PRE-WAR CONSOLE RADIOS AN SWL'S DELIGHT

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Many SWBC DXers of the 1930s used consumer grade "console" radios for DXing as well as program listening. This was probably due to the rarity and cost of most communications receivers of that era. Many current hobbyists first heard shortwave broadcasts on the family console, as well. As my own interest in the history of radio matured, I became very curious about the possibility of using one of these old giants as a modern SWL receiver. After seeing numerous consoles at several vintage radio auctions, I also came to appreciate their beauty as major pieces of furniture. This interest led to a good deal of research, primarily related to Zenith consoles, and to my eventual purchase of two beauties from the pre-War era. My experience with all-wave consoles has been so enjoyable that I want to encourage others to acquire one.

BACKGROUND

Prior to the modern era of mass produced 'consumer products', artisans hand-crafted the furniture, carriages, clothing and possessions of the wealthy. As mass production began to make household goods available to the emerging middle class in the 1920's, these new 'consumer' products were generally either relatively poor copies of ornate hand-crafted objects or strictly utilitarian in appearance. Many new products maintained the appearance of the technologically obsolete objects that they superseded. For instance, in the early years, automobiles (horseless carriages) were almost exact copies of the carriages of the wealthy. In fact, carriage and buggy design aesthetics dominated most of automotive styling until the early 1930's.

The styling trends in radios, the most popular of the new products of mass production, closely paralleled those of other consumer goods of the day. The earliest home radios looked very much like the laboratory instruments or engineer's breadboard prototypes that they so recently were. By the late 1920s, these very utilitarian radios became wildly popular and the family radio became the centerpiece of many middle class living rooms. Quite naturally, there was then pressure to upgrade the utilitarian appearance of most radios. The new styling trends of these 1920's receivers seem predictable from this perspective: chameleon-like, they very quickly took on the appearance of major pieces of living room furniture. The "radio as furniture" trend was accelerated in the mid 1920's when tubes were developed which could be run on AC house circuits rather than messy storage batteries. Receiver chassis were placed in ornate tables, in side tables, credenzas and desks. Zenith advertising in the late 1920s and throughout the 1930s spoke of their wooden cabinets as:

"... the finest example of the furniture makers art with the finest of veneers. You are assured of the finest furniture in durability, excellence of woods, beauty of design and acoustical perfection. ... A Zenith owner is always justly proud of Zenith furniture."

This early marriage of ornate hand-crafted furniture and electronics led rather logically to the major console radios (former armoire) of the 1930's and 40's. (Figure 1) Console radios became very popular in the latter



Figure 1. 1926 Zenith Console which sold for \$2000!

1930s. The main advantage of consoles over table models was that the entire lower area of the console cabinet could become an enclosure for a very large speaker. Some Top-of-the-Line consoles even sported multiple speakers. Most mid-priced consoles offered audio amplifiers so powerful that they could cause real pain if run at anything like full volume. In fact, many Top-of-the-Line consoles were actually purchased to provide music in ballrooms and dance halls rather than for home use.

The popularity of consoles occurred almost simultaneously with the development of international broadcasting on shortwave and America's growing concern over European and Asian conflicts. As interest in international affairs and broadcasting increased, the American electronics industry responded with very sophisticated console radios.

AT THE ZENITH RADIO COMPANY

Commander Eugene F. McDonald, the genius behind Zenith, was a dedicated internationalist who played a key role in the adoption of shortwave frequencies for long distance communication in the mid-1920's. Commander McDonald also positioned Zenith radios at the top of the mass-produced consumer radio market. By the late 20's, Zenith was known for its excellent radios and by three slogans: "Zenith: Long Distance Radio," "Zenith's cost a little more but they do MUCH more," and the still familiar "The Quality Goes In Before the Name Goes On!" It is little wonder then, that Zenith was an industry leader in the development of both "all-wave" and console radios.

1933

Not even Zenith produced a radio that tuned significantly above 1.6 MHz before 1933. In that year, four Zenith models were introduced with a new (to Zenith, at least) dial type. The dial was a large translucent plastic disk which was parallel to but behind the front face of the receiver. A backlit portion of that disk appeared in a wedge-shaped dial escutcheon opening. As the disk rotated, the dial numbers swept past a fixed marker denoting the tuned frequency. Each of these four new radios tuned 'Foreign Broadcasts on Short Wave' as well as standard MW. There were 13 other radios in the 1933 Zenith Line, but none of them tuned shortwave.

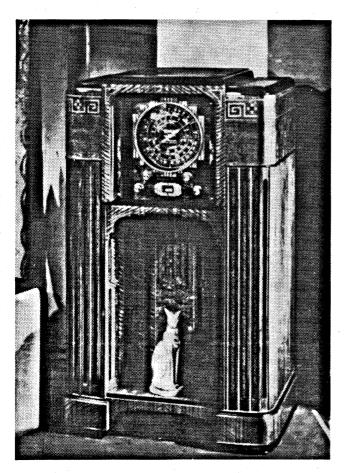


Figure 2. The Famous 25-Tube Zenith Stratosphere

1934

The real watershed Zenith model of the tube era appeared in 1934 when Zenith introduced the still revered "Zenith Stratosphere... \$750 and worth it!". The Stratosphere (Figure 2) sported 25 (!) tubes and the very first of the still famous BIG BLACK DIALs. The dial was about 10" in diameter and had an 'airplane dial' pointer mounted on a shaft at the center of the fixed circular dial. There were 5 concentric strips of dial markings painted on the dial. These separate strip dials denoted separate 'bands' which covered from 510 kHz to 43 MHz, continuously. Along the outer edge of the dial disk were 'clock hour' markings, with 12 at the top, 6 at the bottom, etc. This was the logging scale dial that worked with a second dial pointer which ran on a gear reduced shaft from the same center of the disk as the main airplane pointer. This logging scale feature was soon changed to clock hour markings with a 0 to 60 second scale. This new logging scale was known as "Split Second Tuning." "Amazing! NO 'GUESSWORK' TUNING WITH THE BIG BLACK DIAL."

The 1934 brochure in the Alan Jespersen's Zenith Brochure Book lists 14 models, in all, and no model except the Stratosphere mentions 'Short Wave' or 'Foreign Broadcasts.' None of the other 1934 models has a Big Black Dial, either. It is probable that the four 1933 all-wave models were continued through 1934, because there was a big change in the line coming up in 1935.

RCA also introduced several all-wave consoles in their 1934 Line.

1935

Most of the 1935 Line of Zenith radio models had fully exposed, fixed, disk-shaped dials with 'airplane' pointers just like the Stratosphere, except that these dials were only about 4" to 6" in diameter and were white rather than black. Of the 24 Zenith models in the 1935 line, all but 4 had the new round dial... the odd four were all small table models and look like hold overs from the 1934 Line, but with new model numbers.

Of the 20 round dials in the Zenith 1935 Line, 18 of them clearly tuned Short Wave and it is probable that the other 2 did as well, though the documentation on this aspect of their performance is unclear. Some of the sets covered only up to 5 MHz, others went up to 18 MHz or above. Zenith advertising featured Mussolini, the French (flyer?) Herriot and Ramsey MacDonald. There are clear records in the Zenith archives that indicate that Commander Eugene McDonald was *intensely* interested in the very unstable political situation in Europe. Apparently, so were the rest of the upper and middle class purchasers of Zenith radios.

The near total commitment of the Zenith 1935 Line to all-wave coverage is very startling, since it happened almost overnight. Zenith went from offering one all-wave set out of the 14 receivers in the 1934 line to probably 20 all-wave sets out of 23 in 1935! From casual observation at a number of radio auctions, it appears that the other manufacturers also introduced all-wave sets in 1935 or early 1936. RCA, Philco and Crosley appear to have been particularly interested in this market. However, none of these manufacturers matched the almost-total commitment to the all-wave concept made by McDonald's Zenith.

1936

By the time that the 1936 Line was introduced, most Zenith models featured a Big Black Dial which emulated the legendary Stratosphere. The 1936 dealer's brochure shows 21 radio receiver models. All but four of these models have the full-sized Big Black Dial. (Similar to Figure 3) The *only* set in the Zenith 1936 Line which did *not* cover SW was a four tube "Farm Radio."

In the 1936 Line, the 25-tube Stratosphere was joined by two 16-tube versions of the Stratosphere. These Stratospheres were three of the most beautiful consoles ever made.

1937

Zenith designers updated the Big Black Dial for most of the '37 Line models. The dial was still round, but the surrounding escutcheon was now more-or-less square with knobs located at the four corners. (Figure 3) These knobs were the On/Off, Bandswitch, Sensitivity (foreign/domestic) and Tone controls. The 1937 Big Black Dial also had "Target Tuning" which used a visual signal strength indicator similar to the well-remembered green "tuning eyes".

By 1937, all the major American radio manufacturers were providing some shortwave coverage on the majority of their radios. RCA introduced two shortwave consoles in 1937 that were unique in their commitment to international broadcast listening. The model 813K (13 tube) and Model 816K (16 tubes) each offered five 10-inch long horizontal slide rule dials. The first of these dials covered medium wave. The other four were bandspread dials, each dedicated to one of the international broadcast bands. These dials were far easier to use than even Zenith's Big Black Dials. Truly, these RCA dials were superior to those of any other radio until the digital dial era. [Review follows].

1938 AND BEYOND

The 45 or so models of the 1938 Zenith Line all had Big Black Dials. All of these radios tuned shortwave 'American and Foreign Broadcasts' except the cheapest three models. The major technical innovation at Zenith in 1938 was the introduction of the 'Robot Dial.' for console radios. This "Robot" was actually a total redesign of and successor to the Big Black Dial. The Robot Dial is what collectors today call 'the shutter dial.' This dial was still big, round and black and it still had the 'Split Second Tuning' markings around the periphery of the dial. However, that is about where the similarity to the old Big Black Dial stops. Most of the dial is actually taken up by a donut-shaped cutout. Behind the cutout are three or four pairs of half-disk shaped shutters which snap into place from left and right as the bandswitch is turned. Each pair of shutters fills the donut-shaped hole entirely and presents a single circular dial to the operator. The dial is very easy to read. The mechanics behind the dial are at least as complicated as this explanation! The introduction of the 'Robot Dial' in 1938 was, though, a clear indication of the intense level of interest in foreign broadcasts at Zenith and within the American public. Almost all 1938 Zenith console radios had the new Robot Dial. The only exception was the 25-tube Stratosphere which was again continued at The-Top-of-the-Line. Counting the 39 Robot Dial all-wave sets plus the Stratosphere these were 40 all-wave receivers out of a total of 45 radio models in the Zenith 1938 Line.

The major technical innovation in the radio industry in 1938 was the introduction of the radio-phonograph. This new product type was probably introduced as a response the increasing affluence of the American middle class and to the development of the technology for mass producing vinyl records.

From Tokio to Berlin in one quick spin. Twirl the control and the pointer speeds to the station you want. No slow, laborious knob twisting. Gives three important advantages: (a) Hard of hearing may use the Zenith special lightweight head phones with separate volume control, while others use loud speaker. (This unit at slight ex-Mew Features For twenty-one years - FIRST - with every major radio development . . . Radio features that are years ahead of the industry — imitated by others but never duplicated . . . Years of engineering You tune with the eye as well as with the ear. When the shadow bullet is in the LIGHTNING STATION center circle of the target, you're tuned in perfectly. tra cost.) (b) You may plug-in another speaker placed in another room. (c) You may listen with headphones "Emde Spinner Method" while loud speaker is either 'on' NEW "PRIVACY PLUG-IN" TARGET TUNING For night owls, short wave fans. FINDER METAGLAS TUBES ingenuity and knowledge are incorporated in every new Zenith. ALONE GIVES YOU ALL THESE With the "Squared Circle" and" Tell Tale" Controls. Zenith's most imitated feature again improved. Easy to read—easy to tune. You don't need glasses. BIG BLACK IMPROVED DIAL Voice Control adjusts for natural speaking voice without "boot" for the first time. In addition, Normal, High fidelity for startling tealism. Bass for sooting effects, Foreign for best fone results with foreign stations. VOICE-MUSIC-HIGH FIDELITY CONTROL Gives you that best-seat-in-the-house effect. The only device now made that adjusts for different size rooms, different ceiling heights—adjusts for perfect performance in any size room. Only means yet devised to re-locate short wave foreign and domestic stations, and enables you to return to them easily and accurately. ACOUSTIC ADAPTER The secret of Zenith's rich, full tone-depth, Preserves the natural overtones of music and voice. Just like a piano sounding board. SPLIT-SECOND RE-LOCATER IMPROVED OVERTONE **AMPLIFIER**

Figure 3. The 1937 Big Black Dial from the Zenith catalog

All 1937 Zenith models except farm models are designed to use either Metaglas or Metal tubes. They are as new as the metal utbe itself.

SPEAKER

REMOTE

GOVERNOR

VOLUME

SECRET

FILTERING

TRIPLE

TONE

DIMENSIONAL

In the remaining years before America entered WWII, radio-phonograph combinations came to dominate the upper end of the market and consumer interest in all-wave consoles declined. In 1938, the Zenith Line contained 19 console radio models (all tuned SW) and two radio-phonograph consoles, (both tuned SW). The 1942 Zenith Line carried only five radio consoles (all tune SW) and offered ten models of radio-phonographs (8 tuned SW).

It appeared that the production of all-wave radios and, by inference, the interest of the general public in Foreign Broadcasts, was much more extensive during the 1930s than many of us have thought. RCA, Philco and Crosley produced sets with SW capability with almost as much alacrity as Zenith. Although I have not studied these lines in detail, observation leads me to believe that at least 2/3 of the console models of 1935-1942 were all-wave. A similar ratio appears to hold for the larger table models. I am also continually surprised at the numerous small Crosley and Philco models which covered shortwave. The dials of these smaller models, however, leave much to be desired. They probably discouraged as many potential shortwave listeners in the 1930s as have the modern cheap all-wave portables now offered by many manufacturers.

The Top-of-the-Line consoles of each major manufacturer are still well regarded as shortwave radios. It is also worth noting that the almost custom made radios of the very rich and famous by manufacturers such as McMurdo Silver, Silver Marshall, Scott and Midwest were almost all MW/SW capable and are very highly regarded by those lucky few who own one today.

The Decade before America's entry into WWII was truly shortwave RADIO ACTIVE.

IN USE: THE ZENITH MODEL 12S568E (1941)

I bought this Zenith console at a vintage radio auction in Kansas City for \$120 which was about half of its "book value" within the vintage radio hobby. The cabinet was nearly flawless in three dark tones of beautiful veneer. When I got it home, the radio played. However, as a precaution, I replaced all of the paper and electrolytic capacitors. Working on old consoles is usually very easy. The old deep chassis and relatively low parts counts make electronic restoration of these old war horses seem like doing plumbing work rather than electronic restoration. All of the components are large and widely spaced. After a brief realignment, the 12S568E took an honored place in the Bryant living room. Figure 4 is a copy of the information on the 12S568 from a 1941 Zenith salesman's pocket catalog.

Like most Zenith consoles of that era, this one was designed to work without an external antenna. Medium wave reception is via an electrostatically shielded rotatable box loop (about 5' x 16") located behind the speaker in the lower cabinet. The shortwave antenna is a single wire loop run around the back edges of the large cabinet. Frankly, with those antennas, I didn't expect to find much on the dial. I was wrong! The medium wave and both shortwave bands were alive with signals. After a year of listening with that antenna arrangement and a few evening using a Dymek DA-100 active antenna and a Beverage, I can attest that this 12-tube 1941 console is very nearly as sensitive as most modern communications receivers. I can listen to major shortwave broadcasters on this set just as easily as my SP-600 or NRD-525!

From a modern perspective, the common weakness of all of these pre-War radios was selectivity. I do not have the instrumentation to measure selectivity and shape factor. However, the selectivity of consoles from this era seems to me to be about 6 kHz, but with very wide skirts. When the radio is centered on a strong signal, there is no background noise present and the audio range and fidelity are awesome. However, if there is a quite strong signal 5 kHz away, there will be a 5 kHz hetrodyne in the background of the audio. Neither Harold Cones, who has a 1937 Zenith 10-tuber, nor I find the selectivity to be a problem when listening to most major international broadcasters.

These consoles were designed for shortwave and to provide excellent audio. My 12S568E has a 14" diameter speaker driven by a 5-tube audio amplifier. The audio to truly awesome. The volume will blow us out of the very large two-story living room and, as you might expect, the bass response will rattle the windows. Most Zenith radios of the 1936-50 period offered tone control via an arrangement of five tone switches known collectively as the "Radiorgan." On the 12S568E, the switches are labeled from Treble to Lo Bass and may be set in a large variety of combinations. The audio of this console is so outstanding that I have installed a low power AM transmitter (available in kit form) to rebroadcast the local FM classical station at 1000 kHz on MW. I now listen to fine classical music on my 1941 Zenith Model 12S568E.

The Robot Dial and Split Second Tuning combine to make retuning a previously logged shortwave signal very easy. The gear driven "Second Hand" pointer rotates around the dial 20 times while the main dial pointer goes around once. The periphery of the dial is marked off in 60 "seconds", so a station may be logged as "5 MHz plus 40 seconds" or "7 MHz plus 23 seconds," etc. Due to the 20 to 1 gear ratio, there are 1200 "seconds" available as logging scale. On the upper SW band (5.7 to 18.3 MHz) that means that there are about 10 kHz per "Second" mark. With the radio warmed up for about five minutes before taking logging numbers, I have found retuning to a previously logged signal to be almost perfectly accurate. The dial itself is bit inaccurate at the end points. However, even there, tuning to a known but unlogged frequency of an international broadcaster is still very easy.

All, in all, the 12S568E is a wonderful addition to our home. It looks great in the living room and sounds even better!

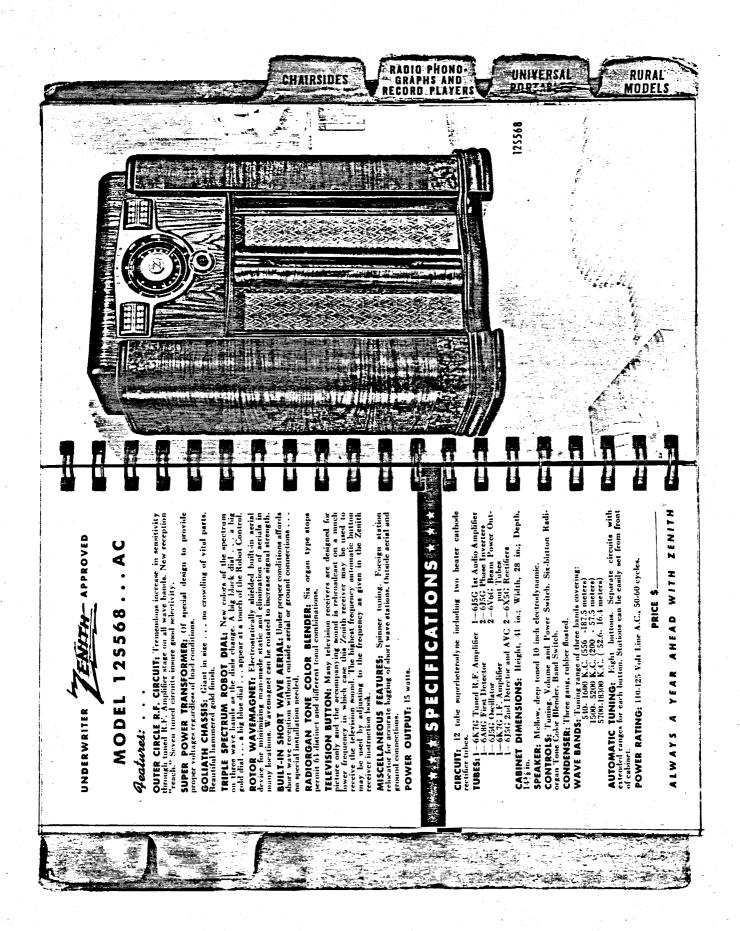


Figure 4. The 12S568 Console from the 1941 Salesman's Pocket Catalog.

IN USE: THE RCA MODEL 813K (1937)

Chuck Dachis, "The Hallicrafters Collector" waxes poetically about his RCA 816K console. When I found a partially restored 813K (an almost identical radio) at a friend's house for only \$200, I resisted less than 10 minutes! The now fully restored 813K resides in my combination office/shack and is generally playing when I'm not DXing. Figure 5 is a snapshot of my 813K.

The 813K's audio is about equal in quality and power to the Zenith's, coming from a four-tube audio section driving a 15" fully enclosed speaker. The selectivity is about the same, as well. The 813K and its big brother, the 816K,

offer three things that the Zenith did not:

Band Spread Dials: The four shortwave bands are each spread out over a 10" wide horizontal dial. The dial is marked at each 10 kHz and the marking are each about 3/8" apart. It is very easy to read the dial to about 2 kHz accuracy! The dial tracks very accurately except for the very ends. If you want to tune to 6133 kHz for a Latin "split," you just tune it there. The 813/816K's are the easiest radios to tune of any I have operated prior to digital dials, including the R-4 Drake series. The weakness of the 813K/816K tuning system is that it tunes the four main International Bands AS THEY EXISTED IN 1937: 5970-6240, 9410-9690, 11680-11920, 15090-15380. Obviously, the receiver will not tune a few broadcasters who transmit in the widened modern versions of these bands. It also ignores the "new" international bands allocated since 1937.

Green "Magic Eye" Tuning: Most of us have seen the wonderful green "Magic Eyes" of the late 1930's. Zenith offered them only on 1938-40 radios. RCA and a few other manufacturers began offering them earlier. I am not familiar with any postwar American receivers that used a Tuning Eye. I find the Magic Eye to be both fun and a very real aid to tuning to the exact center of a signal. I wish my NRD-525 had one.

Motorized Tuning: Mechanical preset push buttons had not yet been perfected in 1937, so the RCA designers developed an electric motor-driven system of gears and cams which physically moves the tuning capacitor and dial pointer to user-selectable preset position. It is just flat fun to put the radio in Electric Tuning mode, push one of the five preset buttons and watch the tuning knob spin and dial pointer fly across the dial!

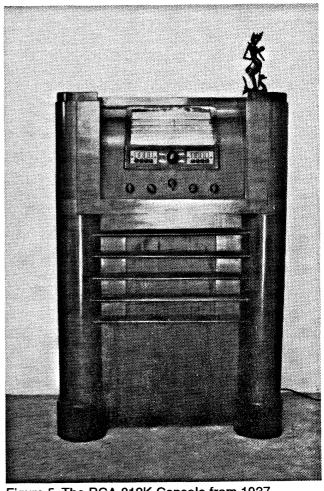


Figure 5. The RCA 813K Console from 1937.

Long-term, I think the Magic Eye, the wonderful dial and the motorized tuning will win out over the beauty of the Big Black Dial Zenith. My daughter and her husband would like to have one of these prewar beauties in their living room, so the Zenith will likely be moving to their home in Baja Oklahoma soon.

FINDING YOUR OWN

If you would like to enjoy a console shortwave radio in your home and know little about them, here are several pointers from my experience and that of Harold Cones:

Age: The very best years for consoles were 1937-42. Anything earlier is not as good technically. Postwar consoles were not really designed for all-wave reception.

Tube count: The quality of a tube radio can be roughly judged by the number of tubes. Five, six and seven-tube consoles were the Bottom-of-the-Line and will probably perform that way. Harold's 10-tube Zenith performs wonderfully. Try for 10 to 15 tubes.

Brand: Zenith was intentionally at the top of the market in each price bracket and produced radios that sold very well in that position. However, the very top models of Philco and RCA perform very well, too. The more nearly custombuilt Scotts, McMurdo-Silvers, etc. were wonders, but are now very rare and very expensive.

Price: Within the hobby of vintage radio, Top-of-the-Line consoles are currently selling for \$200-\$500. The 25-tube Stratosphere is a special case--be prepared to pay from \$3,000-\$6,000! Prices to the general public at antique stores and vintage radio stores are about double those inside the vintage hobby.

Where: The best place to find consumer type vintage radios is within the vintage radio hobby. There are several national organizations and one national magazine: Antique Radio Classified, (PO Box 2-V78, Carlisle, MA 01741, 508-371-0512, Fax: 508-371-7129.) Subscription to ARC via First Class mail is currently \$47.95 per year. Via 2nd Class mail, ARC is \$31.95. Sample copies are available FREE! Most states or regions have an active vintage radio club and their activities and contact numbers are listed in the ARC magazine. Most of the local clubs have at least one auction a year. I bought my Zenith at the annual auction of the Mid-America Antique Radio Club in Kansas City. Harold Cones bought his from a collector that he met through the Mid-Atlantic Antique Radio Club.

Size and Weight: Before you commit to buying one of these beauties, be aware that each of them is a large and heavy piece of furniture. Consoles take up a significant amount of space. Further, many of them weigh well in excess of 100 pounds.

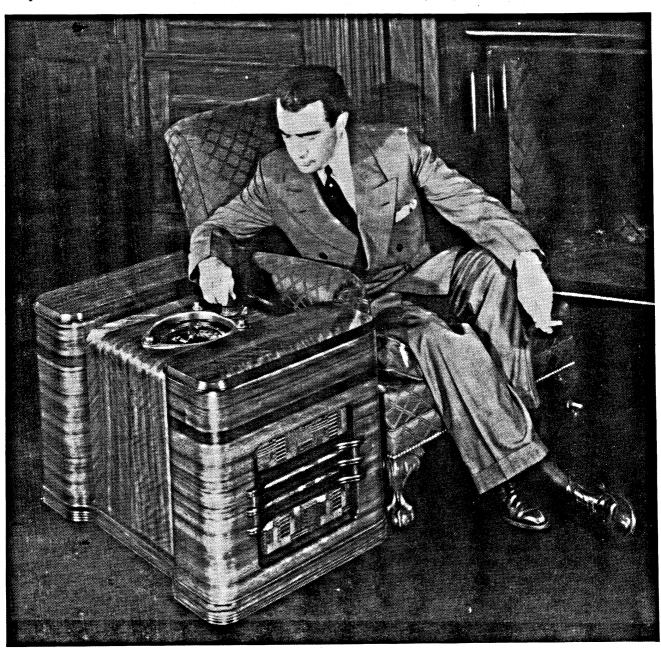


Figure 6. This 1937 photo shows Zenith's founding president, Commander Eugene F. McDonald, Jr. at the controls of the 15 tube "chairside" model 15U246. The chairside was a popular cabinet style derived from the more standard console models of the late 30s. *Photo courtesy of Zenith.*