



HLARA RADIOGRAM

The Quarterly Publication of the Heartland Antique Radio Association, Inc.

Special Christmas Edition 2007

Greetings from the President,

As I waddle out of the Thanksgiving season and spiral toward the Christmas season and New Years, I reflect back on the years past. I have made some great friends during my time in HLARA. I am thankful for every one of them. Club members that are not attending the meetings and events are missing out on some great fun and wonderful friends.

I have already done a year in review so I won't cover business matters in my last commentary of the year. I will just take this opportunity to say thank you to everyone that has worked so hard to make our radio club a success. I am very fortunate to be surrounded by some of the finest people I have ever met. My success as President and the success of the club is a result of the people around me. As they say, "I stand on the backs of giants". Thank you everyone for your hard work and dedication.

I hope you will enjoy this special Christmas issue of the Radiogram. Dan has worked very hard on it. It is by far the largest issue and I'm sure it will shortly be pirated all over the internet. Thanks Dan, Great job! Finally, I would like to wish everyone a Very Merry Christmas, Happy Hanukkah, and a Joyous Festivus for the Rest of Us. Have a safe New Year and I'll see you at the Christmas Party.

Until Next Year,
Chris Cunningham

A Special Message From Your Radiogram Editor

Dan Weilacher

Christmas is a very special time of the year. It's a time to celebrate and reflect. When I think about the wonderful hobby we all share, many great memories come to mind. Sharing a passion with the fine people in our club has been very enjoyable. Exposing this passion to others that have not tasted our hobby is also so rewarding, be it a child or adult, a friend or family member. This Christmas see if you can spread our hobby a little more by giving.

Speaking of giving, I want to thank our single contributor to this Special Christmas Edition. This member has never been to a meeting, or even met any of the club members besides myself. He has given this fine article to all of us, representing countless hours of research and over 46,000 typed characters, documenting what can be considered the most collectible radio in history.

Thank you Martin for this fine Christmas Gift and Merry Christmas to all HLARA members.

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The Zenith 1000Z

Stratosphere Console:

Revered Radio Receiver

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Commander Eugene F. McDonald, the president of the Zenith Radio Corporation from its inception until his death in 1958, appeared to be the “engine” behind many of the ventures Zenith undertook. One was the Transoceanic Clipper short wave portable. Others included the Radio Nurse; the Radionic Hearing Aid; the Arm Chair style of radio models (chairside); the Split-Second indicator for Zenith’s Big Black Airplane dial; the inverted Bakelite chassis table models of 1940; and Phonevision, a subscription television service, much like today’s cable TV.

One venture that McDonald affected has had little written about it—the development of Zenith’s distinguished 1000Z Stratosphere radio console.

Many collectors of vintage radios have searched for many years to find the radio console that is considered to be the culmination of Zenith’s household radio product market. Its scarcity, along with its beautiful art deco cabinet and its robust circuitry helped build its legendary status in the radio collecting community. When Zenith began producing this model in late 1934, it ushered in the era of Zenith’s “Big Black Dial” radio sets, which continued through the late 1940s.

Beginning in the mid-1920s, Zenith produced several prestige radio models. The Super-Zenith X began this tradition and was quickly followed with the five Deluxe models (the Spanish Deluxe retailed for \$2,500). Later, the ornate and massive 40A Italian Renaissance style radio-phonograph combination retailed for \$850. Other subsequent models in 1929-1930 qualifying as prestige models would have been models 55 (\$750 and later \$700), 67 (\$545), and 78 (price unknown), all using the same massive Italian Renaissance cabinet having a stretcher base. A wired remote control manufactured by Utah Radio Products was standard equipment on a couple of these models.

The stock market crash in October 1929 and the ensuing depression spurred retrenchment at the Zenith Radio Corporation plant. The prestige market had essentially dried up. Lowering the mean price of an average set in the model line, Zenith introduced the Zenette line of low-priced models in 1931. The most expensive Zenith model of 1931-1932 was the Zenith Louis XVI styled “Ultra” or “Hyper-Heterodyne” model # 103 highboy console at \$290, which also happened to be in the first Zenith line employing Armstrong’s Super-Heterodyne circuit. Model 103 was a beautiful set and also employed 14 tubes, one of which was a power regulator (ballast).

So little is known about pricing of models of the 1933 and 1934 model lines, but it would appear that the 12-tube models 440, 441, or 617 were at the top of the line. For 1935, model 990, also a 12-tube console, immediately preceding the Stratosphere in model number and release, sold for \$250. These were all nice radio consoles, but not strikingly luxurious.

Following the tradition of prestige models which Zenith previously produced, McDonald believed that Zenith should resurrect production for this prestige market shortly after he viewed the E.H. Scott line of Deluxe consoles.

Much of the information regarding the Stratosphere presented herewith came from Commander McDonald's corporate files which were sealed shortly after McDonald's death in 1958 and unsealed in the early 1990s. These files documented much of McDonald's day-to-day correspondence and activity at Zenith. The files start around 1927 and cover thirty years of history. Professors John Bryant and Harold Cones cataloged and re-boxed these files into approximately 265 file storage boxes. Much credit is due John Taylor, Zenith's current Public Relations Vice President for protecting this priceless archive.

As the title might suggest, this article will try to convey the three "R's" about the Stratosphere; why it is a Reversed Radio Receiver.



Figure 2. Commander Eugene F. McDonald, President of the Zenith Radio Corporation, on the deck of his yacht, the Mizpah.

The Inspiration

The E.H. Scott Radio Company produced high-performance radio chassis and luxurious cabinets for the discriminating customer. Although it produced relatively few radio sets as compared to large U.S. radio manufacturers, word traveled fast among the affluent: Scott was a fine instrument and the radio to buy.

McDonald learned of E.H. Scott's products. On April 13, 1933, McDonald sent the following interoffice memo that apparently had some Scott literature attached to it. It indicates the first interest, on McDonald's part, in returning to the prestige market:

Messrs:
Klugh
Tracey
Robertson
Hassel
Jarvis

Wish you would look over this E.H. Scott line of Deluxe sets, which he is finding some customers for throughout the United States. This is an interesting racket. If you want more details, they can be given to you by Mr. Whiting who called on the [E.H. Scott] factory.

Whiting was a Cost Estimator for Zenith in the early 1930s. He established the total production and parts costs for proposed Zenith radio models of the day. It is therefore apparent that Zenith was looking into the feasibility of producing a comparable model to the Scott models.

E. H. Scott's latest model was the "Allwave 12 Deluxe," introduced around May of 1932 at a retail price around \$115 to \$150 for the chassis. The chassis produced for this model consisted of an upper chassis having nine tubes and the lower chassis having the remaining three. It was also the first Scott chassis to be entirely chrome-plated.ⁱ The Scott cabinet, selectable from a variety of styles, was purchased separately.

Late in 1933, with the 1000Z clearly in the design phase as evidenced in the following letter, McDonald elaborated on E.H. Scott's position in the prestige market:

Only last evening I was talking with the president of a French auto company. He asked me what I knew about the Scott radio. I told him it was a small concern here in Chicago building custom-made jobs. He said that he had heard of the set first when he was abroad and that since coming over here he had heard of it through Mr. Kettering, the Vice-President of General Motors in charge of engineering and Mr. Sorenson of the Ford Company; that he had been given to understand that it was the greatest set made in the United States; that it would reach out to all points of the world.

I am getting this right and left. I see no reason why we should permit this Scott Company to step into the position which we have always occupied. I believe that in building our 25-tube set, we should produce a set having in it everything including the expensive construction where necessary that is used by the Scott Company. I believe we should have one at a lower price than the 25-tube can be built at. In other words, the Scott Company should not be permitted to continue to grab this high-class name.ⁱⁱ

McDonald's proposal in the latter paragraph likely resulted in the development of the 16-tube Stratosphere models 16-A-61 and 16-A-63, which reached the market in the fall of 1935, well after the introduction of the 1936 Zenith line, which occurred during the summer of 1935.

As Zenith designed the chassis for the 25-tube set, E.H. Scott introduced the 15-tube model "Allwave 15" around February 1934 at a price of \$155.00 to \$169.81. The "Allwave 19" was introduced around August 1934

at a price of \$1,500 in a Warwick Grande cabinet. It also employed a record changer, recorder and a microphone. It used twelve tubes in the main chassis and the other seven in the power supply chassis.ⁱⁱⁱ

Zenith's Stratosphere would be comparable to the E.H. Scott line of deluxe consoles. Zenith previously used mammoth-sized chassis in earlier prestige models, such as the one used in the Deluxe models. Like the Scotts, the Stratosphere would also use a chrome-plated chassis.

The Cabinet

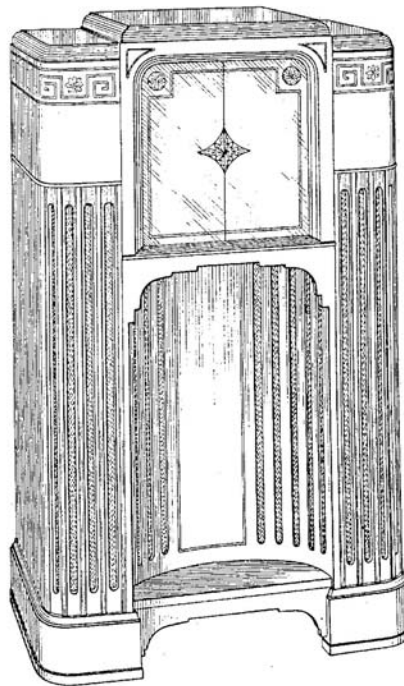
Frank I. Johnson (April 2, 1879-September 5, 1952) of Rockford, Illinois, designed the cabinet for the coveted 1000Z 25-tube Stratosphere. A well-known local artisan, he owned a designing firm in Rockford and operated for a few years with a business partner, Titus. Of the many Zenith cabinets designed before World War II, the cabinet used for the Stratosphere was one of the elite few to have been patented. The application was submitted in July 5, 1934. It was assigned US design patent #93,274.^{iv} See Figure 3. Johnson possibly designed several other Zenith cabinets, although the writer found no patents issued for them. The slotted pilasters characterized several of the better 1935-1937 Zenith consoles, such as models 985 and 12A58.

Sept. 11, 1934.

F. I. JOHNSON
RADIOCABINET

Des. 93,274

Filed July 5, 1934



Inventor:
Frank I. Johnson
By *J. Clarke Hagley* Atty.

Figure 3. Drawing of the cabinet designed for the 1000Z Stratosphere. Zenith modified the cabinet in the vaulted speaker grill area by: 1) adding additional fluting in the upper center for the horn tweeter; 2) dividing the long, continual fluting on the flanks into two separate flutes, upper and lower, to provide some strength to the center of this thin, plied grille. The pilasters that flanked the vaulted area remained as drawn.

Engineering

In September of 1934, the scheme for the dial was on the drawing board. Gilbert E. Gustafson, Zenith's Chief Engineer, proposed a variation of the dial being designed for the Stratosphere, and subsequently, the 1936 line. This proposal would have one-half of the dial scale darkened similar to Atwater Kent's idea. Commander McDonald rejected it because in his mind, it lessened the value of the split-second tuning since, McDonald stated, many people tune their radio at night when the room lights are out.^v This would explain the separation of the split-second tuning into its own dial scale on the Stratosphere—one that would be illuminated at all times, regardless of which waveband was selected. This also led to the provision for split-second scale being placed on the dial glass on the 1937 model 12U158 and 12U159, since each waveband was exclusively illuminated by rotating the waveband switch.

Edging closer to completion of the engineering phase of model development, on October 8, 1934, Hugh Robertson reported to McDonald the status of Stratosphere development:

Have asked Mr. Tracey to talk with you on the Deluxe 25 Tube set. I called the factory and laboratory people together last Thursday for the purpose of finding out just where we stood on development and delivery. Briefly, the situation is as follows:

There is still about two weeks' development needed.

We can start immediately on some of the dies and, of course, we can order some of the materials. If development is completed within two weeks and we use only sample dies where necessary it would be possible to start bringing through sets in about five to six weeks, completing 100 by about December 6.

Estimated costs are stated as follows:

Chassis Materials	\$70.78	including safety factors
Cabinet	\$58.14	including safety factors
Labor	<u>\$8.80</u>	including safety factors
Total	\$137.72	

It is difficult to estimate die charge without knowing quantity we will make but it appears that it will cost about \$15 to \$18 per set on the first 100 sets for either temporary dies or extra labor if parts are made by hand. Therefore, total prime cost on the first 100 sets would be approximately \$150.

The sale price of this set is.....	\$750.00
Discount is 60% and 10% making distributor's price	\$270.00
Deductions for royalties, cash discount, advertising, etc. 20% ...	<u>\$54.00</u>
Making our NET RETURN.....	\$216.00
Deduct Total Prime Cost as above.....	<u>\$150.00</u>
Balance for contribution to overhead.....	\$66.00

Mr. Tracey will analyze the orders which he has for these sets and report to you.

I feel that we are committed to produce some of these sets as soon as possible and we should start immediately unless Gustafson has any doubts about being able to make the set work.

I do not like the glass dial—it is too much of a novelty and does not fit in with a nice piece of furniture

Laboratory expenses for development of the Stratosphere were \$958 for the month of November 1934, and \$7,422 spent on the project since May 1, 1934, the beginning of the fiscal year. Total Engineering expenses for the month of November were \$7,424 and for the seven months since May 1 were \$65,499.^{vi} This yielded 12.9% to Stratosphere development for November and 11.33% since the beginning of the 1934-35 fiscal year. There was roughly one year of development on the Stratosphere in the previous fiscal year of 1933-34.

A subsequent upgrade consisting of the local-distance switch, the tweeter switch, waveband coverage, and circuitry changes may have been completed after the first release between October 1934 and February 1935.

According to service literature, serial #754107 would have been the first chassis to incorporate these new revision changes.



Figure 1. Promotional photograph of the famous Zenith 1000Z Stratosphere radio console. This is the early version having four main control shafts. Two more controls were added above the dial on later releases. Note the décor used in the photo—triple-striping on the walls, blue and gold color harmony, a Sansevieria, or Mother-in-Law’s Tongue potted plant, and a figural cat—all blended with this fine instrument produced by Zenith in the finest Art Moderne style of the mid-1930s.

Naming of Radio Models

No records of development of a name for what became known as the Stratosphere radio model could be found by this author. As with several other innovative radios that McDonald championed, he and other Zenith’s top executives corresponded with each other listing catchy potential names for submittal to the other executives

within the group as a sounding board for name selection. Irving R. Allen, a friend of McDonald and Zenith's agent for the E.H. Brown Advertising Agency was particularly adept in naming radio models, creating advertising slogans, and creating effective promotions to sell radios. The Radio Nurse, the Ravox, the Transoceanic, the Wavemagnet, Consol-Tone were just a few of the engaging names that the top management solicited through brainstorming sessions and correspondence.

Scientist Dr. Jean Piccard and his wife, Jeanette, set a record and made newspaper headlines on October 23, 1934 when they ascended into the stratosphere to an altitude of 60,000 feet using a balloon with a pressurized gondola. Jeanette piloted the balloon, which lifted off in Detroit and landed near Cadiz, Ohio. The experiment was not to set a height record, but rather, to study cosmic rays.^{vii}

Perhaps this experiment or other ballooning expeditions around that time were the impetus for Zenith naming the new 25-tube set the "*Stratosphere*," but this is pure speculation on the author's part. Insofar as the McDonald files show, there was no record of the 1000Z being referred to as the Stratosphere before the time of the Piccard flight.

Prototypes

While Gustafson was in New York at the National Electrical and Radio Exposition in September 1934, McDonald gave him some suggestions:

Don't fail to look up the Magic Brain thought of RCA. Also their ex-wave which takes in the weather and which our fellows seem to know little or nothing about. [sic] I think you will probably find that RCA has a point where they are demonstrating. I suggest that you see this demonstration. I also suggest that you also go to wherever Philco is demonstrating and particularly where Stromberg Carlson is demonstrating this loudspeaker. I feel that you should remain adamant against our demonstrating the 25-tube set that is now in New York.^{viii}

It is therefore evident that one or more prototypes were in the field as early as September. No explanation could be found for McDonald not wanting Gustafson to demonstrate the Stratosphere at the show, except that the Stratosphere was still in development and would not be completed until late October. Perhaps the dial or bezel hardware was still not finalized or McDonald did not want to "show his hand" to the other manufacturers. Perhaps there were technical issues that had not been resolved yet. The radio model may not have been given the "Stratosphere" name yet, but, as before discussed with the balloon flights in October 1934, this is pure speculation on the author's part.

Production Commences

A production release for 100 units was authorized by October 29, 1934. Table 1 shows the flow of the Stratosphere at various stages in the production process. As the author can personally attest, when "ramping-up" production at an electronics plant on a new product, the shipment forecast numbers and dates are often too optimistic. Parts shortages are a major cause. Test failures which requiring engineering intervention are another major cause, as are discrepancies preventing the approval of the "First Article" inspection.^{ix} Robertson believed that 100 units could be shipped by December 6, which was too optimistic. It is not known which factor held up shipment. The schematic was dated November 19, 1934, which probably preceded any production, since all drawings would need to be completed before production and testing.

McDonald had his best man personally handle demonstrations of the Stratosphere, such as this one in Milwaukee:

GUSTAFSON:

The demonstration is set for the 25-tube set in Suite No. _____ at the Shorecrest Hotel for 3 o'clock on Friday. Now for heaven's sakes don't wait until 2 o'clock to get your set in there.

I have also arranged to have a doublet antenna put in, a ten tube console and a six tube midget. This part is taken care of. You take care of the Stratosphere end of it.^x

On January 28, 1935, a production release for 100 more units was authorized, giving a total of 200 authorized to that date. On January 31, 1935, the second production release was amended to 150 units, giving a total of 250 units released.^{xi}

McDonald exercised some control over testing procedures for the Stratosphere. One example is from early 1935 and regards a vibration table “shaker” test for the 25-tube Stratosphere chassis. He communicated with Mr. Arthur Freese, urging him to shake the chassis before assembly of the dial glasses, since having the glasses installed could shatter the glass. Communicating with Gustafson, McDonald wanted to know how many chassis failed as a result of the vibration test.^{xii}

McDonald’s personal glimpse of the development of the 1000Z Stratosphere is revealed in correspondence between McDonald and a good friend, Charles J. Iredell, a General Agent for the Penn Mutual Life Insurance Company. Charles heard through a friend who was a radio aficionado that Zenith was building a 20-tube set. Charles requested literature on it for himself and his friend.^{xiii}

McDonald replied:

My Dear Charlie:

Thanks for your letter of February 1.

I am sending to you under separate cover a copy of the literature on the 25-tube set. This lists at \$750.00.

I am also sending the same literature to your friend, Mr. Stuart Anderson, at address given.

We have gone rather slowly on the production of this set, although we have had it in mind and have been working on it for over two years. We did not know whether the public was ready for it as yet. We decided to build them only in a custom way, putting thru [sic] an order for only 1,000 at a time and then only as our distributors and dealers ordered them from us.

Imagine our surprise when the samples of these got out and the dealers and distributors were wildly enthusiastic over it in spite of the \$750.00 price. We are now so far behind in deliveries that the next delivery for which we can accept orders will not be thru for five or six weeks—maybe seven. The sets that are coming thru are now allotted to various distributors thruout [sic] the United States. As fast as they receive the sets their dealers draw lots to see who gets them. The reaction to this set has been a complete surprise to us, because we thought the \$750.00 price would stop the sale of it regardless of its outstanding performance.

Now on the subject of performance, it will do no more European stations than our 11 or 12 tube sets, that is, it won’t bring in any stations that the 11 or 12 tube sets won’t bring in, but as for the tone quality, well Charlie, you have never heard anything like it. It is just unbelievable that reproduction can be brought thru a mechanical or electrical instrument as this does it.^{xiv}

Ray Burnet produced a report for McDonald based on his visit to the J.A. White Distributing Company of Grand Rapids, Michigan, the Zenith Distributor for that area, in early February 1935. Ray voiced a concern for a problem that White noticed with the Stratosphere cabinet:

There is a black strip of wood across the front of the cabinet, just below the tuning dial section which is going to give trouble, in that because of the heat and moisture coming from the resting of the hand while tuning, the black wears off, leaving a very noticeable white streak, particularly so on the edge. Mr. White suggested that this piece of black wood be replaced with some such material as Bakelite. This is similar treatment to that given by the refrigerator people on their production. In their case, however, there is more than just looks, but it is more practical because of other materials being more absorbent.^{xv}

Ray commented on White’s handling of the Zenith line:

The writer was very much impressed with the display room of the distributor, and the activity of the dealers in that display room yesterday. I was in their office approximately 7 hours, and the Stratosphere was turned on about 8 times. This

indicates the frequency of visits by dealers, and resulted in the sale of several radio receivers. There were two model 978 (samples) received by them yesterday, and they seemed to be very much pleased with them. They also received a shipment from us consisting of 25 model 975 and 5 model 847. When I left late yesterday afternoon there remained only 12 model 975, no 847, and they had sold and shipped a few model 807 and 1 model 970. Repeat orders were received from Kalamazoo for 6 model 975 which were included in the above referred to shipment. It is apparent to me that this distributor at least is really actively merchandising this model, and they have requested that we supply immediately at least 15 additional 975 ad mats. I believe, therefore, that Mr. Ericksen will ship at least 10 of these today.^{xvi}

On February 8, 1935, McDonald asked Ray Burnet to account for the first order of 100 Stratospheres. Burnet showed 90 billed to distributors, one at Underwriters Laboratories, and four to be billed by Memorandum to McDonald, Tracey, McKelvey, and R. I. MacClellan. Burnet's worksheet shows that McDonald was in possession of s/n 754002 (and power supply s/n 6002), and that MacClellan had 754084 (6084).^{xvii} MacClellan was the District Sales Manager for Zenith in the eastern Midwest (Ohio and portions of all states bordering Ohio). Four units were also shown as "packed" on February 9.^{xviii} This would still leave one set unaccounted for.

<u>Zenith</u> <u>Stratosphere</u> <u>Model 1000Z</u>	<u>Authorized</u> <u>Production</u>	<u>Shipped</u>	<u>Orders</u> <u>on Hand</u>	<u>Sales</u>	<u>Packed</u>
October 29, 1934	100		136	136	
November 5, 1934	100		136	136	
December 15, 1934	100	1	134	135	
December 22, 1934	100	9	125	134	
December 29, 1934	100	17	119	136	
January 5, 1935	100	29	65	94	9
January 12, 1935	100	58		95	3
January 26, 1935	100	87	24	111	
February 9, 1935	250	94	20	114	4
March 9, 1935	250	97	17	114	2
March 23, 1935	250	108	15	123	1
March 30, 1935	250	111	16	127	
April 6, 1935	250	124	4	128	1
April 20, 1935	250	137		137	20

Table 1. A snapshot of the Zenith Stratosphere after the initial production release

For unknown reasons, two accounts cancelled orders on the Stratosphere just after Christmas of 1934. Fey & Krause, Zenith's Los Angeles distributor at the time, cancelled 40 units. The other account, Thompson & Holmes, Ltd., Zenith's San Francisco distributor, cancelled 33 units.^{xix} It is very possible that due to the late initial deliveries of the Stratosphere, the Christmas shopping season was missed. These two cancellations comprised a major portion of the orders in December 1934.

There was somewhat of a pause in production during February (see Table 1). This was probably due to the integration of the subsequent upgrade consisting of the circuitry changes, a local-distance switch, the tweeter switch, and waveband coverage. The schematic for the revised 1000Z was dated February 22, 1935. By the middle of March, the plant began shipping revised units from the second release.

Radio News magazine announced the Stratosphere in April 1935:

Here is an interesting announcement on the new Zenith Stratosphere 25-tube set, equipped with three speakers and employing eight 45 type tubes in a push-pull parallel output power stage. The speaker equipment comprises two concert dynamic-type speakers to handle the low frequency response and a small horn-type dynamic speaker to take care of the high frequencies above 3,000 cycles. The manufacturer states that the frequency range response of the triple speaker combination is from 30 to 8,000 cycles. With 8 of the 25 tubes accounted for, the remaining 17 tubes are employed as follows: six 6D6's for the first and second r.f. stages, the first and second i.f. stages, the shadow-tuning meter and automatic volume control amplifier; one 76 for the second detector and two 76's for the parallel first audio stage, one type 79 as a relay for "Q" circuit, one 6A7 as a combined first detector and oscillator, one 85 a.v.c., two 42's in the second push-pull audio stage and three 5Z3's as rectifiers. The tuning range of the set is from 535 to 63,600 kc. and is divided into five bands. The set is equipped with the latest developments including a high-fidelity control. Expert craftsmanship is at once apparent in the construction and design of the cabinet housing this unusual receiver.^{xx}

To view a photograph of the equipment used in the Stratosphere, refer to figure 10.

It would appear that Zenith just beat Scott to the high fidelity market. Around March of 1935, E.H. Scott introduced his first high-fidelity set in the twenty-three tube "Allwave 23," also known as the Imperial. It employed seventeen tubes on the main chassis and the other six on the power supply chassis. It also employed a small window dial, like previous Scott models. It employed three loudspeakers: a 12" woofer and two tweeters. The price ranged from \$179.50 to 217.50 for the chassis and speakers.^{xxi}



Figure 4. Promotional photograph distributed by south-central Pennsylvania Zenith dealers in 1936 showing Lizzie Hoy, a radio entertainer in the Harrisburg area, posing with the 1000Z Stratosphere. This photo shows the revised six-control-shaft axis version. The missing right half of this photograph shows Lizzie standing next to a 1937 Zenith console model 10S156.

Now on Display in Our Store

The New Zenith

25 Tube

Stratosphere Radio

TWO YEARS IN PERFECTING

The new Stratosphere Zenith represents two years of experiment and research by the world's best qualified radio engineers and the entire facilities and resources of the Zenith factory.

YOU ARE URGED TO COME IN AND SEE THIS SUPERB MUSICAL INSTRUMENT AND HEAR IT OPERATE, WITHOUT OBLIGATION.

It is the only Stratosphere being shown on the Pacific Coast at present.

NEVADA MACHINERY & ELECTRIC CO.
 "Nevada's Pioneer Radio and Refrigeration Dealer"
 121 North Virginia St.—Phone 3601

A newspaper advertisement from the Reno Evening Gazette, dated Thursday, January 3, 1935. This demonstration radio would have been one of the first units shipped.

and with to Joseph D. G... and s...

July
 21-
 22-
 23-
 24-
 25-
 26-
 27-
 28-
 29-
 30-
 31-

NOW ON DISPLAY
 A Complete Line of New 1936



ZENITH
 RADIO

From 4 to 25 Tubes
 Be Sure to See These Sets Before Buying
 The Greatest Value in Radio History
 —ALSO ON DISPLAY—
The New Zenith Stratosphere
 25 Tubes
 The World's Finest Radio

Nevada Machinery & Electric Co.
 "NEVADA'S PIONEER REFRIGERATION AND RADIO DEALER"
 121 North Virginia Street Phone 3601

Nevada State Journal, Reno, Nevada, Wednesday, July 31, 1935.

IT'S HERE

Zenith Stratosphere

The 25-Tube, \$750 Radio

HERE UNTIL NEXT WEDNESDAY

—at the—

Square Deal Electric Co.

THE WORLD'S FINEST RADIO IN CHILLICOTHE
 FOR 5 DAYS

Come In! See It! Hear It!

It's worth coming a long way to see

STORE OPEN EVENINGS

Zenith distributors even shipped the Stratosphere demonstration model to small towns for limited showings. This advertisement appeared in The Chillicothe, Missouri Constitution-Tribune on Friday, December 13, 1935.



—'n' boy—I sure want to see that big 25-tube radio next Thursday!

From an advertisement for the Johnston-Wherry Furniture Company, The Modesto Bee And News-Herald dated March 19, 1935.

Reception Problem on Ultra-Short Wave Band

Gustafson, along with Doc Rafferty, a former Zenith Engineer, tested a police transmitter that Rafferty had built. It broadcasted at 9.75 Meters (roughly 32 MHz) and the reception of the transmission was poor on a Zenith #1001 chassis used in the test, a ten tube type, being 200-300 μV (the lowest level injected from a signal generator that the receiver could detect—the desired level is much lower, on the order of several μV , or microvolts). The following helps explain what problem Zenith had with the ultra-short wave frequency bands on the Stratosphere:

The first release of Stratospheres had a range in the number 4 band of 10 to 30 meters and therefore, I called McManamon, the final tester in Plant #3, to hook up one of these sets and listen for it. He reported that he could hear it very strong and could understand what was being said. The newer Stratospheres however have a limitation on the 4th band. This range being 12 to 35 meters. Both the old and the new sets however have a 6 to 15 meter range but this range is very poor, the same as in the 10-tube sets. On this range the tubes do not oscillate and it is necessary to use a 2nd harmonic. This is one reason for the poor sensitivity.^{xxii}

S.A. Long Electric Company, Zenith's Wichita, Kansas distributor had a complaint about the Stratosphere dial lighting:

Gustafson:

Note this objection by S.A. Long – I know he is right. There isn't enough light on the Stratosphere either. Isn't it possible to put more light and get a better effect?^{xxiii}

McDonald even called on Gustafson to investigate problems on the Mizpah:

Gustafson:

The Stratosphere on the boat breaks up if you try to put it at full volume and entertain the harbor. I have turned the Stratosphere on full volume at the Stevens Hotel and it does not break up. Do you think it is because of the inverter we are using? Why not make a test on the boat of putting in a throw-over switch so that I can either use the inverter or the motor-generator. I'd just like a test made of this. I don't want any permanent installation. Just want to have your men see whether that is what is making the difference.^{xxiv}

When it came to posting the design patent for the cabinet, McDonald was concerned about the public discovering that the cabinet was patented on September 11, 1934. If the radio was to continue to be sold in multiple years, he did not want people to perceive that it was an "old" model. He urged that it be listed as "Cabinet design patented, Design Patent No. 93,274" and having no date listed.^{xxv} The cabinet patent, however, was not printed in the Installation and Operation manual for the 1000Z.

Just in time for the 1935 Christmas shopping season, Zenith promoted the Stratosphere in the November 1935 Fortune magazine with a full-page advertisement. It displayed the revised dial which covered frequencies up to 45 MHz.

Around December of 1935, E.H. Scott was dauntless: he introduced the "Quaranta," a forty-tube console consisting of a two cabinets: one cabinet for the radio and an automatic record changer; the other cabinet for the speakers. Later versions employed 48 or 50 tubes or more and had five speakers. The price for this mammoth combination was \$2,500 including the cabinets.^{xxvi} Like earlier Scotts, it utilized a small window type dial.

In mid-1936, McDonald asked Gustafson to investigate the pros and cons of designing a receiver similar to a Capehart. Gustafson replied on July 2:

Messrs: McDonald
Robertson
Tracey
Bryant
Rasmussen

I want to let you know what has been done since receiving your memorandum of June 12, on the subject of designing a receiver on the order of a Capehart.

I visited Lyon & Healy and looked at the Capehart, RCA, and Stromberg combination units. The salesman at Lyon & Healy told me that they had not sold very many of the \$600.00 RCA combination, as they found it quite easy to sell the customer up to the \$1,000 Capehart. As near as I can determine the biggest selling point of the Capehart is the record changer. Certainly the radio set which is incorporated is nothing to write home about. This Capehart record changer will play a record on one side and then turn it over and play the other side. By this arrangement standard records can be used and an entire symphony can be played in the correct sequence. This is not possible with any other record changer on the market.

The only phonograph turn-table manufacturer of any consequence in this country is General Industries Company in Elyria, Ohio. I had a conversation with Mr. Moon of that company, and while they have a large assortment of record changers, they have nothing which compares to any used in the three above mentioned models—Capehart, Stromberg, or RCA, nor do they contemplate manufacturing a larger unit. They said they had considered it many times, but so far nothing has been done about it. I thought it best to investigate the possibility of any of the coin operated phonograph units having such a record changer available. They do not have anything that is suitable. These coin operated machines naturally are designed primarily so the customer can select any one of perhaps ten records, and they are not at all interested in playing both sides of the record.

We have been purchasing record changers and turntables from General Industries in Elyria for several years. In talking with Mr. Moon he told me that Capehart is in financial trouble and that General Industries had a stock interest in Capehart. I am wondering if any pressure could be brought to bear on Capehart through this source to get us this record changer. We are having Mr. Moon stop in here and Mr. Tracey is going to talk to him.

From what I can see, this record changer of Capehart is by far their biggest selling point and without this changer or another which will accomplish the same thing, I feel we will be working at a big disadvantage.

I do not see any point in going ahead with any cabinet or set design until we have decided what kind of a record changer we will incorporate. In order to design an instrument of this type, the entire assembly must be built around the record changer. Incidentally, the Capehart unit uses a Howard radio.

Jimmy Rasmussen corresponded with McDonald in regard to this letter. Rasmussen had heard through another party that Capehart was in financial trouble and thought it would be easy to make a deal of some kind with Capehart regarding the use of their record changers in a Zenith set.^{xxvii} There apparently is at least one example existing of a Capehart record changer in a Stratosphere (1000Z) cabinet.^{xxviii}

In 1936, when Crosley presented the WLW 37-tube console, McDonald told his friend, Charles Iredell:

Regarding the clipping of the Crosley 37-tube set, I told Powel (Crosley) the first time I saw this I was with my assistant, Paul Bryant, who remarked “My God, Crosley has designed this set just too late. The only place it would fit in Chicago has been closed by the Police, The Everly Club.” I don’t think that set so well with Powel.^{xxix}

REGD. U.S. PAT. OFF. | Arrive! Yick as bridesmaids; Misses I will make their home in Oakland.

BREUNER'S
Introduces
A SUPERLATIVE NEW MUSICAL INSTRUMENT

The Stratosphere



BY **ZENITH**

25
TUBES

3
CONCERT SPEAKERS

Whose very whisper reproduces every Musical Shade

A SURPLUS OF POWER beyond anything you will ever need to bring in the most distant foreign stations, is only a detail of the *Stratosphere* story. When this astounding new instrument is tuned down to a whisper you begin to appreciate the modern scientific miracle of Zenith Micro-harmonic reception, which yields every vibration throughout the musical scale with perfect fidelity. Produced for those who are satisfied with nothing but the finest, the *Stratosphere* by Zenith is the most outstanding achievement in radio history. See it. Hear it. A new thrill awaits you.

750

BREUNER'S
Hi gate 4343 Oakland Broadway at 21st

Figure 5. Advertisement from the Oakland Tribune, Wednesday, March 27, 1935.

Stratosphere Sales Performance

Some time in 1936, the Zenith Sales Organization started a campaign to increase sales the 1000Z Stratosphere model. This is speculation on this author's part, but it was possible that

1. the inventory of packed Stratospheres on hand in finished goods had climbed to an intolerable level;
2. new models introduced by Zenith's competition slowed sales of the 1000Z;
3. McDonald may have felt that obsolescence of the Stratosphere was a concern with the imminent introduction of the motorized Robot-Dial 1938 model in mid-year 1937. Previously, McDonald demanded action from the Sales Department on models that had growing inventories in finished goods, such as model 807, an upright table model from 1935, which at one time had 5,200 completed sets on hand in the factory.^{xxx}

Just before Christmas of 1936, McDonald wrote Rasmussen:

Mr. Rasmussen:

Let me see the sheet on how you have moved the Stratosphere since you sent the letter out and what each roadman has done or what each one has not done. I am speaking of the 25-tube job.^{xxxii}

McDonald reiterated the following day

Mr. Rasmussen:

You have not given me the data that I want on the 25-tube Stratosphere. I asked you for a copy of the letter you sent to each one of our road men giving them their quota, what their quota was, what each man has done for his territory, also including those who have done nothing.

Please get this data into my hands. Also advise me how many Stratospheres we had at the time the campaign was started and how many we have now, as well as how many were moved.^{xxxiii}

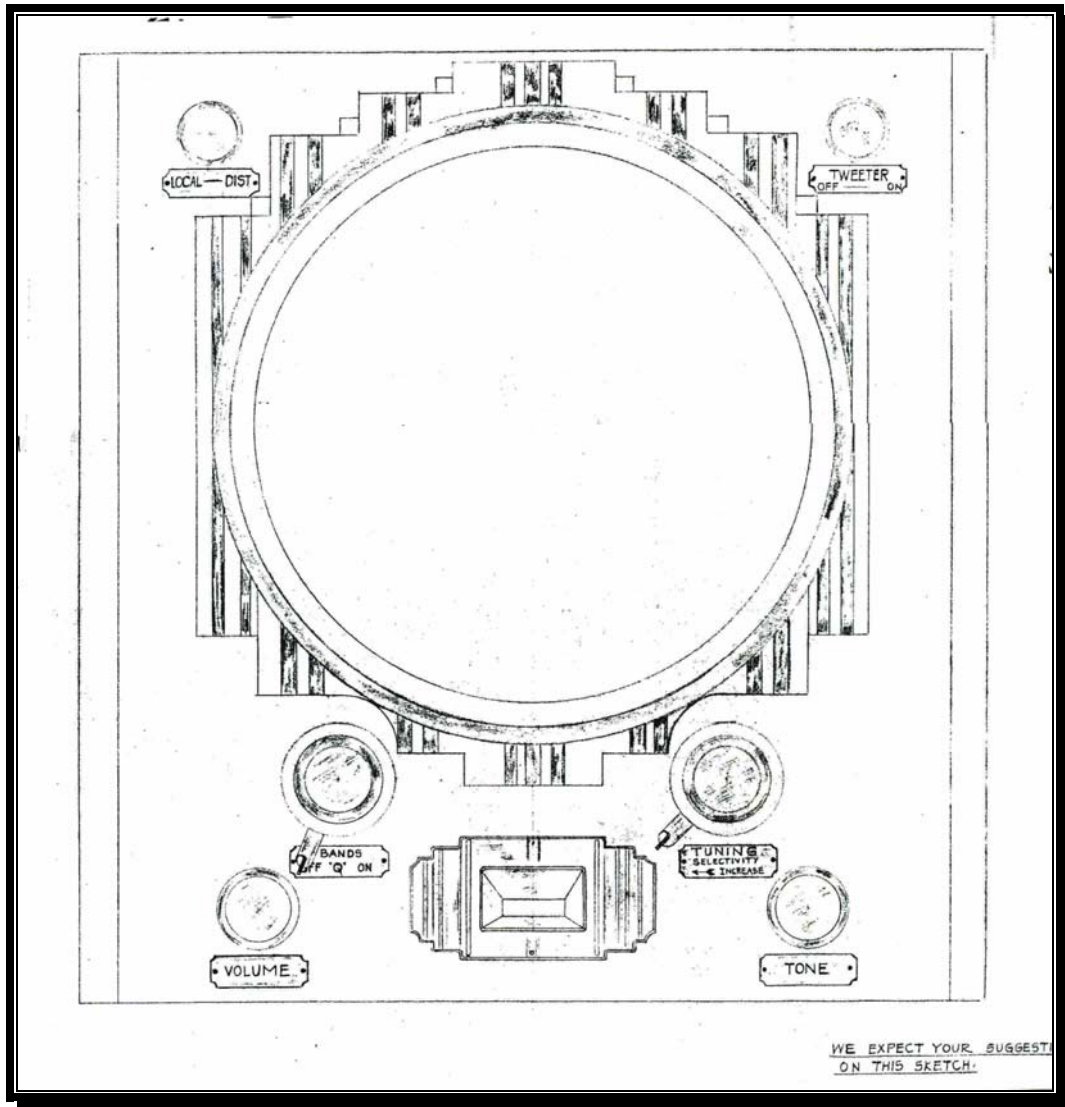


Figure 6. The dial panel for the Stratosphere showing proposed control labels to be made of Pyrolene.^{xxxiii} Note that the panel shows the two controls above the dial, added in time for the second release.

The Stratosphere did not sell well to the public. It was more of an oddity—an object of wonder—and perhaps was used more effectively to promote the much lower priced, general Zenith model lines between 1936 and 1938. Starting with the 1936 Zenith black-dial model line, Zenith sales vastly expanded from previous model lines.

E.H. Scott introduced the Philharmonic around April 1937. This thirty tube set employed twenty-four tubes in the main chassis and six tubes in the power supply. It also came with a 15” pedestal-style speaker having a built-in crossover network for optional high-frequency tweeters. The chassis and speaker sold for \$272 to \$283.^{xxxiv} It had an airplane type dial similar to those used in many Zenith models.

Subsequent Zenith Prestige Sets

In late 1935, Zenith began producing the sixteen-tube Stratosphere models. The 1601C and 1601P chassis used in these two models were both chrome plated and had a tone quality that rivaled that of the 1000Z. The 16A61 retailed for \$375. The 16A63 retailed for \$450. Both models had prices reduced in time for the 1937 season at \$295. Each of these models may be even scarcer than the 1000Z, since a total of 575 sets of chassis were built. The allocation is unknown, but it is possible that 250 per model of the domestic versions were built. The other 75 chassis were for export, or all-voltage capability.

For the 1938 line, Zenith produced a line of 15-tube single-chassis receivers and continued producing models having 15 tubes through the 1940 line. These were Robot Dial sets having Electric Tuning. The chassis for these models had gold hammer tone enamel finish.

For the 1942 line, Zenith produced two 22-tube radio-phonograph combinations, the 22H698 “Arlington” and the 22H699 “Concord.” These both listed at \$650 and later the price was raised to \$695. These had a main receiver chassis and a power supply/audio amplifier chassis, built similarly to the three Stratosphere models. A total of 800 sets of the chassis were built to be allocated to these two models. Power consumption was 325 watts with a maximum audio output power of 50 watts, very much like the Stratosphere. Two 12” woofers and one 6” tweeter were employed. The chassis for these sets, however, were not chrome plated, but were painted the standard gold hammer toned finish like other Zenith console “Goliath” chassis. The cabinets were of bilateral design, like many other radio-phonograph combinations produced just before World War II.

Peculiarities of the Stratosphere

The first version of the Stratosphere utilized four control-shaft axes, all below the dial. A subsequent upgrade consisting of the local-distance switch and the treble switch (which was a defeat switch for the horn tweeter) added above the dial gave the revised Stratosphere six control-shaft axes.

The dial scale of the 25-tube Stratosphere used at least two different variations in the logo lettering. One version used the traditional “lightning bolt” logotype for both words “Zenith” and “Stratosphere.” Another version used a variation of the Zenith logo, but the letters did not taper towards the end of the word. The word “Stratosphere” appeared in a fancy, tilted, cursive style. The cursive styled logo may have been limited to the 63 MHz “early” version.

The vast majority of the later or higher serial numbered sets in the series range to 45 MHz, instead of the 63 MHz on the earlier sets. Both versions are listed in table 2.

Referring to the circuitry of the early 1000Z version, Radio Today stated in October 1935:

This 25-tube receiver is a custom-built job and was not produced in usual production manner, so that the likelihood of numerous service calls is not very great. Although not certain of exact figures, we believe that the production of this particular model was definitely limited. However, it is still significant to note that the grid circuit of only the first r-f. stage is tuned. The remainder of the tuned circuits in the r-f. system are in the plate circuits of the first and second r-f. tubes.

The highest frequency band in this receiver is covered with a separate coil, which is not a part of the tapped detector coil in the receiver. The first r-f. stage is not used when covering the 4.7 to 15.3-meter band in the highest range. The input signal is fed from the antenna to the plate circuit of the 2nd r-f. tube. However, a portion of this band, as covered by the next range, namely, from 9.4 to 31.5 meters, is amplified by both r-f. amplifiers.^{xxxv}

This also confirms the author's observation that the Stratosphere was custom-built. The Stratosphere in the author's collection tunes to 63.6 MHz and is an export version, even though it was one of the last ones built in the final release. There are at least two other examples of variances in the production runs of the Stratosphere: one unit has a chrome-plated power supply; another unit is an export version.^{xxxvi}

The radio frequency amplifier was overhauled in the revised version. The broadcast band uses both a preselector and a tuned RF stage. There are some 1st and 2nd AF stage changes between the two versions.

<u>Dial Scale – Early</u>	<u>Color</u>	<u>Dial Scale - Late</u>
“Split-second” scale	white	“Split-second” scale
535-1550 KHz	green	520-1500 KHz
1.530-4.575 MHz	orange	1.45-4.2 MHz
3.725-11.15 MHz	yellow	3.7-10.0 MHz
9.5-31.6 MHz	red	8.5-23.0
19.5-63.6MHz	blue	18.0-45.0 MHz

Table 2. Zenith 1000Z Stratosphere Waveband Coverage and Dial Scale Color

The 25-tube Stratosphere employed six dial glasses, one for each waveband with one set aside for the split-second scale. Lamps illuminated each glass from the dial's edge. Zenith etched each glass with the band and frequencies so that with the set energized, a color filter at the edge of each dial glass determined the color of the etchings. The split-second band shown with a separate dial lamp continually while one of the five other lamps lit at a time depending on the band selected. With the set turned off, the etched areas are gray.

The lamps utilized by the 25-tube Stratosphere are also unique. Six special 110-volt tube-shaped elongated lamps were used, Zenith part #100-28. These lamps were rated at 15-watts and had candelabra screw bases. This circuit was tied directly to the 110-volt AC supply

The RF section was double-shielded in a black box mounted on top of the chassis. The individual coil assemblies were shielded within this box in individual cans.

The audio section was much larger than other, run-of-the-mill Zenith receivers. Eight 45 type audio power amplifiers were laid out in a parallel-push-pull configuration. Zenith's reason stated for designing it in this manner achieved a better balance in this stage by using several medium size power tubes rather than a pair of high-power tubes. The voltage requirements were greatly reduced using this configuration.

All Stratospheres had an upper and lower chassis. These chassis were chrome-plated, except for the lower 25-tube chassis, which was usually finished in black. The upper chassis was the receiver (C suffix) chassis, and the lower was the power supply (P suffix) chassis. The power amplifier was located on the lower chassis also.

Zenith modified the coverage of the 25-tube Stratosphere in the second run, possibly due to poor performance or parasitic oscillation near 63 MHz.^{xxxvii}

OVER-ALL AUDIO RESPONSE
At 1000 K. C.
Variable Selectivity in Broad Position

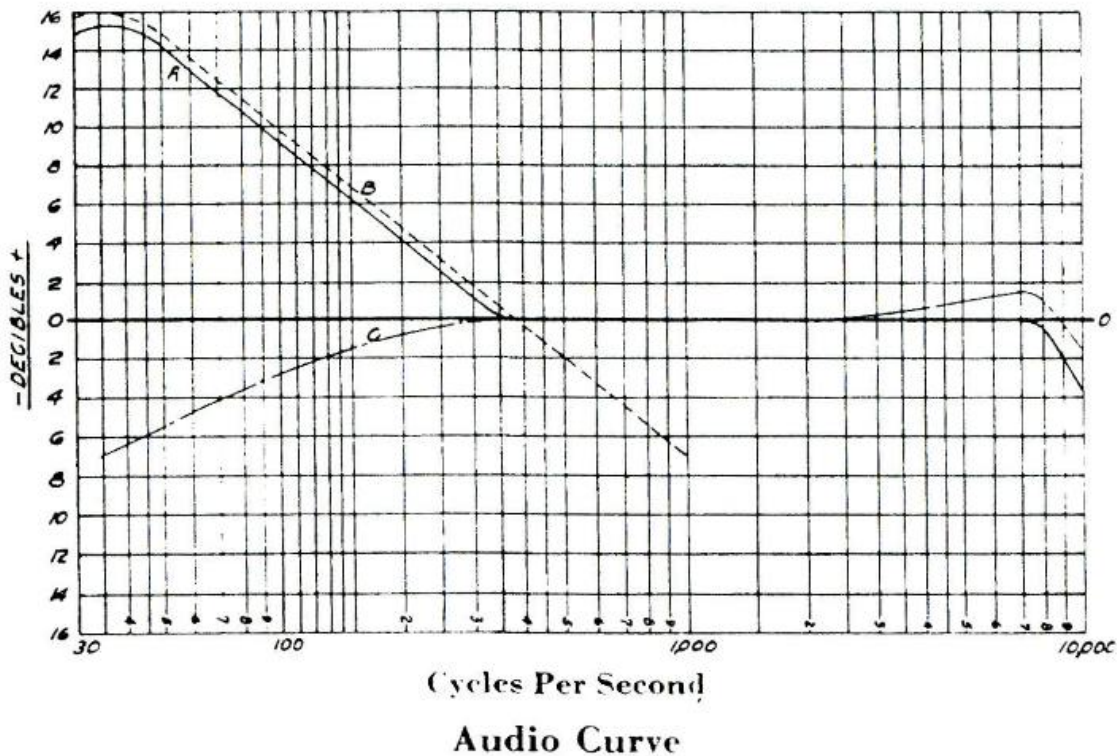


Figure 7. Audio response of the 1000Z Stratosphere with the tone control set to three different positions: A=midrange; B=bass position, fully counter-clockwise; C=treble position, fully-clockwise.

All three Stratospheres employed a variable IF bandwidth selectivity control. Zenith engineered the sets to have IF transformers with variable mechanical coupling, which, in turn, translated into variable bandwidth, or selectivity. Adjusting the variable selectivity control did not affect RF sensitivity of the receiver.^{xxxviii}

McDonald wrote Gustafson regarding a suggestion from a man in the field named Tidmarsh. He suggested installing the variable selectivity control on all Zenith models priced above \$125. Gustafson replied:

I want to say that this is easily possible, but in view of the poor acceptance we have had on the high fidelity control on the 25-tube set, I question the advisability of it. I would have done it long ago had it not been that we receive almost no comment on what I consider a very desirable feature. Everybody raves about the excellent low response, but only about one person out of ten seems to enthuse about the increased high response.^{xxxix}

The author finds this statement amazing, since the variable selectivity control has such a vast effect on the sound quality of received stations. Refer to **Figure 8**. When the variable selectivity control is set to the “selective” position, the fidelity is poorest because the band-pass is narrow, but inter-station heterodyning is virtually eliminated due to the rejection of the adjacent channel stations of roughly 60 dB, based on 10 KHz channel spacing. This is a wonderful feature when listening to short wave stations, where inter-station heterodyning (the high pitched ringing) is commonplace. It is also useful when listening to weak stations that are adjacent to stronger stations on the radio dial.

With the variable selectivity set towards the “broad” position, maximum fidelity is achieved, since the side lobes containing much of the high-frequency audio are passed through the wider band-pass. This setting is

desirable on strong or local stations, where the AVC or AGC voltage reduces the noise floor. This gives the high-fidelity reproduction that was intended by the designers of the Stratosphere (in the context of the 1930s amplitude-modulated stations). The broad setting will work poorly when trying to listen to weak stations that are adjacent to strong or local stations. This is because the band-pass covers roughly ± 7.5 KHz and the stronger station, being either 10 KHz above or below the desired station, will interfere greatly with the desired signal.

The serial numbers of this model range from 754001 through approximately 754350. The serial numbers listed in the *Zenith Service Manual, Volume 1*, page 287 (the first series of the 1000Z) are incorrect. The number should start with "754," not "174."

It is now believed by this author that a quantity of only 350 of these sets were released by Hugh Robertson, being that 250 were released by January 31, 1935 in two separate releases of 100 and 150 (that latter was amended from a release on January 28 of 100 units). Another release for an estimated 100 units came sometime well after April 20, 1935.

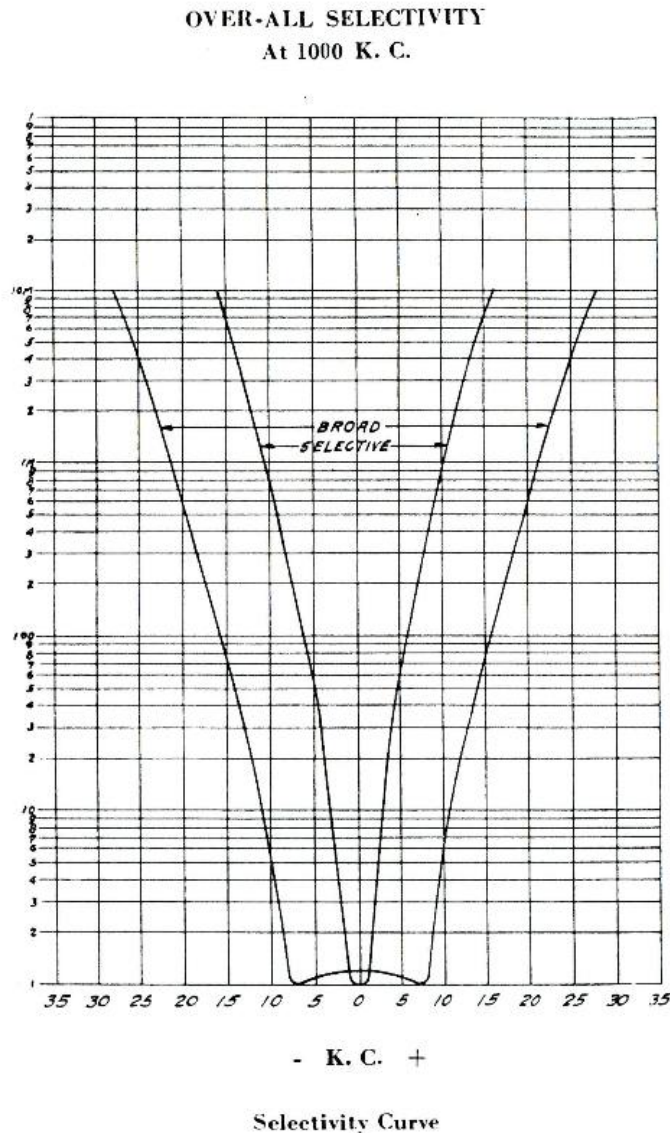


Figure 8. Plot of the 1000Z Intermediate Frequency selectivity using the variable Bandwidth control set to both extremes

The Stratosphere Cat

Perhaps even more elusive than the Stratosphere is the sleek, art-moderne figurine of a sitting cat that was employed in advertising graphics of the 25-tube Stratosphere. See Figure 1. It is believed that this was only a prop and that it was not supplied with the retail purchase of a Stratosphere. Note that the illustration shows the first version of the Stratosphere having four control-shaft axis and that the cat figurine is looking towards it right.

Little is known about the figurine, but there appears to have been several different versions of the cat produced in different sizes. The one pictured in Zenith advertising appears to be roughly 12" tall. The Catalina Pottery Company produced at least one version which was much smaller than the one in the Stratosphere. Another version was 17 5/8" tall and produced by William Bragdon in California. It was sold either through Gump's or Magnin's in California. Other versions had the cat looking towards its left instead of its right, both in pottery and in chalkware. One ceramic version is about 19 1/2" tall and is painted orange, much larger than the Stratosphere cat.

The author discovered a scarce chalkware version (there is no opening in the base) recently in an antique store in Topeka, Kansas that stood 14 1/2" tall. It is almond/cream colored; has airbrushed eyes and painted whiskers. It now stands prominently in a Stratosphere. See figure 13.



Figure 9. Chalkware cats similar to the prop used in Zenith advertising. The orange one on the right is actually pottery and is 18" tall. Author's collection.

Present-Day Status of the Stratosphere

Jim Clark, a radio collector and dealer, conducted research on the Stratosphere by creating the “Zenith Stratosphere Registry” in the early 1990s. Through the registry, he surveyed the field to register all known Stratospheres in the radio collecting community. He discovered that roughly 10% of the 1000Z sets produced were known to be in the hands of radio collectors as of January 1997.^{x1} It was not a scientific survey, since it is possible that others were in the hands of collectors but either they were missed in the canvassing or chose not to respond. A few others have “surfaced” since the survey was conducted.

The following is true for those sets documented in the Zenith Stratosphere Registry:

- 36 units were documented.
- Some of the units have 25-cycle transformers installed.
- Seven of the documented units were missing cabinets.
- All of the units from the first release span up to 63 MHz, while all but one of the revised group goes to 63 MHz.
- The rest of the revised units tune up to 45 MHz.

The knowledge gained through that research raises questions regarding the legacy of the Stratosphere. Some questions that come to mind are:

1. How many sets were destroyed by fires, earthquakes, floods, severe weather, or poor storage?
2. How many were hastily put out at the curb or sent to the city landfill?
3. How many were converted to liquor cabinets and the like?
4. How many are in the hands of radio or antique collectors, unknown to the general radio collecting community?
5. How many are still in the hands of heirs, whether or not they understand the set’s significance?

One would hope that the answers are much higher in the last two questions rather than the first three. Being that this radio model was retailed for \$750, one would tend to think that few of them would have been summarily tossed—unless they were stored in a poor environment and the cosmetic condition degraded to the point that the layman surrendered. My guess is that many units are still in the hands of heirs.

The following two cases will make radio collectors wince, however:

1. One 1000Z set was recently rescued near St. Louis, Missouri. A fellow radio collector found both chassis and the two woofer-speakers at an estate auction. Through diligent investigation, he discovered that the cabinet was across the street from the auction site and was about to be disfigured by its owner who wanted to make a nice liquor cabinet out of it. Luckily, the collector was able to save the radio from permanent destruction!
2. A Zenith radio dealer located in Ottawa, Kansas, 50 miles southwest of Kansas City, closed his store in the early 1960s. The entire second floor of the downtown business was full of old radios, most likely trade-ins or ones deemed beyond economic repair. In an effort to sell or lease the building, the bank that owned the building hired some teenagers to clear its contents. I met one of the workers, who owned an antique store when I spoke with him in the early 1990s. He and I both cringed as he stated that he and the others hauled many loads of radios to the city dump. The teenagers had somewhat of an informal

contest, throwing the cathedral and tombstone styled table sets as far as they could to maximize the damage. Admittedly, he had no appreciation for antiques at the time.

The Stratosphere in the author's collection belonged to a physician who lived in Granite City, Illinois, a suburb of St. Louis (not to be confused with the "liquor cabinet" example listed above). It has two 25-cycle power transformers, which are much larger than the 60-cycle counterparts usually found in the Stratosphere. A well-known radio collector from Missouri sold it to me in 1992.

Epilogue

The Zenith Stratosphere radio console is an extraordinary instrument. Although not popular with the pocketbook in the 1930s, it has achieved legendary status among vintage radio collectors and restorers. Of the tens of thousands of radio models produced since the birth of broadcasting, very, very few vintage radio sets, if any, sold today command as high a selling price as the Zenith 1000Z Stratosphere. Several factors seem to contribute to its gradual increase in value:

1. Its striking design—in Frank Johnson's cabinet, the dial, and the chassis.
2. Its rarity, since only approximately 350 were produced.
3. Its significance as being the pinnacle of Zenith household receivers.
4. Its significance as being the inaugural Big Black Dial Zenith.
5. General discussion among collectors of radios and antiques, fueling the interest and enthusiasm for the model.

There are few radios as coveted as the Zenith Stratosphere. A major portal to its interest is that it is a Zenith, a very commonly encountered and desired radio brand among radio collectors, especially for floor model consoles.

I remember being told by a fellow collector about his encounter with a Stratosphere at an antique store in the Tulsa, Oklahoma area. It had a bargain basement price of \$1,000. He did not have the money with him at the time, but told the proprietor that he would be back in the morning with the cash. When he arrived the next morning, the set was gone. The moral of the story: don't leave the store until you own that rare antique.

When one acquires one of these revered, rare sets, it is truly an accomplishment.

Photos

Author's 1000Z Stratosphere



Figure 10. Serial # 754328, unrestored condition. Photographed in 1992. Note the hazed finish on the pedestal. Also note the poor condition of the black lacquer finish on the trim, and also the missing finish on the right shoulder.

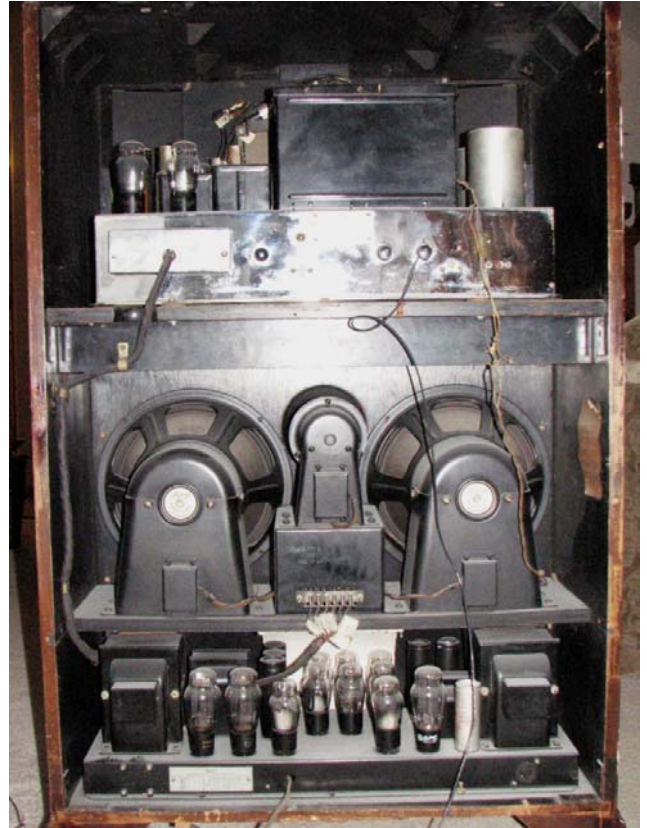


Figure 11. Rear view of Serial # 754328 with the screened frame removed. This is probably the first Zenith model to have a tinted cabinet interior, which appears to be black on the 1000Z.



Figure 12. The author with serial # 754328, restored all except for two knobs that have chipped-away finish.



Figure 13. Serial # 754328, restored condition. The original lacquer finish was left intact on almost all panels except for the top of the set, which had water damage and required veneer replacement on the top center panel. The black-lacquer trimmed surfaces required removal of the finish using a razor blade, which were then re-lacquered. The upper section of the right side panel of the set also exhibited water damage. A 2" by 3" area 2/3 of the way towards the back edge of the cabinet, in the marquetry, required replacement of the Carpathian Elm burl veneer and 1/4" trim banding. After completing repair of the cabinet veneer, I applied one coat of lacquer tinted with orange aniline dye, followed by two more clear coats, followed by hand-rubbing using pumice, followed by rottenstone, in a medium of mineral oil on a pad.

ⁱ Clark, Jim. *Jim Clark's E.H. Scott Radio Collectors Guide (1925-1946)*. Okemos, Michigan: Jim Clark Enterprises, 1995.

ⁱⁱ McDonald, E.F. Memo to Pressly, Tracey, Hassel, Klugh, and Robertson. December 11, 1933.

ⁱⁱⁱ Clark, Jim. *Jim Clark's E.H. Scott Radio Collectors Guide (1925-1946)*. Okemos, Michigan: Jim Clark Enterprises, 1995.

^{iv} *US Patent Office Official Gazette*, September 11, 1934, p. 487.

^v McDonald, E.F. Memo to Robertson. September 14, 1934.

^{vi} Anonymous. *Zenith Radio Corporation Consolidated Balance Sheet* dated November 30, 1934. This item was listed as Account #504, Deluxe Multitube Set. The only expense item costing more for that seven month period was the development of the Hudson auto radio for 1935 with a figure of \$8,572.

^{vii} Associated Press. "Woman Far in Sky." *The Kansas City Star* Oct. 23, 1934, page 1 & 3.

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- ^{viii} McDonald, E.F. Telegram text to Gustafson. September 25, 1934.
- ^{ix} Gottlieb, Vivian. Honeywell Quality Inspector. A First Article inspection denotes an inspection conducted to ensure that the configuration of a finished sample of the new product agrees with the Bill of Material (BOM) and engineering drawings before that unit or any subsequent units are shipped.
- ^x McDonald, E.F. Memo to Gustafson. December 12, 1934. A postscript added: "Phoned to Gustafson at Mt. Prospect 3:20 PM Wednesday 12-12."
- ^{xi} Robertson, Hugh. Various Release authorizations. McDonald Files, 1935.
- ^{xii} McDonald, E. F. Memo to Freese. January 2, 1935;
McDonald, E. F. Memo to Gustafson. February 4, 1935;
Gustafson, G. E. Memo to McDonald. February 6, 1935.
- ^{xiii} Iredell, Charles J. Letter to McDonald. February 1, 1935.
- ^{xiv} McDonald, E. F. Letter to Charles J. Iredell. February 4, 1935.
- ^{xv} Burnet, R.D. Memo to Robertson, copies to McDonald, Tracey, Freese, and Ericksen. February 8, 1935. Report on J.A. White.
- ^{xvi} Ibid.
- ^{xvii} McDonald, E. F. Memo to Burnet. February 8, 1935. Included with the memo are several worksheets of Ray Burnet showing monthly sales and returns.
- ^{xviii} Robertson, Hugh. Weekly Report of Authorized Production – Shipments to Date – Orders on Hand and Balance to Sell. October 29, 1934 through April 20, 1935.
- ^{xix} Robertson, Hugh. Weekly Report of Authorized Production – Shipments to Date – Orders on Hand and Balance to Sell. December 29, 1934. Robertson penciled in the cancellations "corrected to 1/4/35" with the "orders on hand" column changed from 119 to 46; the "sales to Date" column changed from 136 to 63.
- ^{xx} Dorf, William C. "What's New in Radio." Radio News. April 1935:644.
- ^{xxi} Clark, Jim. Jim Clark's E.H. Scott Radio Collectors Guide (1925-1946). Okemos, Michigan: Jim Clark Enterprises, 1995. Scott renamed the Imperial as the Scott Full Range High Fidelity Allwave after discovering that another radio manufacturer was already using the "Imperial" designation.
- ^{xxii} Gustafson, G.E. Memo to McDonald. April 26, 1935. Gustafson, G. E. Memo to McDonald. April 26, 1935. The memo discussed problems that Mr. Gustafson noted in a sensitivity test on a 10-tube model at 9.75 meters. The sensitivity was poor: 200 to 300 μ V. He compared it to the 1000Z in the following paragraph:
"However it occurred to me that the first release of Stratospheres had a range in the number 4 band of 10 to 30 meters and therefore I called McManamon, the final tester in Plant #3, to hook up one of these sets and listen for it. He reported that he could hear the it [the station] very strong and could understand what was being said. The newer Stratospheres however have a limitation on the fourth band [8.5-20 MHz]. This range being 12 to 35 meters. Both the old and the new sets however have a 6 to 15 meter range but this range is very poor, the same as in the 10 tube sets. On this range the tubes do not oscillate and it is necessary to use the 2nd harmonic. This is one reason for the poor sensitivity."
- ^{xxiii} McDonald, E.F. Memo to Gustafson. July 25, 1935.
- ^{xxiv} McDonald, E.F. Memo to Gustafson. September 23, 1935.
- ^{xxv} McDonald, E.F. Memo to Robertson. January 28, 1935. This memo discussed items that J. Clarke Hagey indicated should be listed on the patent sticker or in literature.
- ^{xxvi} Clark, Jim. Jim Clark's E.H. Scott Radio Collectors Guide (1925-1946). Okemos, Michigan: Jim Clark Enterprises, 1995.
- ^{xxvii} Rasmussen, Jimmy. Memo to McDonald. July 3, 1936.
- ^{xxviii} Zenith radio collector Frank Rasada encountered one years ago.
- ^{xxix} McDonald, E.F. Letter to Charles Iredell, Cincinnati, Ohio. December 12, 1936.
- ^{xxx} McDonald, E.F. Memo to Robertson. February 1, 1935. Only 44 of the model 807s were ordered in the week previous to 2/1/35. (Author's note: at that rate, it would take 118 weeks to sell the ones already produced.) There were still 1,410 on hand as of 9/14/35, well into the 1936 season, the first of the black-dial sets. As of April 20, 1935, 21,000 of the model 807 were authorized by releases.
- ^{xxxi} McDonald, E. F. Memo to Rasmussen. December 22, 1936.
- ^{xxxii} McDonald, E. F. Memo to Rasmussen. December 23, 1936.
- ^{xxxiii} Gustafson, G.E. Memo and attached drawing to McDonald, Robertson, Tracey, Freese, and Hefter. February 1, 1935. The scale of the drawing found by the authors is the actual size of the Stratosphere control panel. Attached to the memo was a sample of Pyrolene having a printed face. This material appears to be very similar to the 1932-1935 dial scales and Shadowmeter screens. Perhaps Gustafson was sounding this material for the revised version of the Stratosphere.
- ^{xxxiv} Clark, Jim. Jim Clark's E.H. Scott Radio Collectors Guide (1925-1946). Okemos, Michigan: Jim Clark Enterprises, 1995.
- ^{xxxv} Anonymous. Service Notes—Rider. "Zenith Stratosphere." October 1935:28.
- ^{xxxvi} Clark, Jim. Letter addressed to Stratosphere owners. "Serial Numbers of Documented 25-Tube Zenith Stratospheres." June 14, 1993.
- ^{xxxvii} Zenith collector and historian Dale Goodwin investigated Stratosphere waveband coverage.
- ^{xxxviii} *Zenith Service Manual, volume 1*, p. 288. Theory of operation for model 1000Z Stratosphere.
- ^{xxxix} Gustafson, Gilbert. Memo to McDonald. November 11, 1935
- ^{xl} Clark, Jim. Letter addressed to Stratosphere owners. "Serial Numbers of Documented 25-Tube Zenith Stratospheres." January 10, 1997.