

THE GATES STUDIO REVIEW

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December, 1935.

NEW GATES PUBLICATION TO COME TO BROADCASTERS EACH MONTH FREE

Dept. of Commerce Regulations on Tower Painting and Lighting

The air navigation division of the department of commerce has issued regulations relative to the painting and lighting of the new vertical radiator which are as follows: Quote, "It must be painted throughout its height with alternate horizontal bands of international orange and white having the orange at both top and bottom. The width of the orange bands shall be one-seventh the height of the structure and the white one-half that of the orange bands. The top of the tower shall have two 100 watt lamps equipped with a relay for instant change over in case of the failure of one. At both one-third and two-thirds levels on diagonally opposite corners shall be placed 100 watt lamps and all shall be enclosed in red holophane globes and burn from dusk to dawn. If you are putting up a tower be sure and notify the Department of Commerce when finished as they want it on the air maps."

Australian Gov't. Buys Two Gates Speech Equipments

Melbourne — The Post Office department of the Australian government has purchased two special built speech equipments for use in modernizing their government controlled broadcasting stations. Each equipment uses a pair of 242-A tubes in the output and was entirely A. C. operated. Inasmuch as the 242-A tubes had to be run quite far down in the audio set up the hum level was necessarily held below -80 Dbs. which is quite difficult with the 242-A tube when all A. C. operated. Gates Engineers designed a special circuit to do the trick.

Taking Auditions to the Customer

Hard to crack prospects for radio advertising are being signed by wide-awake radio time salesmen by taking the audition to the customer instead of the customer to the audition. It only takes a small portable P.A. System with portable turn table to do the trick.

KID, Idaho Falls, Off to Flying Start With New Studios

Idaho Falls, Idaho—Radio Station KID opened up full blast on November 14 with complete new studios, vertical radiator and in fact just about new from start to finish. Among the many new things at KID is a mommouth pipe organ installed at five figures, giant radiator which will increase coverage three fold and complete new Gates Speech equipment including 500-A Speech Input Rack and Model M Velocity microphones. Station KID is managed by Jack Duckworth and the technical is handled by W. J. Provis, both having been with KID for years.

WMBD Buys Controlling Interest In WDW, Tuscola, Ill.

Peoria, Ill.—It is reported that Radio Station WMBD has purchased controlling interest of Station WDW, Tuscola, Ill., and is installing new transmitter and vertical antenna. They will occupy the frequency as held by the old KYW at Chicago. The new WDW will be in operation not later than January 1st and perhaps before. WMBD was purchased several years ago by Edgar Bill, prominent in broadcasting circles since nearly the beginning of radio broadcasting. Since that time it has grown in leaps and bounds and now is considered one of the best buys in the country. It is affiliated with Columbia and operates full time on 1440 K. C. with studios in the center of downtown Peoria that look like radio city itself.

FHA Loans Expire April First

Those stations that are still figuring on making some equipment purchases under the Federal Housing plan should remember that it expires April 1, 1936. The Federal Housing plan is different from that of regular loans inasmuch as the maximum interest charge allowed is 5 per cent and that loans may be obtained over as long a time as 5 years though 3 years seems to be the most favored. The loans are 20 per cent guaranteed by the government.

Quincy, Ill., Dec. 5—The Gates Studio Review, a new monthly publication, acting as a house organ for the Gates factory, prominent manufacturers of radio broadcasting equipment, makes its first appearance today. It is available to all broadcast engineers, managers, operators and studio directors at no charge whatsoever. It will be mailed regularly to all broadcast stations, but those desiring a personal copy will be sent one by merely requesting such on a postal card. Send your request to the Gates Studio Review, Gates Radio & Supply Co., Quincy, Ill. You will get your copy starting with the next issue. Send no money, stamps or wrappings from cartons, just your name. The Gates Studio Review is a publication for broadcasting only and is on a non-commercial basis and will carry what we hope to be all types of interesting material for the broadcast engineer and studio director. Contributions will gladly be accepted and published when sent in by engineers and directors or established engineers not directly associated with broadcasting stations. Contributions of a nature not pertaining to radio broadcasting will not be accepted.

Though the Gates Studio Review is a house organ for the Gates Radio & Supply Company it will not by any means all be just plain advertising. It will contain news of individual stations obtained through reliable sources or by direct contribution. The Studio Review is for exchange of ideas and creation of new ones as well.

Velocity Versus Crystal Microphones

WHICH IS THE BEST?

Quincy, Ill.—The question has been asked our engineering department by many broadcasters, "which is the best, the Velocity or Crystal microphones". Well, it is just about asking which is the best white sugar or brown sugar, they both are plenty sweet and one makes blame good candy while the other does equally well as a cake icing. So what? We can discuss the advantages of both and you can decide.

The Crystal microphone is a high impedance device which is not always desirable, but on the other hand it eliminates the input transformer which with a good crystal microphone could not help but help the frequency response. The diaphragm type of microphone can only be considered for voice circuits and for that they are okay with lots of wallop and far better than the old carbon. The Brush B2S seems to be the best bet for remotes having a flat curve from 50 to 4500 which then rises about 6 Db. to 8000 cycles which is plenty desirable for telephone lines which lose the highs rapidly anyway.

The Crystal microphone is fairly uniform on all four sides as to sensitivity, speaking of course of the cell type only, will not blast and may be used either as a close talking or distance pick-up microphone. It is good and crisp be-

cause of its rise in the highs. The microphone cable, however, must have a very low capacity to prevent cut off of the highs and where lines over 25 feet are used a special cable is required for best results. The crystal microphone when operated out of doors in the summer time should be kept out of the direct rays of the sun or it will deteriorate.

The Velocity Microphone has its place just the same as the Crystal having certain advantages and a few that require some care, but the advantages outweigh the disadvantages by far. The main disadvantages are that it is not a close talking microphone. The crooner who liked to lay the microphone on his palate can not do it with the Velocity and sound like a crooner, best results are by standing not closer than one foot from the microphone but the results then are so fine that it is well worth the time to train the artist who crowds the microphone to reverse his tactics. The Velocity is directional which in some cases would be a disadvantage while others, in fact, most cases advantageous. Perfect balance of musical groups, large or small, is possible with only one microphone as those penetrating instruments can be placed on an angle to the microphone. Fade outs by merely

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Who's Who In the Gates Organization

The City of St. Louis, Mo., and the City of Kansas City, Mo., as well as central and southern Illinois, all of Missouri and parts of Kansas, are all handled by our St. Louis office in charge of F. J. Bullivant, 1913 Washington Ave., St. Louis, Mo. Mr. Bullivant has been in the broadcast equipment industry for years and will gladly assist any broadcaster in his territory in any way possible. His telephone is Chestnut 6510.

Gates sound equipment in general including public address, talking picture and broadcast is represented in Tulsa, Okla., by Hamilton and Patterson, 1239 S. Gary Place, Tulsa, Okla. These gentlemen have both had world's of experience in electronic problems and the oil state broadcasters will find their consultation with them very valuable.

Mexican broadcasters will be glad to learn of plans under way to make Gates products available to them along with experienced engineering and law service. Gates broadcasting products will soon be sold to Mexican broadcasters directly out of Mexico City by one of the best known technicians as well as lawyers in the country of Mexico. Gates products until further notice will be sold to Mexican users as before, through our own export department.

Gates products in Canada may be purchased directly from the Gates factory or through the Canadian Marconi Company, Ltd., of Montreal, Quebec. Canadian broadcasters will be glad to know that after January 1, 1936, the tariff on radio broadcasting equipment will be lower by 5 per cent. That combined with the lower cost of the U. S. dollar bill to export customers should be a big boost to our Canadian customers.

Have You Latest Gates Catalog?

Early this last Fall, the new Gates Broadcast Catalog was sent to all stations in the United States, Canada, Mexico and Cuba. It is recognized with a blue cover and vertical radiator on it. Do you have your copy, and if not, send for one at once, or if yours is getting worn send for another copy which has several new pages added. By the way, when requesting your copy, send for it on the station letterhead. We do not like to send the catalogs to others than broadcast engineers and managers and we cannot tell very well by a postal card.

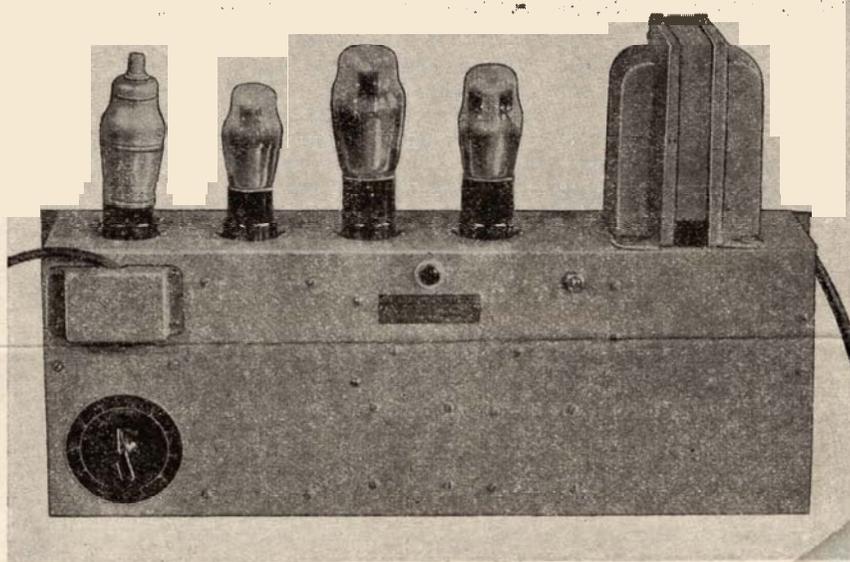
A CHRISTMAS WISH

If I were a broadcast station owner, operator or announcer my one wish would be for my maker to allow me to continue to be such. Christmas time is a time of happiness and joy, yet I know that radio broadcasting becomes so common place in the lives of those associated directly in broadcasting that they forget they are bringing year around joy to millions. The most humble efforts of a struggling artist somewhere is being received perhaps by an invalid, a shut-in or those in varied walks of life with all the warmth of acceptance as if it were their own kin at the microphone.

If I were a wishing still more this Christmas time I would wish that every engineer who keeps the wheels going around could see his efforts amply repaid by a dancing merry crowd of young folks listening to Santa before the loud speaker or, if a director, he could see a strife worn brow perhaps smoothed by his program efforts and, finally, if an owner would only fully realize what he has done to make a one-time selfish world once again "Just Plain Neighbors".

P. S. GATES.

The Gates A-175 A. C. Remote Amplifier



Christmas is a usually a hectic time for the broadcast engineering department as usually more remote amplifiers are needed than possessed. Department stores, special holiday broadcasts, etc., call for good equipment yet not too much investment for the broadcaster.

The A-175 is built for use with all crystal or high impedance Velocity microphones. It has a 85 Db. gain and is flat from 40 to 9000 cycles within 1 1/2 Db. It is so built that it may be set on a desk or bolted to the wall or side of a desk. It is 19 inches long inches high and 4 inches deep. Height does not include tubes. There is no hum in the job whatsoever. Uses two 6C6s, 42 and an 80 tubes. Output 500 ohms.

We suggest the Gates A-175 Amplifier with the Brush B2S listed on page 3 as an ideal remote combination.

Model A-175 Amplifier—With tubes but less microphone.....\$89.00

EDITORIALS

Increased Power for Regionals

The statement by the Communications Commission that regional stations increase their power in some cases ten-fold should be heralded by these regional stations as one real Christmas present. It, of course, assures these broadcasters that they will be assured of higher power if they will but ask for it and it indicates quite clearly that they will be expected to increase their power. It is well known that regional stations are not covering all of the territory that they should, leaving a big dead space in certain territories on regional channels. The average distance between regional stations will vary from 350 to 700 miles and in some cases more. At present the minimum power is 500 watts and some of these stations will be allowed 5000 watt day time power. At present most of the regional stations are operating with either 500 or 1000 watts power.

The only question about increase of power would be at the higher frequencies which still seem to be tough for receiver manufacturers to get lined out as to selectivity. Will the increase cause a bigger jumble between 1200 and 1500 kc. than now exists? That, of course, is to be seen. It could work both ways.

The Modulation Meter

The latest compulsory rule of the F. C. C. is the installation of a modulation meter by November 1, 1936. This, of course, is a good move, especially for the equipment manufacturers, but it is a question as to whether the compulsory need of a Cathode Ray Oscillograph would have been a better move by the commission. Engineers are pretty well agreed that the Cathode Ray tube will show a great deal more than meters including percentage of modulation as well as carrier noise which can not be very well shown accurately on a modulation meter.

Nevertheless, the present order is a step forward and luckily it will not create a burden such as did the Frequency meter order put into effect when conditions were at their worst with the incomes of broadcasters lowest in history and, of course, the Modulation meter should not sell at the best over \$200.00.

One thing the modulation meter will show up and that is the fact that there are as many stations undermodulating as there are on the brink or going over. Lack of excitation, under powered modulating systems and poorly regulated power supplies perhaps will be some of the discoveries. Who knows.

VELOCITY VERSUS CRYSTAL MICROPHONES

(Continued from Page 1)

walking from the hot side to the dead side are possible for dramatics and in outside broadcasts the dead side can be placed to the crowd and lessen pick up of noise.

The Velocity is a low impedance microphone even when considering the type that works into a grid as it is only 2000 ohms thus we do not have to bother about special cables. The output level is -62 Dbs. in all of the newer types and they may be used with any length of cable between microphone and pre-amplifier. The high impedance type is making history in remote pick up as for the first time an A. C. operated remote equipment is possible with the remote unit all in one and operating with a Velocity microphone. Of course this is possible because of not using an input transformer in the remote amplifier but in the microphone itself.

Protection of High Voltage Rectifiers

The high voltage rectifier can not be any longer mounted on an open frame work or rack. The F. C. C. seem to be getting tired of hearing now and then of a bumped off operator. The cabinet used on the 500-A rack shown on the back page makes a fine housing for average size rectifier equipment. The back door can quickly be arranged to have an automatic switch attached to cut off the power when opened. There is lots of room in it, being 70x20x18 inches in size. Full information on it available by writing the Gates factory.

Cuban Listeners Are Complaining

Cuban listeners are complaining that many U. S. programs are cut out because of activity on exclusive U. S. bands by some Cuban stations. However, investigation discloses that only one Cuban station is operating on U. S. bands, namely CMCX on 66 Kc. and 150 watts. Station WFAF of New York is on 660. It seems that Cuban receivers must be in many cases out of date as WFLA on 620 has no Cuban competitor nor has WGST, Atlanta, on 890. The Cuban government should be commended for their new law, No. 332, bringing about legislation to balance the broadcasting set up in Cuba. U. S. stations are all ready to agree that legislation was the savior of American broadcasting, especially as to frequency allotment.

BRUSH MICROPHONES

Model B2S

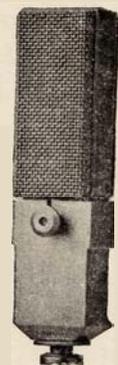


The newest development from the Brush laboratories in microphones for remote service. Built in a light but rugged aluminum case and being of the cell type it offers fine frequency response that is only possible with a cell type microphone. The B2S is not a diaphragm type microphone but a genuine broadcast device. Its response from 40 to 5000 cycles is flat and then rises about 6 Db. to 9000 cycles. The B2S will add crispness to your remotes and goes nicely with the

Gates A-175 amplifier. It is 65 Db. down.

Price to Broadcasters.....\$27.00

Model 2S2P



Another Brush microphone that needs no introduction to broadcasters. Used in many high fidelity stations because of its unusual response at higher frequencies. From 30 to 7000 cycles the curve is flat and then rises about 5 Db. to 10,000 cycles or at a point where radio receivers are least efficient. The 2S2P has four cells wired in series parallel and is supplied with plug and socket ready to mount to your floor stand. It is about 70 Db. down. Operates nicely with Gates

40-C Pre-Amplifier or A-175 Remote Amplifier.

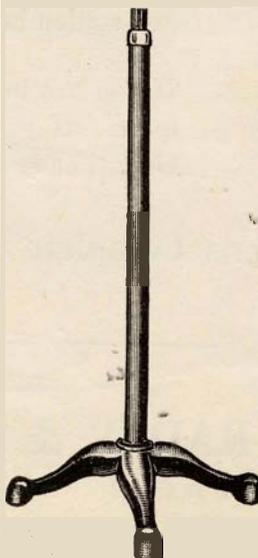
Price to Broadcasters.....\$65.00

FLOOR STAND

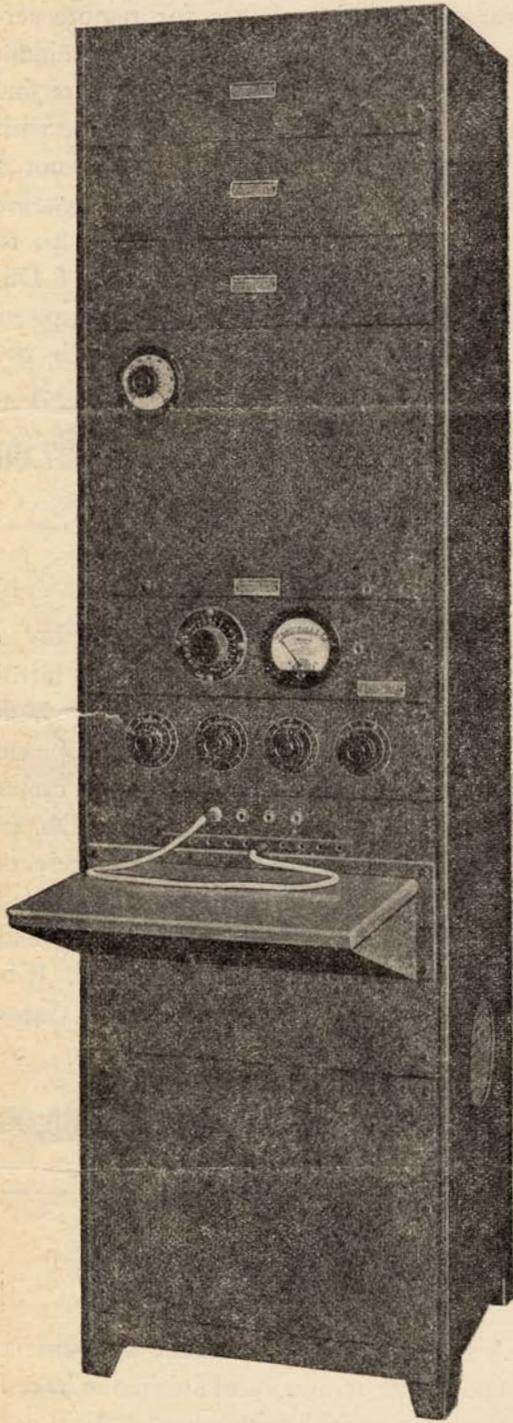
A fine stand with hydraulic adjustment (no thumb screws) and finished in baked black Japan with tripod base. Will not tip or become top heavy. Has wide range of adjustment and all fittings are nickel plated.

Model 56 Floor Stand
For B2S Microphone\$10.80

Model 56 Floor Stand
For 2S2P Microphone..\$12.20



THE 500-A SPEECH EQUIPMENT IS DOING A REAL JOB FOR BROADCASTERS



We hear a great deal today about high fidelity but high fidelity is only part of a complete speech input equipment. What about convenience of handling, ruggedness of construction and, yes, what about 1936 cabinet design construction which offers double shielding, complete dust protection and a massive appearance that adds greatly to the eye value of your station?

That's what we demanded of the new 1936 Speech Equipment and our engineers turned out the 500-A; but one thing was in this demand, namely, the selling price must not be over \$500.00 and the quality must be proven. That was a big order, but it was filled and filled in a glorious manner.

As a result the 500-A has factory proven parts that have had in every case one year or longer of constant test to prove its worth. It is built in an all steel cabinet with full size door on the rear and of standard relay rack dimensions or 20 inches wide, 70 inches high and 18 inches deep. It is a desk above which is the four position mixer, patching panel and level indicator right at the operator's finger tips. Above these panels is the main station amplifier having three stages, a gain of 65 Db. and an output of 6 watts at 2½ per cent distortion content and the top three panels are pre-amplifiers for either Velocity or Crystal microphones. At the bottom is the master power supply with 25 per cent overload protection.

The results: Hum free operation, high fidelity. It is complete other than the microphones. It has eye value. It will stand up under 24 hour a day service. Yes, this job will grace a 100 watt or a 500 kilowatt. Money will not buy better.

Remember Gates Engineers are audio specialists, they do not manufacture transmitters, their work stops after the modulator, but they really know what's what in the audio problems of broadcasters and how to build it good at a price that will fit into the most limited broadcast station budget.

If you are buying a new transmitter specify GATES Speech Equipment. If you are modernizing, remember if its Speech Equipment Gates builds it better for less.

The 500-A Equipment Sells Complete With Tubes at only.....\$495.00

GATES RADIO & SUPPLY COMPANY
 MANUFACTURING ENGINEERS SINCE 1922
 QUINCY, ILLINOIS, U. S. A.