

THE GATES STUDIO REVIEW

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January, 1936

HIGHER POWER SEEN AS KEYNOTE FOR 1936--REGIONALS FAVORED!

December Big Month For Broadcasters

December no doubt will pass all months of 1935 and perhaps all months since 1932 for volume of business done by radio broadcasting stations. Local stations noticed a big jump in spot announcements, some stations running 100 word copy on every half hour break up until Christmas. Department stores were especially generous in their contribution to the coffers of the cash drawer of broadcast stations. Many stores whom formerly contributed most of their advertising to the newspapers if anything, turned about face and in most every case gave the broadcaster an even break. In line with this, Chevrolet announced that their sales were the greatest in history of their company, which is attributed largely to the three-a-week 15 minute transcribed programs sent over nearly one-third of the stations in the country.

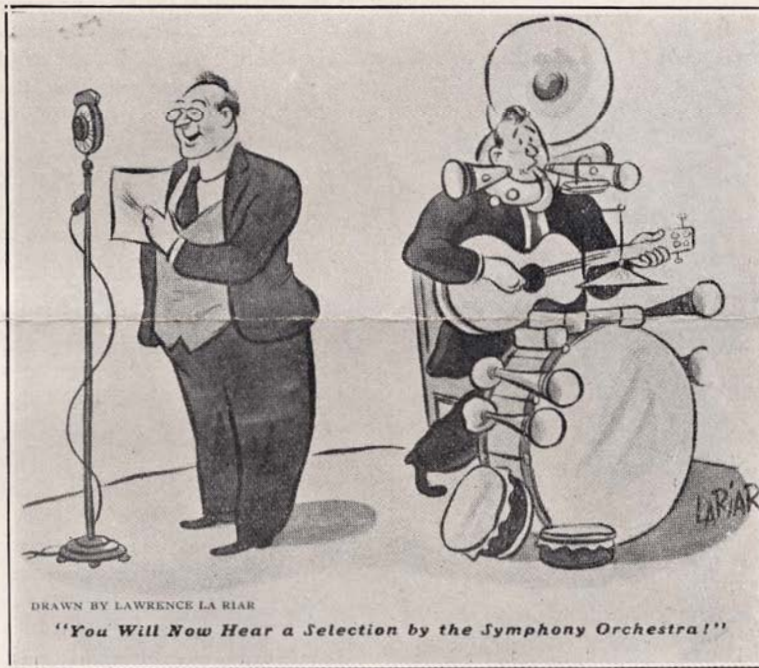
Broadcast showmanship is playing a large part in the growth of this business. New giant vertical radiators are reaching the eye of the prospective advertisers. Improved studios also give a certain awe-inspired feeling that still makes radio broadcasting fascinating to all, including the purchaser of time. Above all is the better way that the smallest station is promoting programs. Podunk now seems to have the same class in announcing, the same bands, the same artists and the same quality of transmission as does New York. Yes, broadcasting is now destined to be the number one form of advertising.

AAA SCOOP

Fortunately at the time the historic Supreme court decision on the AAA was announced, NBC was broadcasting from the Capitol building in Washington. As soon as the decision was announced by the court NBC broke into the middle of a speech to read the decision only a scant few minutes after it was handed down.

INSUL TO ENTER RADIO FIELD

Samuel Insul, well known financier recently acquitted in the Chicago federal court on charges of fraud, has entered the radio broadcasting field. It is his plan to have a private company and lease the time of various stations throughout the middle west feeding programs both commercial and non-commercial to them from Chicago.



—From Saturday Evening Post.

WCAZ Buys 5-Acre Tract; Will Erect New Tower

Carthage, Illinois—Radio Station WCAZ on Dec. 16, was authorized to erect a new 229 foot tower and has purchased a 5 acre plot at the junctions of route 36 and route 9 on which the tower, enormous grounding system and new station house will be erected. The new tower is expected to triple the signal strength of WCAZ, plus the fact that on or about Jan. 1 W.D.Z. of Tuscola, Ill., which now uses the same frequency as WCAZ, will move to the old KYW spot on the dial, leaving WCAZ full daytime swing on 1070 Kc.

Just a Lot of Wire

The wire used in the country's largest telephone system measures over 75,000,000 miles in length, or enough to reach the moon just 150 times. Then some engineers worry about equalizing a 25 mile line for remotes. What a world—what a world!

CANADIAN IMPORTS OF RADIO EQUIPMENT

Canada during 1935 imported more radio apparatus from the U. S. than at any time since 1932. In 1933 the imports were \$1,005,000; in 1934, \$1,244,000, and in 1935, \$1,672,000.

The Velocity Microphone For Remote Operation

Why up to now the Velocity microphone has been only for studio operation, and how late improvements have made it ideal for remotes as well.

The Velocity microphone has been primarily a studio microphone for only one reason, namely, when the wind hit it funny things happened to the little dural ribbon which picks up the sound wave. In a heavy wind there was even danger of blowing the ribbon either in two or out of its mountings.

In the first place a broadcast in a heavy wind such as they have now and then down at the home of WIOD and WQAM is not the swellest place for a broadcast as far as keeping noise out of the microphone is concerned. As long as the wind blows we will have a rushing noise whether it is a Velocity or pressure operated microphone. With proper design and operation, however, the Velocity may be used out of doors if it is of the late type having a moderately high output.

The first ribbon microphones had an output so low that at least 50 Db. of boost was needed before it could even be placed into the mixer. That meant that for remotes it was out as pre-amplifiers could not be carried without bulk, and mixing could

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Higher Power Seen as Keynote for 1936

When the bells start ringing and whistles blowing on Dec. 31, 1936, it will find several thousand more watts in the air than at present. With the FCC stating that regionals may have from one to five times the power they are now using for day-time operation, and even a fair jump for night time broadcasting, it will mean that several 5 Kw. plants will soon make their appearance. Added to this is the apparent success of WLW's 500,000 watts, and already several 50 Kw. stations are considering the use of ten times as much power, with one station reported as having a 500 Kw. transmitter on order for early delivery.

Years back engineers stated that the only successful way to eliminate man made and static interference was by getting the signal above the interference level. Continued increase in power, even if it will not create more coverage, will add greatly in reception, which will mean in effect that more coverage will develop even where the signal is already seemingly quite strong.

One question comes to mind, and that is the economical operation of say a 5000 watt regional station that is for day time only. Perhaps Class B modulation will aid. It is true, high voltage power supplies are far more efficient than in years gone by and cost less to operate. A. C. filament operation will aid in reducing power cost. With a good territory to operate in, power increases to regionals and locals should by all means be profitable. To clear channel stations it will be a bonanza.

GATES ANNOUNCES 1936 P. A. LINE

For radio engineers that are both interested in and use P. A. equipment, either as a part of the radio station or a side line, Gates will soon announce a new public address line for 1936 that will excel all former equipments of this type manufactured by the Gates Company. Like broadcast equipment made by Gates, the P. A. line will be of high quality at a moderate price in line with the best type of engineering design and construction. One feature of the 1936 set-up will be the unit system of design. Sound operators may purchase the fundamental unit, which has 12 watts output and a 100 Db. gain, and if desired at any time latter may purchase the 50 watt output amplifier which uses a pair of 242-A tubes in class A and attaches directly to the fundamental unit. The new line will also include many portable and semi-portable jobs, as well as an improved 6 volt Mobile system. Those desiring their name on the P. A. mailing list should drop us a line on their letterhead.

The Gates Model M Velocity Microphone

A High Quality Microphone Available in Both Low and High Impedance Models



The Gates Model M and Model O Velocity Microphones offers the finest in Modern Microphone Equipment for either studio or remote service. The microphone is smart from start to finish in both performance and appearance. Consider these outstanding features—

- 1—Its selling price. Only \$55.00 compared to nearly double the amount for competitive equipment of equal quality.
- 2—Smart appearance. Chrome finished grill with black leatherette finished base housing. Supplied with suspension bracket and plug-socket set.
- 3—High output level. Minus 62 Dbs. which means no trouble in mixing or amplifier rush such as with the older low level types.
- 4—True high fidelity. Just a plain flat curve from 30 to 12,000 cycles. There is truly no more natural sounding microphone.
- 5—Heavier ribbon mounting. Better suited for outside broadcasts than any other velocity microphone manufactured today.

PRICES

Model M for either 50 or 200 ohms output.....\$55.00
 Model O for high impedance output into grid.....\$55.00

GATES RADIO & SUPPLY COMPANY
 Manufacturing Engineers Since 1922
 QUINCY, ILLINOIS, U. S. A.

EDITORIAL

What's Ahead in 1936

The year 1936 is one of those years that just about can be written before it passes, as far as broadcast income is concerned. Politics will, of course, be the big thing. Sadly, we do not have good old Heuy to put the spice in the programs, but nevertheless every station in the land will be praising and slamming the New Deal, all at nice fat rates which are mighty welcome.

Disregarding politics, however, what does the year bring in equipment changes and improvements. A survey shows that only 30% of the stations are using a velocity microphone. Over 50% of the stations are using 1931 speech equipment, and only a choice few can boast of high fidelity without wondering about this part or that as to its ability to handle high fidelity transmission. Yes, 60% of the stations are still using batteries in some form.

With all prospects for a good year ahead, plus added revenue from political broadcasts, it is a fine time to make the needed improvements.

Monitoring Systems

One of the most neglected departments of the broadcast plant is the monitoring system. After a fine transmitter has been installed, beautiful studios constructed and nearly everything the finest that can be had, many stations end up by visiting the nearest radio shop and buying all the old loud speakers that can be found to spread about the studios and reception room. If the actual broadcast in some cases sounded as bad as the monitoring speaker there would hardly be a dial on the stations frequency. This, of course, is not true in every case by a long ways, but after all if anyone should know how the program is going on in the air, it is those in the studios, especially those in the reception rooms, as there might be a good prospect sitting in there who would pay for several dozen speakers if he liked what he heard.

FHA Loans Expire

Broadcasters desiring to purchase equipment under FHA loan plan should remember this expires April 1 next. Practically all equipment from microphones to towers can be bought as long as the equipment is a permanent fixture. Portable equipments can not be bought under this plan. Broadcasters desiring to purchase under FHA plan should make arrangements with their local bank who in most cases operates under FHA license. Loans may be obtained for as long as five years with interest at a remarkably low rate.

Where It Goes

Radio Station WOKO, Albany, N. Y., has installed two new Gates Automatic remote amplifier equipments for use with W.E. dynamic microphones.

The Post Office Dept. of the Australian Government has issued an order for a new Gates B-94S amplifier complete with 240 volt 40 cycle power supply. The B94S is a deluxe three position mixing unit with four stage 95 Db. Amplifier and level indicator.

WGH of Newport News, Va., has installed new Gates high fidelity transcription equipment.

WFBG of Altoona, Pa., has installed Gates high fidelity transcription equipment.

WIL of St. Louis, Mo., has purchased a special Gates control desk to go with their new transmitter now being installed.

Radio Station KMAC of San Antonio, Texas, has installed a new B 60 amplifier for its remote pickups.

Radio Station CKCH of Hull, Quebec, has purchased a new Gates B-60C Amplifier complete with Brush B2S Microphone.

Radio Station XEFZ of Mexico City has installed a Gates Model H Crystal microphone with special Gates A-300 Amplifier.

The Gadsden Broadcasting Co. of Gadsden, Ala., has purchased a new VB-105 wide range transcription equipment.

Radio Station CFLC of Prescott, Ontario, has installed a new Model M Gates Velocity microphone.

WCCO of St. Paul-Minneapolis has installed a new Gates B-60 amplifier for use with inductor microphones.

Radio Station WHBC of Canton, Ohio, has installed a VB-105 transcription equipment.

WTAD of Quincy, Ill., are now using a new Gates A-175 amplifier with Brush B2S microphone.

Radio Station KADA, Ada, Okla., has installed another A-175 amplifier. This is the third of this model in use at KADA.

Radio Station WBIG of Greensboro, N. C., has installed a new Gates B 100 amplifier for A.C. operation, and is using it with a Gates Model M Velocity Microphone as well as Gates Model H Crystal microphones.

The radio department of the Univ. of S. Dakota has installed a Gates 40-B Preamplifier and Model M. Velocity microphone.

Radio Station CMKC of San Diego de Cuba has purchased a Model 1200-B Gates Speech Input rack.

The Velocity Microphone For Remote Operation

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not be done because of the surface noise in the mixer as well as low frequency attenuation if a pre-amplifier was not used ahead of it. Fortunately the extremely low level Velocity was short lived. Engineers soon learned that a heavy magnetic field by using larger magnets would bring the level up, and now all good Velocity microphones have an output of not less than -70 decibels and a good strong magnetic field will run about -62 decibels.

Because of the somewhat stronger magnetic field the dural diaphragm may be made more rugged, both in mounting and elasticity, thus it is much better suited for outdoor operation and the damage from even above average wind velocity will cease to be. Of course, all engineers are aware of the advantages in outside work of the bi-directional characteristics of the ribbon microphone, so this will not be discussed.

In recent months the high impedance microphone has made its appearance in the form of a velocity microphone. This simply is instead of using a 200 ohm output winding in the microphone transformer which is in the microphone itself, a transformer is used with a secondary of 2000 ohms. This is high enough to work directly into a grid of the first audio stage and yet not high enough to cause high frequency attenuation with extra length microphone cables. Further more, for remote work we have two distinct advantages in the high impedance type, first in A.C. remote amplifiers the input transformer is not used, as this is in the microphone and thus hum commonly caused by electromagnetic coupling between the power supply and input transformer of the amplifier is out, as the input transformer is many feet from the power supply. Second, the elimination of the input transformer in the amplifier is just one less transformer for the sound to go through, thus we have actually better response plus more gain from microphone to output, as there is less loss by elimination of the input transformer.

It is the writer's opinion that there are no doubt scores of good high quality remote amplifiers formerly used with carbon microphones that have a moderate gain of from 50 to 60 Dbs, which would be sufficient with the elimination of the input transformer to bring the high impedance microphone of the Velocity type up to usable volume to feed over the telephone line of moderate lengths. At the most the station engineer could insert one of the latter pentodes such as a 6C6 into the first stage of this amplifier with little trouble and build the gain up to a good high point. Any engineer that is contemplating the use of a Velocity microphone of the high impedance type for remote purposes should be given full co-operation by the Gates engineering department if it is necessary to make any alterations in the present amplifier now in use with a carbon microphone. Sending the diagram will help, but it is not essential if we have the general layout.

News During 1935

Broadcasters beat the press in the correct report of the Hauptman trial verdict. News commentators for the first time covered a trial of importance and some seemed to know more about what was going to happen than those in the court room. At least they doped it right.

The broadcast of the Diamond Jubilee of King George and Queen Mary of England! A remarkable feat in entertainment value.

The two way broadcast between the Stratosphere flyers and the China Clipper and the London News. Warners withdraw from ASCP, leaving from 30 to 40% of the music up in the air, or perhaps out of the air.

Broadcast sales up nearly 25% in time. Equipment sales jump 20%.

Modulation measuring equipment ordered in all stations by FCC by November 1, 1936.

The success of super power and the design of WLW's suppressor antenna to prevent Canadian interference.

And thanks to all broadcasting stations, Gates sales nearly doubled that of 1934.

JUST WHAT DO YOU WANT

As explained in first issue of the Gates Studio Review, it is the intention of this paper to be of help to broadcasters and not just a plain advertising medium. Many stations have written us telling us that they liked the Review, a few of which are mentioned elsewhere in this issue. However, we would like to know just what you would like to see in this paper. We want to make this paper helpful. Let us know your views. If you have a contribution, send it in. If it's about broadcasting and is of value it will be printed by all means.

What They Say About New Gates Studio Review

"It is indeed a pleasure to receive the new studio review. We find the paper loaded with newsy items and choice diversified matter. Wishing you lots of success in the new venture.

Signed—Columbia Broadcasting System.

The studio review is swell. The first issue just reached me and I want to be the first to phone you and tell you that we like it.

Signed—Francis Wentura, Chf. Eng., Radio Station WTAD, Quincy, Ill.

I certainly like the new Gates Studio Review. Be sure and keep me on the mailing list.

Signed—Associated Broadcasters Corp., Kansas City, Mo.

Housecleaning

The Gates offices took on a new appearance January 1, being entirely remodeled so that visiting broadcasters could plow through desks, microphones and amplifiers a little easier without tripping over them and thinking they had to buy them to pay for the damage. Because of an unlooked for business during late December, the Gates factory worked through the holidays rather than the usual shutdown for repairs and renovating.

Used Equipment

For Sale—One used B-94 Portable remote amplifier. In new condition, having three channel mixer, volume indicator, cabibrated master gain, and complete with tubes and six foot battery cable. Uses two 864, two 231 and one 30. Amplifier gain 60 Dbs. Equipped for carbon microphones, but may be used with condensers or any microphone with pre-amplifier ahead. Catalog price \$165. Sale price \$75

For Sale—One two stage battery type new remote amplifier model 51-A. Mounted in metal cabinet. Uses a 30 and a 31. This job in fine shape. Being discontinued for newer models. Catalog price \$45. Sale price \$22.50.

We have a quantity of new line to line transformers which are being discontinued because of newer models. Primary 200 or 500 ohms and secondary the same. In cast metal cases. Ideal for all audio requirements. Each \$1.25. Quantities of 5 at \$1.10 each.

FOR THOSE WHO BUILD EQUIPMENT

For those engineers who many times have their own ideas on equipment and like to build remotes or speech equipment, or even a large power supply, may we suggest that the next time you are building something you get in touch with Gates engineers. In our stock room are hundreds of standard items used in all stations that can be obtained cheaper, as we buy in manufacturers quantities and often times can be obtained much quicker. If it is a socket or a 10,000 volt power transformer, let Gates give you a quotation first.

GATES 40-B PRE-AMPLIFIER



The Gates 40-B Pre-amplifier is for use with the Gates Model M Velocity Microphone or any similar type having either a 50, 200 or 500 ohm output. It is featured with two triode stages using type 6C6 tubes, and may be operated with ether A. C. or D. C. on the filaments. The input transformer may be arranged for any standard impedance and is in cast case with electrostatic shield to prevent inductive pick-up from power supply devices. The output is either 200 or 500 ohms. Gain 50 Dbs. Size 5 inch by 19 inch, built on 3-16 inch aluminum panel finished in baked black Kem.

Model 40-B Pre-Amplifier with set tested tubes \$40.00

Manufactured By

GATES RADIO & SUPPLY COMPANY

MANUFACTURING ENGINEERS SINCE 1922

QUINCY, ILLINOIS, U. S. A.

THE MODEL B-60 PORTABLE REMOTE AMPLIFIER

A Real Compact Remote For Use With Velocity
W. E. Dynamic, Inductor or Crystal Microphones



The Model B-60 Remote Amplifier is the last word in true high fidelity moderate priced remote equipment. It is now in use by stations of the 100 watt class and of the 50,000 watt class and is continually bringing unsolicited comment from users as to its real construction and performance.

The B-60 has four audio stages developing an 80 Db. gain. All tubes used pull only a small amount of current, thus dry filament batteries may be used as well as the smaller type of plate battery. Milliammeter is supplied as part equipment to test all stages for tube emission. The master gain control is calibrated in decibels, filament switch and output monitoring jack are all part equipment. Full shielded wiring of all sensitive circuits is provided to prevent extraneous or inductive pick-up.

The finish is in baked black Kem with case of heavy fibre design to assure ruggedness and waterproof housing. Front and back covers are removable. The size is 16½ inches long, 11½ inches high and 6½ inches deep with padded leather handle on the top for carrying. Heavy duty microphone plug is supplied as well as five foot battery cable with plug arrangement both of which plug into the side of the case.

Battery case is obtainable if desired at \$7.75 additional to the following prices.

PRICES

B-60 AMPLIFIER ---200 ohms output for Velocity or Inductor Microphones	\$90.00
B-60A AMPLIFIER ---30 ohms input for W. E. Dynamic Microphone	\$90.00
B-60C AMPLIFIER ---5 Megohms input for Crystal Microphone	\$90.00

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