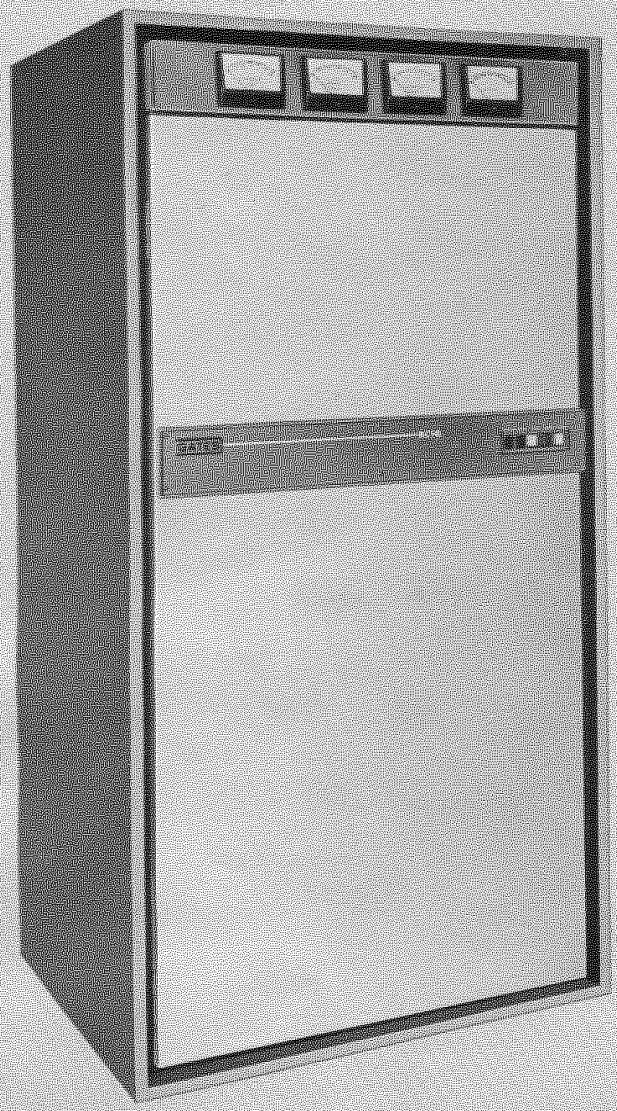


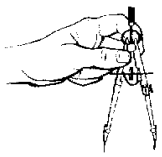
GATES

BC-1G 1000/250 WATT AM BROADCAST TRANSMITTER

THE "BIG G"

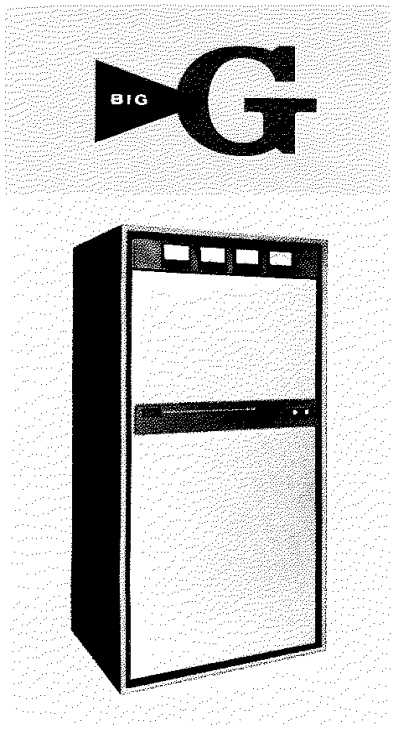
G

The product of over a quarter of a century of 1000 watt broadcast transmitter refinement.



TOP ENGINEERING POINTS

- Uses long life 833A tubes for dependability and low cost.
- Silicon rectifiers used in all power supplies. Tube rectifier model also available.
- Inbuilt remote metering kits standard equipment.
- 100% accessibility from front and back.
- New swing-out vertical construction.
- Full "T" output network for much lower harmonic radiation.
- Only 3 tube types.
- Wider response—±1.5 db., 30-16,000 cycles.
- Low power consumption—only 3850 watts at 100% modulation (silicon model).
- Inbuilt 1KW dummy antenna for full 100% modulation.
- New styling—the "Leader Look" of AM transmitters.
- RF line current meter is standard equipment.



NEARLY 1,500,000 WATTS—With the introduction of the BC-1G 1000/250 watt AM broadcast transmitter, Gates approaches the 1500 mark in the number of Gates 1KW AM transmitters manufactured and sold since the end of World War II. The industry acceptance afforded Gates 1KW transmitters has been gratifying, however this acceptance stems from the basic quality standards and leadership in new design features that have long been a Gates hallmark. Recognizing that excellence must be more than a claim, the instruction from Gates management has always been, "Design it the best you know how, after which we will price it."

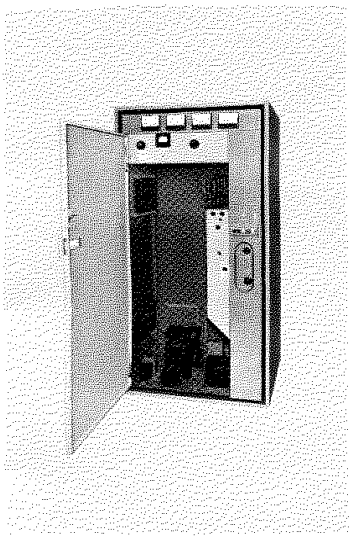
This premise is again reflected in the design of the "Big G" transmitter. Gates engineers have paid particular attention to controlling intermodulation distortion. Low intermodulation distortion, not measurable on standard distortion measuring equipment, is vital in obtaining that *extra quality* sound. A full Tee network output system easily meets FCC harmonic reduction figures without the assistance of the antenna coupling unit or other attachments. The inbuilt dummy antenna, an original idea from Gates, is capable of handling 100% modulation for use as a valuable test device. Front and rear doors and new swing-out construction provide a new dimension in transmitter accessibility.

GENERAL DESIGN—The BC-1G 1KW broadcast transmitter is completely self-contained in one sturdy steel cabinet 78″ high, 37″ wide and 29″ deep. An attractive front door is hinged on the left and opens to expose *all* tuning controls. Color-coded switches for Start-Stop and Power Change functions are accessible from the front when the door is closed. These switches illuminate to show the transmitter operating status at a glance. Behind the front door is a full-length perforated grill, interlocked for personnel protection but affording full view of components from top to bottom while the transmitter is operating. This grill may be removed in seconds by means of snap locks. Fast rear access is also achieved by turning two thumb screws to remove the back panel of the transmitter.

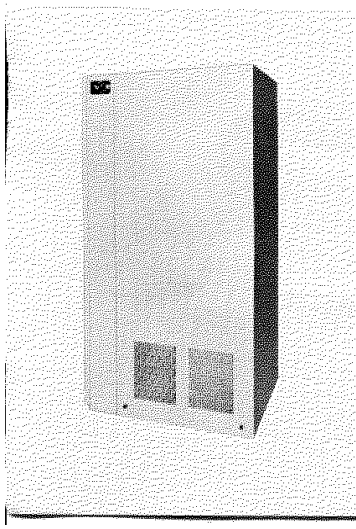
A special new feature of the "Big G" is a swing-out vertical panel/shelf assembly which provides a fresh approach to accessibility design. It gives complete access to the low power audio and R.F. stages, control circuitry, bias supply, filament transformer and relays for the power amplifier and modulator.

"Design it the best you know how, after which we will price it."

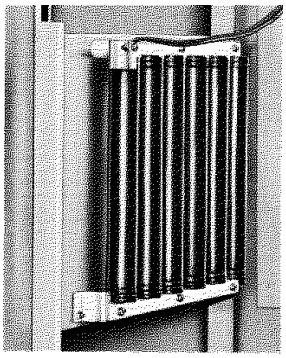
"Behind the front door is a full length perforated grill, interlocked for personnel protection . . ."



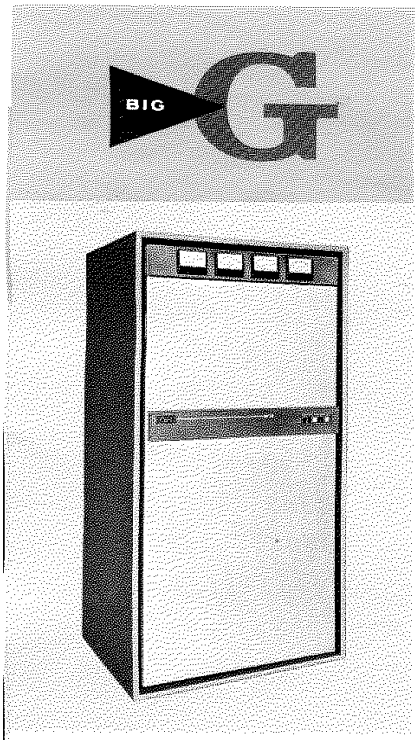
"... completely self-contained in one sturdy steel cabinet 78" high, 37" wide and 29" deep."



ELECTRICAL DESIGN



"The inbuilt dummy antenna, an original idea from Gates . . ."



"Listenability," defined as that unusual, rich quality that holds listeners to your spot on the dial, is standard equipment in the "Big G." Low intermodulation distortion was the objective. The combination of a cathode follower audio driver, an unusual over-all feedback system, low leakage reactance in the modulation transformer and modulating the R.F. driver as well as the power amplifier has resulted in a fidelity of transmission seldom equalled in AM broadcasting equipment.

R.F. SECTION—Dual, vacuum type, ovenless crystal units* provide utmost stability. Frequency adjustment and crystal changeover are made from the front as are all transmitter control functions. There are four R.F. stages to assure good frequency stability. Dual long-life 833A tubes feed a generous 1000 watts into a complete Tee network for exact loading and best harmonic attenuation. The final amplifier and Tee network are tuned by variable coils of the large edgewise type, manufactured by Gates.

AUDIO SECTION—Wider frequency response, low harmonic and intermodulation distortion and low noise, the basis of the "Big G's" true high fidelity sound, result from a unique circuit arrangement. Intermodulation distortion, an unseen and seldom measured distortion component, when eliminated, provides the difference between ordinary and excellent broadcasting. A new low leakage modulation transformer combined with superb high frequency response has produced typical distortion readings of 1.5% or less at the critical 7000 cycle audio frequency. Push-pull 807 tubes modulate the husky push-pull 833A high level modulator tubes, producing an abundance of extra power to provide full performance as tubes age.

POWER REDUCTION—Class IV stations will particularly appreciate the quick and efficient way that the "Big G" reduces power to 250 watts. Switching in the primary of the main plate transformer eliminates power consuming and heat generating voltage dropping resistors. Plate voltage is reduced on both the power amplifier and modulator tubes, resulting in possible hundreds of added tube hours as well as savings in power costs.

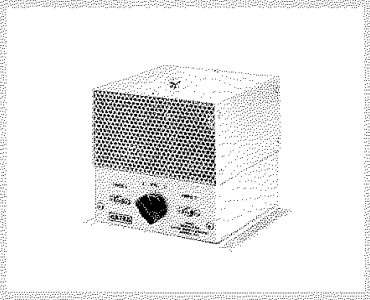
POWER AMPLIFIER TUBES—In the search for the most reliable power tube, based both on performance and cost per hour, Gates engineers exhaustively tested every FCC-approved tube for this service. The result was the selection of the 833A tube for both R.F. and modulator circuits. The 833A provides a combined hourly tube cost of approximately 1.3¢ and has nation and world-wide availability. Being a solid husky triode, it is more tolerant to changing operating conditions caused by variances in load or fluctuations in cooling. It was found that this tube resisted spurious emissions and other derelict tube outputs, and that it continued to perform excellently even when the cooling system failed. Pressure-type cooling is not required for 833A's.

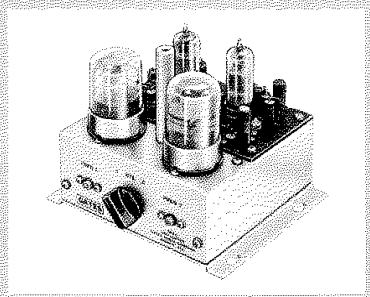
* Second crystal optional equipment.

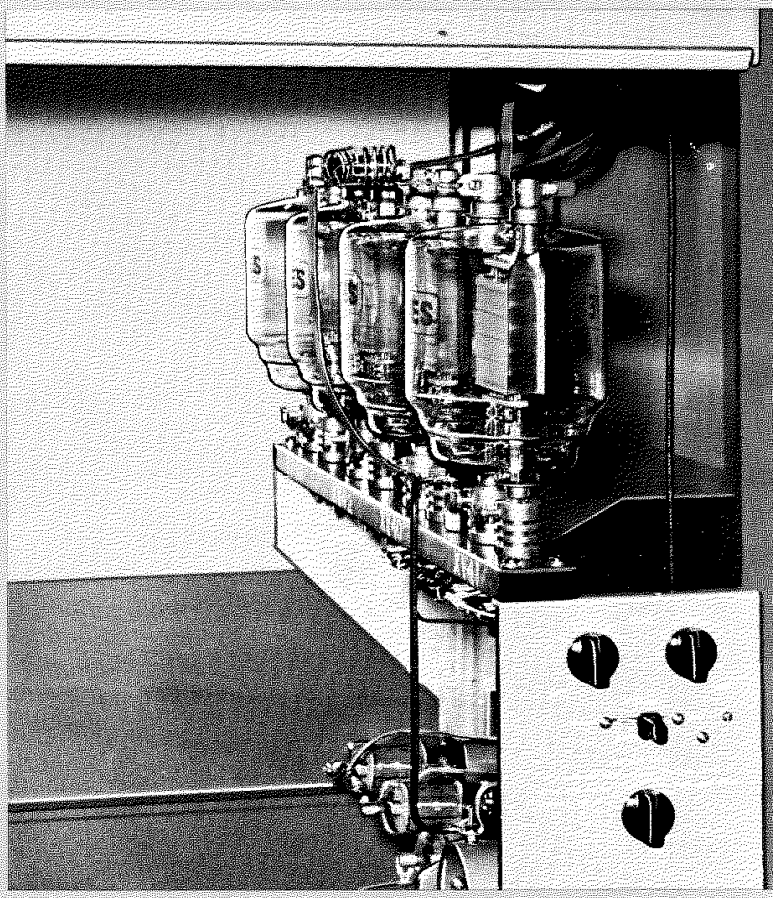
SMOOTH SOUND [illegible] distortion!

"The 833A, being a solid husky triode, is more tolerant to changing operating conditions . . ."

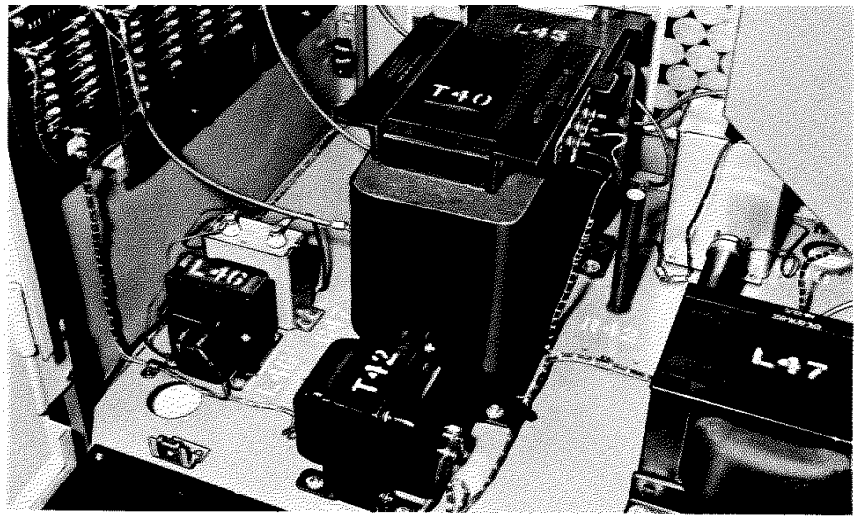
"Dual, vacuum-type, ovenless crystal units provide utmost stability."







The new Gates BC1G is the only 1000 watt broadcast transmitter made today that is 100% accessible from the front.



"Reliability comes *only* through big conservative design."

BIG G

REMOTE CONTROL—Inbuilt metering kits are provided for both plate voltage and plate current. The use of relays throughout rather than circuit breakers permits almost instantaneous adaptation to remote control and eliminates the need for outboard attachments. All electrical connections for remote controlling are brought out to terminal boards. It is only necessary to add a standard, reversible motor assembly for the output power rheostat, for which space and connections have been provided.

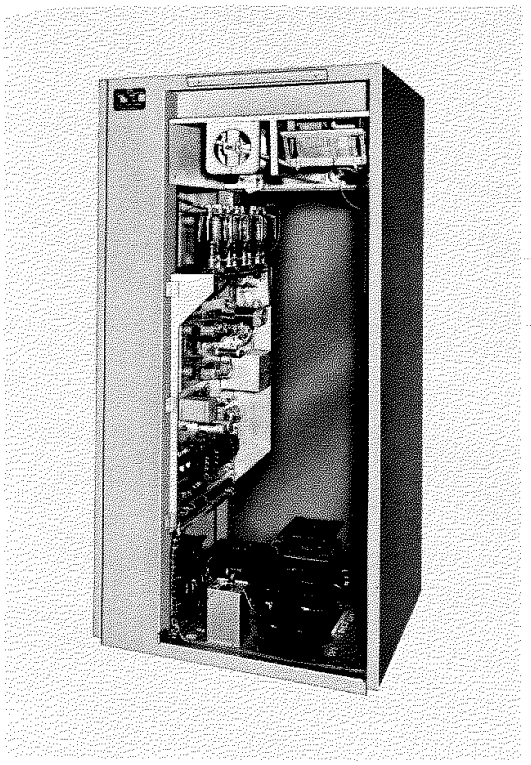
RECTIFIER SYSTEM—The BC-1G solid state model has three separate power supplies, all with generous size silicon rectifiers, to provide lifetime reliability. In the BC-1G tube rectifier model, 8008 tubes are used for the high voltage supply and 866A tubes for the intermediate supply.

COOLING—A cool operating transmitter is designed from the outset with cooling as a major engineering objective. In the "Big G," parts location is of major importance and is combined with an intelligent convectional cooling system and suction fan ventilation in the top of the cabinet. Fresh air is drawn through dual removable filters at the back base of the transmitter and is circulated through every nook and corner and then exhausted at the top. Heat generating power tubes are located in the direct air stream. Component and tube life are greatly lengthened by the cool-running BC-1G transmitter.

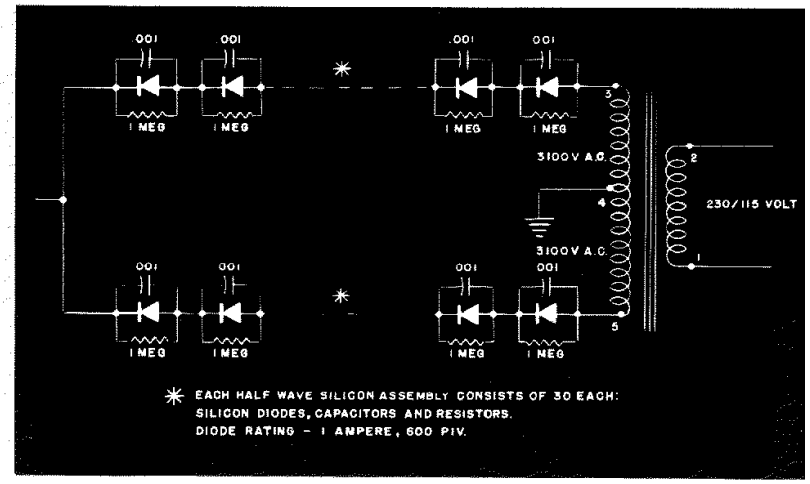
MONITORS—All current makes of frequency and modulation monitors may be accommodated. The modulation monitor is inductively coupled through an ingenious pickup coil while the frequency monitor connects to a low level radio frequency stage. The Gates M-4990 FCC-approved frequency monitor and the Gates M-5693 FCC-approved modulation monitor (patent applied for) are excellent companion units for the new BC-1G transmitter.

RELIABILITY—A glance at the inside of the "Big G" transmitter tells the story. Reliability comes *only* through big conservative design. And Gates has it with big transformers that invite 24-hour schedules and the husky, Gates-built, edge-wound tank and Tee network coils. Many Gates transmitters are shipped overseas where 50 cycle power lines prevail. The BC-1G transmitter is designed for both 50 and 60 cycles and automatically provides a 20% bonus safety factor for 60 cycle users.

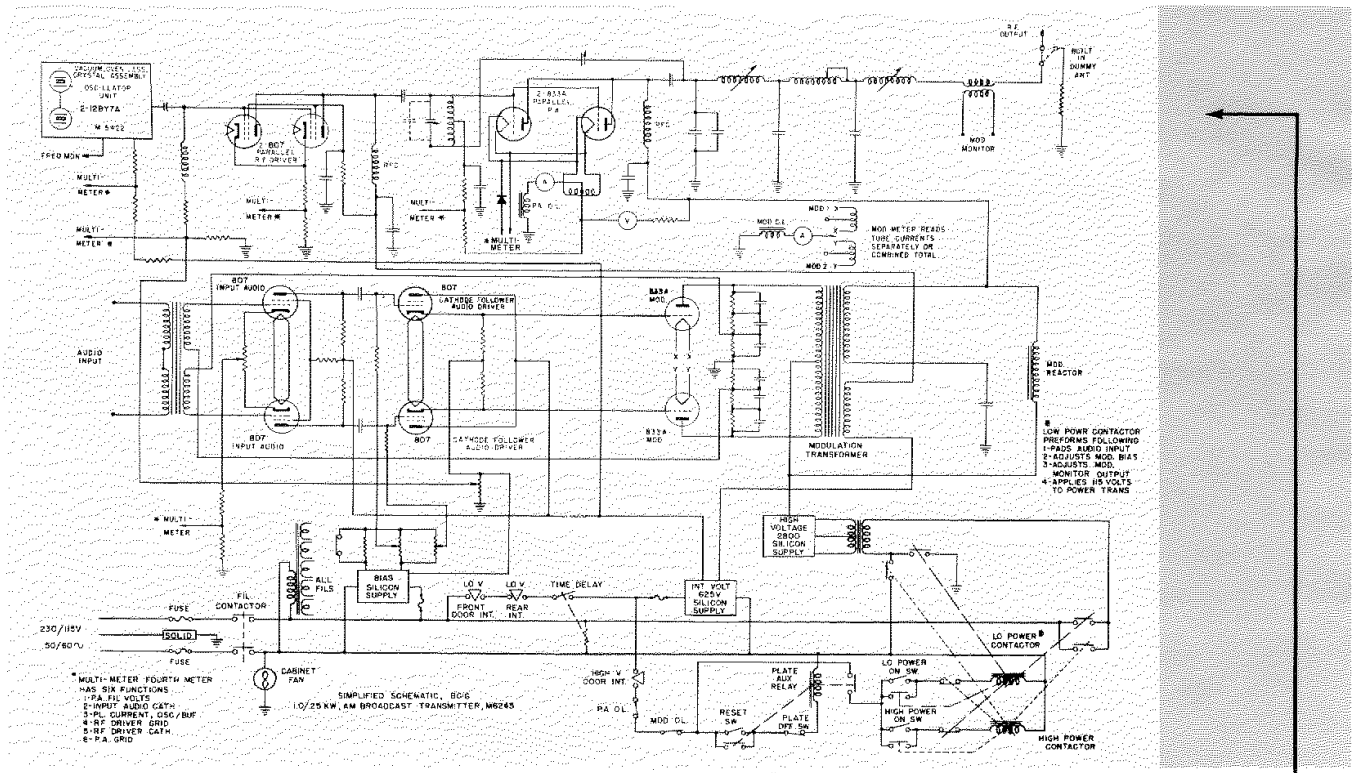
THE "LEADER LOOK"—The important styling is inside, where it counts. The new "Leader Look" external design is a bonus you get with the "Big G." This fresh approach to transmitter design was adopted after months of visual research to determine the taste trend of broadcasters in equipment styling. No compromise is made with the new external styling of the BC-1G transmitter from a functional standpoint. It is designed to satisfy the broadcaster's professional requirements of accessibility and ease of operation and maintenance as well as the esthetic taste.



The important styling is the Engineering design. Note the clean sweep air shaft from bottom to top, meaning cool operation—less problems.



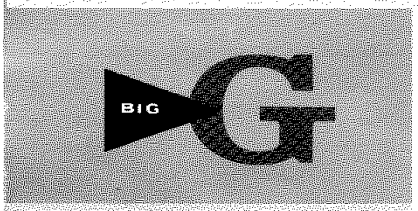
The high voltage silicon power supply used in the "Big G" utilizes 60 silicon diodes, each rated at one full ampere.

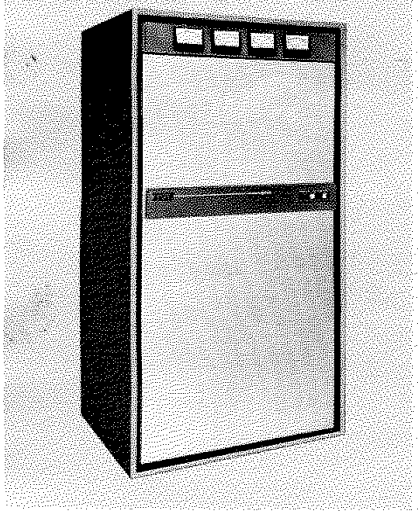


The Big G, with its full-fledged output Tee network, meets all FCC R.F. harmonic reduction specifications without depending on an external antenna coupling unit to do part of the filtering—this is Big G quality.

BC-1G

SPECIFICATIONS





Power Output:	FCC-rated 1000/500/250 watts. Maximum capacity to accommodate phasor loss, 1100 watts. Power reduction 1000/250 watts standard equipment.
Audio Input:	150 or 600 ohms at ±16 db. ±2 db.
Audio Response:	Under practical programming conditions, ±1.5 db. 30-16,000 cycles. Rated ±1.5 db. 30-12,000 cycles.
Audio Distortion:	Under practical programming conditions, 2% 50-16,000 cycles. Rated 3% or less 50-10,000 cycles.
Noise: (unweighted)	At 1000 watts, 60 db. or better below 100% modulation. At 250 watts, 55 db. or better below 100% modulation.
Frequency Range:	540-2000 Kc as ordered.
R.F. Output Impedance:	50/70 ohms.
Frequency Stability:	± 5 cycles or better.
Monitors:	Will accommodate all current models. Gates FCC-approved M4990 frequency monitor and M5693 modulation monitor recommended.
Modulation:	High Level Class B.
Power Input:	230 volts, 3 wire, 50/60 cycles single phase. (208 volts also available where specified).
*Power Consumption:	1 KW; no modulation, 2650 watts; average modulation, 3150 watts; 100% modulation, 3850 watts. 250 watts; no modulation, 1650 watts; average modulation, 1825 watts; 100% modulation, 2050 watts.
Carrier Shift:	Rated 3% or less. Typical with adequate power mains is 2%.
Dummy Antenna:	51½ ohms for full 100% modulation.
Size:	78" high, 37" wide, 29" deep. Front door swing, 32".
Finish:	Two tone medium gloss gray with trim in brushed aluminum and black.
*Weight:	Net 1000 lbs. Domestic packed, 1140 lbs. Export packed, 1490 lbs. Cubage 110.
*Tubes:	Model M6245 solid state rectifier model (2) 12BY7A, (6) 807, (4) 833A. Total tube types, 3. Total tubes, 12.

*Power consumption for the BC-1G transmitter with rectifier tubes is slightly higher than stated in the specifications due to the addition of filament transformers. Likewise, packed weight is increased by approximately 25 lbs. Tube rectifier model M-6245B includes 2 type 8008 and 2 type 866A tubes. All other specifications are the same for both models.

ORDERING INFORMATION

BC-1G transmitter for 1000/250 watts complete with tubes, one crystal, dummy antenna and silicon rectifiers	M6245
BC-1G transmitter for 1000/250 watts complete with tubes, one crystal, dummy antenna and tube rectifiers	M6245B
Extra crystal and vacuum holder	M5602
100% spare tube complement for BC-1G (silicon rectifiers)	TK-471
100% spare tube complement for BC-1G (tube rectifiers)	TK-472

NOTE: 208 volt model. Where 208 volts is required instead of 230 volts, be sure and specify when ordering. Otherwise, 230 volt model will be supplied.

GATES RADIO COMPANY
Subsidiary of Harris-Intertype Corporation
QUINCY, ILLINOIS
Offices in: HOUSTON, NEW YORK, LOS ANGELES, WASHINGTON, D.C.
In Canada: CANADIAN MARCONI COMPANY
Export Sales: ROCKE INTERNATIONAL CORP., 13 EAST 40th STREET, NEW YORK 16, N.Y., U.S.A.
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