios to home use by fitting them with AC power supplies. This was a good move since gasoline was strictly rationed during the war, an "A" ration sticker, for example, allowed a driver only about 3 gal. per week.

Another form of conversion was carried out on radio sets owned by German, and Italian nationals for security purposes. This was the disconnecting or removal of the short wave bands on their sets. The theory was that these bands could be used by hostile foreign agents to communicate with their home land. Unfortunately not all of these "electronic vasectomies" were carried out neatly and some very good radios were ruined during the process. To further limit radio communication by foreign agents all amateur radio transmissions were halted except those conducted by the War Emergency Radio Service (WERS). In addition call-in musical request shows were taken off the air to prevent the use of song titles to convey espionage information to the enemy.

There were a number of "gimmicks" used by various radio repair men to get sets operating. Many of these are used by set restorers today. Typical of some of these expedients are, cleaning switches and volume control with cigarette lighter fluid, resurfacing of carbon controls using a soft lead pencil, universal line cord resistors to replace ballast tubes, recentering speaker cones by lifting up the voice coil dust shield and recentering the cone using shims (made by General Cement Co.), you could also recenter a shifted speaker cone by placing lines of celulose cement radiating out from the voice coil to the rim opposite the side that was touching (When the cement dried it would shrink and pull the voice coil away from the magnet), resistor/capicator networks could replace audio interstage and I.F. transformers, open filaments in some high heater voltage tubes (i.e., 35L6, 50L6) could be welded together by momentarily flashing the heater pins with 700 volts from a set transformer, etc.

It seemed that the day after V-J day thousands of parts suddenly became available, hoarders rapidly began unloading their stocks.

During the period from 1943 to 1944 until the time I was drafted I was fortunate in being able to work on many old interesting radios which were dug out of attics and garages and put into service. In looking back the experience I gained as a radio repairman in high school was very valuable. It didn't help me get into electronics in the Army, I landed in the Infantry, but it did lead me into a very interesting career in engineering which lasted 41 years. It also cultivated my interest in restoring old radios that I have been doing for the last 20 years.