BGW SYSTEMS

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OWNER'S MANUAL
MODEL 100B
PROFESSIONAL POWER AMPLIFIER

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- IMPORTANT -

PLEASE READ THIS PAGE BEFORE OPERATING

YOUR

BGW POWER AMPLIFIER

Your new BGW amplifier is designed to provide years of trouble free performance. Observing these few precautions will insure proper operation:

Read all Instructions before connecting any AC power to your power amplifier.

Retain this Manual for future reference.

Heed all warnings on the top or rear of the power amplifier.

The amplifier should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

The amplifier should be situated so that its location or position does not interfere with its proper ventilation. For example, it should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

The amplifier should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances that produce heat.

The amplifier should be connected to a power supply only of the type described in the operating instructions or as marked on the rear panel.

Precautions should be taken so that the grounding means of the amplifier are not defeated.

The power supply cord should be routed so that it is not likely to be walked on or pinched by items placed upon or against it.

Care should be taken so that objects do not fall into, and liquids are not spilled into the amplifier through openings.

The amplifier should be serviced by qualified service personnel when:

> The power supply cord or the plug has been damaged; or objects have fallen into, or liquid has been spilled into the amplifier; or has been exposed to rain; or does not appear to operate normally or exhibits a marked change in performance; or has been dropped, or the enclosure has been damaged.

All connections should be made to the power amplifier with the power OFF.

Speaker fuses should be used to afford maximum speaker protection.

Never connect the output of one amplifier to that of another.

Connect the power cord to the proper voltage mains as indicated on the rear of the amplifier. Conversion to another voltage requires internal rewiring.

Do not remove the amplifier's cover. Amplifiers may not be covered under warranty if they are tampered with. There are NO adjustments within. Potentially lethal voltages exist within the amplifier. Refer all service work to an authorized BGW service station.

DESCRIPTION

The BGW Model 100B is one of the most advanced solid state, fully complementary, bridgeable, stereo power amplifiers available.

Features of the Model 100B include LED metering, separate circuit and chassis grounds, XLR and ¼" input connectors with transformer sockets, and small size.

The front panel includes two vertical rows of four red LED's, one row for each channel. The lower LED in each row is the IDLE indicator or pilot lamp. They will be lit whenever the amplifier is turned on.

The two upper LED's in each row clipping utilize an exclusive BGW circuit. Whenever either channel of the 100B is driven into clipping, a corresponding indicator lights and remains lit for 0.25 seconds. These indicators, which actually indicate loss of feedback, tell the operator that the amplifier is being overdriven and can be invaluable to the engineer who must be sure that every component in his system is producing a clean, distortion-free signal. An inadvertant short-circuited output (with signal) will cause the LED to remain on until the short is removed.

The middle LED's are connected to a circuit employing a quad comparator integrated circuit to provide an audio level indication of 0.5% and 50% of maximum power output. They provide a valuable tool for total system evaluation in multiple amplifier installations.

Both the circuit and chassis grounds are connected to separate barrier strip terminals on the rear of the amplifier. They are connected together by a removeable link. By removing the link, the circuit grounds of all active units (amplifiers, preamplifiers, mixers, etc.) can be tied to earth ground at a common point. This aids in eliminating ground loops.

Either XLR-type of ¼ inch phone plugs may be used for input connections. If plug-in transformers are used, the XLR-type connectors are conencted. If not, jumpers must be employed in the transformer sockets. See sections 03000 and 03100 for details.

The size of the Model 100B is convenient for a wide variety of applications. However, please note the following precautions:

1) Do not use the front panel as the sole support for the amplifier. Side rails or rack shelves should be employed. See section 2650

2) Do not stack Model 100B amplifiers. A minimum of 1 3/4 inches above each amplifier should be provided for free air circulation.

The output stages of your amplifier use the most advanced type of transistors available. These large geometric, complementary, power devices have large safe operating areas and extended power bandwidth. Electrostatic and other highly reactive speaker systems present no difficulties for the Model 100B. The aluminum heat sink has a total radiating surface of 330 square inches (2130 cm^2).

All of the semiconductors in the output area are in intimate contact with the heat sink. The bias circuit is also mounted on this isotherm to provide rock steady bias stability with temperature.

The voltage gain circuits are also mounted on the same circuit board. A true operational amplifier integrated circuit, hermetically sealed in a metal can, acts as the front end.

The op-amp is a special unit featuring high speed (15 MHz) and a high slew rate (50 volts/microsecond) yet still having very low noise due to its darlington input and careful design. The op-amp stage is followed by a discrete complementary pair acting as an active current source/sink and providing voltage gain. The current source is the ideal way to drive the output stage, which is basically a voltage follower.

This sophisticated circuit design makes for an extremely accurate amplifier. The accuracy of an amplifier is a function of the ratio of the open loop gain to the closed loop gain.

SPECIFICATIONS: BGW MODEL 100B

OUTPUT POWER

50 watts minimum sine wave continuous average power output per channel with both channels driving 8-ohm loads over a power band from 20 Hz to 20 kHz. The maximum Total Harmonic Distortion at any power level from 250-millwatts to 50 watts shall be no more than 0.1%

1 kHz Power: 60 watts into 8-ohms per channel, both channels operating, 0.1% Total Harmonic Distortion.

60 watts minimum sine wave continuous average power output per channel with both channels driving 4-ohm loads over a power band from 20 Hz to 20 kHz. The maximum Total Harmonic Distortion at any power level from 250-millwatts to 60 watts shall be no more than 0.2%.

1 kHz Power: 65 watts into 4-ohms per channel, both channels operating, 0.2% Total Harmonic Distortion.

120 watts minimum sine wave continuous average power output monaural driving an 8-ohm load over a power band from 20 Hz to 20 kHz. The maximum Total Harmonic Distortion at any power level from 250-milliwatts to 120 watts shall be no more than 0.2%.

1 kHz Power: 130 watts into 8-ohms, 0.2% Total Harmonic Distortion.

*All specifications and features are subject to change without notice.

SPECIFICATIONS

Intermodulation Distortion:	Less than 0.02% from 250 milliwatts to rated power.
Small Signal Frequency Response:	+0, 3dB, 1Hz to 90kHz, +0, 0.25dB, 20Hz, to 20kHz.
Hum and Noise Level:	Better than 106dB below 50 watts (unweighted, 20Hz to 20kHz).
Input Sensitivity:	1.0 volts for maximum power output. Voltage gain 26dB (20 times).
Input Impedance:	15k ohms.
Damping Factor:	Greater than 400 to 1. Referenced at 8 ohms at 1kHz.
Output Impedance:	Designed for any load impedance equal to or greater than 4 ohms.
Power Requirements:	Convertable for 100, 120, 200, 220 or 240 volts A.C., 50-60Hz
Semiconductor Complement:	2 Op Amp IC's (equivalent to 44 transistors each) 24 transistors, 2 zener diodes, 12 diodes, 8 LED's, 1 quad comparator.
Dimensions:	1.75-inch (4.45 cm) by 19-inch (48.3 cm) standard rack front panel by 11.5 inches (29.2 cm) deep.
Weight:	18 lbs. (8.2 kg) net, 22 lbs. (10 kg) shipping.

UNPACKING AND SET-UP

Your BGW Power Amplifier is shipped in an advanced packing container.

SAVE THE CONTAINER

AND ALL PACKING MATERIAL!

The container should be saved in the event the unit is moved or shipped at some future date. Replacement containers are available from BGW Systems for $14.00, freight included.

Inspect the unit for damage in transit immediately upon receipt. If damage is found, notify the transportation company immediately. Only the consignee may institute a claim with the carrier for shipping damage. BGW will cooperate fully in such event. Be sure to save the container as evidence of damage for the shipper to inspect.

The amplifier's mounting position must be chosen carefully so that the air flow to the sides of the unit is not restricted. Inadequate ventilation may cause the protective heat sensors to shut the unit off. For rack mounting, the four rubber feet on the bottom of the unit may be removed and no hardware will be loosened inside the unit.

DO NOT PLUG THE AMPLIFIER IN YET!

All connections should be made before power is applied.

KEEPING IT COOL

A power amplifier draws energy from a primary electrical service, usually a 120 VAC outlet, to drive loudspeaker systems with an audio signal. Typically, only half of the energy can be delivered to the loudspeakers; remaining energy is converted into heat, and must be dissipated (ventilated) into the air.

Air circulating past heat-producing components absorbs the heat and carries it away. To accomplish this, low and medium power amplifiers rely on natural convection currents, while most high power amplifiers use fans. If the air flow is impeded, the resulting rise in heat may cause an amplifier to stop working or fail.

Circulating air currents must not be cut off when installing power amplifiers in racks. Power amplifiers using convection cooling require spacing between amplifiers to permit air flow between them. Power amplifiers using forced-air cooling, on the other hand, can usually be stacked closer to each other and may not need any blank panel spacing between amplifiers.

To improve natural convection currents within a rack, a chimney can be created by closing the back of the rack and venting the rack at the bottom to let in fresh air, and at the top to exhaust hot air. Vents should be large rectangular slots approximately 19" wide by 4" high.

The rack cabinet will require some type of blower if a large air-flow is required. It is best to exhaust air from the top of the rack rather than to blow it in from the bottom. There will be less dust and dirt in the rack this way, if the bottom vent is sufficiently large.

INSTALLING THE UNITS

Use care when mounting equipment in a rack. Place the heaviest units near the bottom of the rack and fill in all unused rack spaces with blank panels. Equipment cannot always be supported by front panels alone. This is especially true of amplifiers whose depth is more than twice their height. Uniform support can be insured by installing bottom or side rails.

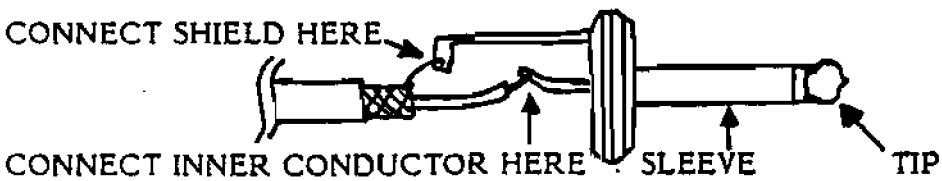
When racks are to be transported or used in a mobile installation, some means of securing the rear of the equipment are required. Angle brackets either attached to the bottom, side rails or rear panel are practical approaches.

STEREO INPUT CONNECTIONS

Three-pin XLR and ¼ in. phone jacks are provided on the rear of the amplifier for input connections. Balanced or unbalanced lines may be used; however if input cables are longer than 8 feet, balanced lines may be necessary to maintain the signal-to-noise ratio and high frequency response.

1/4 INCH PHONE JACKS

The 1/4" phone jacks are for unbalanced lines only (single conductor, shielded) and may be used directly. Simply connect the shield to the outer sleeve of the plug and the inner conductor to the tip, or buy ready-made cables. See diagram below.



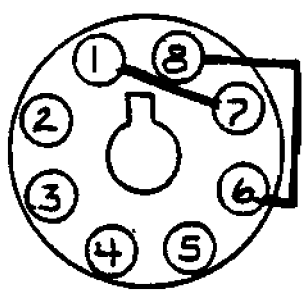
3-PIN XLR CONNECTORS

The 3-pin XLR connectors may be used with balanced (2-conductor, shielded) or unbalanced lines. They are connected to the amplifier's inputs by using the 8-pin transformer socket; they cannot be used directly.

Unbalanced Lines

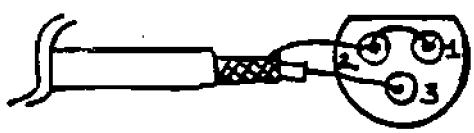
To use the 3-pin XLR connectors with unbalanced lines, a jumper plug (BGW P/N 1350-0108) must be inserted into each transformer socket. The jumper plug connects pin #1 to pin #7, and pin #6 to pin #8 as shown.

JUMPER PLUG MUST BE USED WITH UNBALANCED LINES



With the jumper plug in place, the 3-pin XLR connector has pin #2 connected to ground, and pin #3 to the input of the amplifier. Note: Rear of plug shown.

When using single conductor shielded cable for unbalanced lines, connect the inner conductor to pin #3 and the shield to pins #1 & #2.

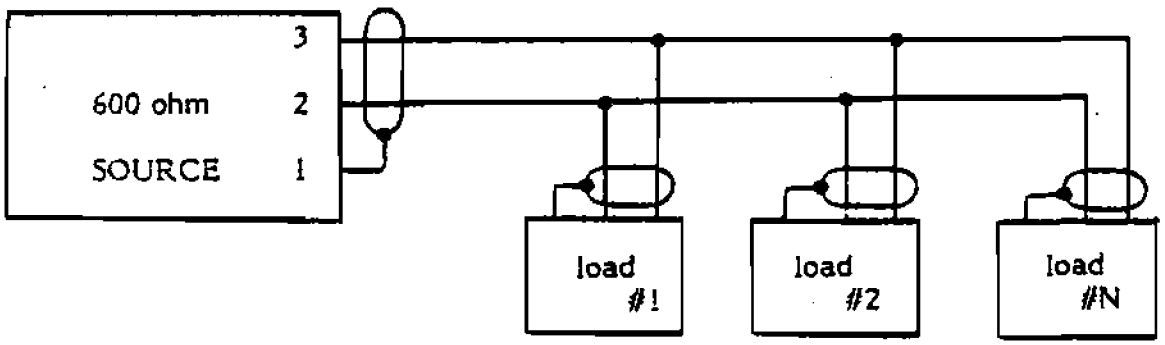


When using 2-conductor shielded cable for unbalanced lines, connect the high level signal wire to pin #3, the low level signal wire to pin #2, and the shield to pin #1.

Note: Shield not connected to anything at signal source.

BRIDGING BALANCED LINE INPUTS

Used only when two or more devices are driven from the same input line.



MAXIMUM NUMBER OF AMPLIFIER 25ea

Input transformers for above

A. Use 1:1 transformer 600 ohms to 600 ohms

B. Nth load must have a terminating resistor added to the secondary of the Input transformer.

One alternative configuration is

C. 1:1 transformer 15K ohms to 15K ohms

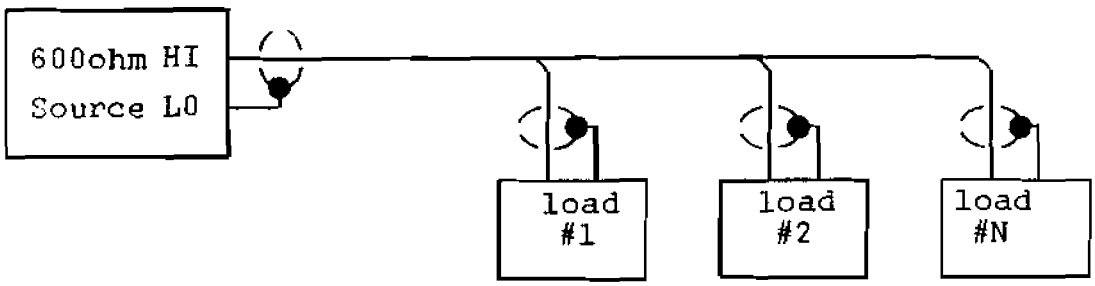
D. Nth load must have a terminating resistor added to the primary of the input transformer.

To find this resistance value see sheet TERMINATING RESISTANCE CHART, MFRM 03051.

NOTE: Terminating resistance is required when source is a transformer. Sources other than a transformer may not need a termination.

BRIDGING UNBALANCED LINE INPUTS:

Used only when two or more devices are driven from the same Input line



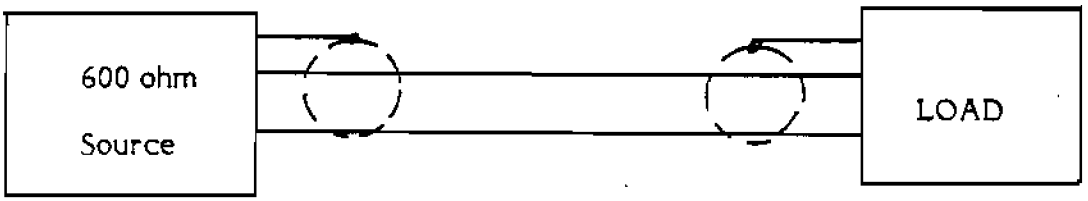
The Nth load should have a terminating resistor added to its octal plug between pin 1 and pin 6

To find this resistor value see sheet "TERMINATING RESISTANCE CHART".

NOTE: Terminating resistance is required when source is a transformer. Sources other than a transformer may not need a termination.

BALANCED LINE INPUT:

Used only when one amplifier is driven from one source.



Input transformer for above

A. Use 1:5 transformer 600 ohms to 15K ohms

NOTE: No 600 ohm TERMINATION IS REQUIRED

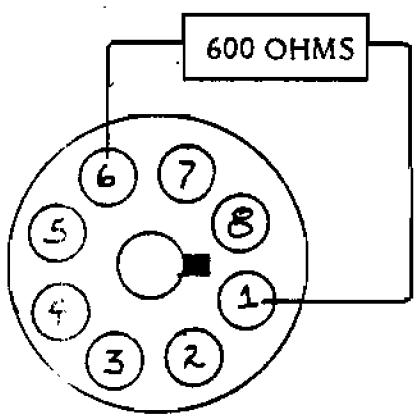
B. Alternate transformer

Use 1:1 transformer 600 ohms to 600 ohms

NOTE: 600 ohms termination is required on the secondary of the transformer

NOTE: Terminating resistance is required when source is a transformer: sources other than a transformer may not need a termination.

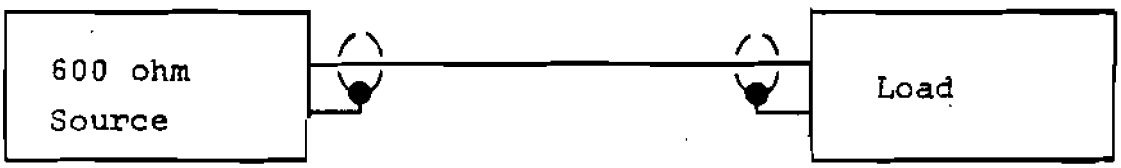
600 ohm termination, when required, can be accomplished by soldering the resistor across pins 1 and 6 of the transformer as shown below



or by installing the resistor in a 1 4" phone plug and inserting it into the unused unbalanced input jack.

UNBALANCED LINE INPUT

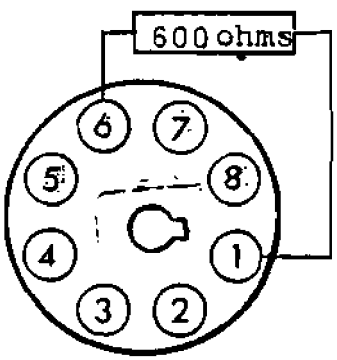
Used only when one amplifier is driven from one source



A 600 ohm terminating resistor must be added to its octal plug.

Between pin 1 and pin 6

NOTE: Terminating resistance is required when source is a transformer sources other than a transformer may not need a termination.



TERMINATING RESISTANCE CHART

How to find terminating resistance for balanced or unbalanced lines, driving more than one amplifier. Rs = Source Impedance (usually 600 ohms).

STEP A $\quad \frac{\text{*Input Impedance of Amplifiers}}{\text{Number of Amplifiers}} = \text{Total Load Impedance of Amplifiers}$

STEP B $\quad \frac{\text{Total Impedance of Amplifiers} - Rs}{Rs} = K \text{ (Impedance Factor)}$

STEP C $\quad (\frac{1}{K}+1) \times Rs \text{ ohms} = \text{Load Resistor Required}$

EXAMPLE:
Input Impedance of Amplifiers = 15,000 ohms
Number of Amplifiers = 4 Rs = 600 ohms

A $\quad \frac{15,000}{4} = 3750 \text{ ohms}$

B $\quad \frac{3750-600}{600} = 5.25$

C $\quad \frac{1}{5.25}+1 \times 600 = 1.19 \times 600 = 714.29 \text{ ohms}$

Closest value is 715 ohms 1% metal film resistor.

* Note all amplifiers must have the same input impedance. If not, use formula below:

$$\frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2} + \frac{1}{Z_3} + \frac{1}{Z_n}} = \text{Total Load Impedance}$$

EXAMPLE: Four (4) Amplifiers with input impedance of 15k, 30k, 30k and 7.5k

$$\frac{1}{\frac{1}{15K} + \frac{1}{30K} + \frac{1}{30K} + \frac{1}{7.5K}} = 3750 \text{ ohms}$$

OUTPUT CONNECTIONS - STEREO MODE

Connect the left speaker to the binding posts marked Left and the right speakers to the binding posts marked Right. Observe the phasing of the speakers. Most connectors on speaker cabinets are either color coded or marked + , - . Connect the black or minus (-) terminal on the speaker cabinet to the black binding post on the amplifier. Connect the other speaker terminal to the fuse holder, if required, and the fuse holder to the red binding post. Check to see that the stereo-mono switch on the rear of the amplifier is in the stereo postion.

Ideally, the output leads should be connected to the amplifier with standard banana plugs; however, the five-way action of the binding posts permit the use of tinned wires or spade lugs. Remember, of course, to put a fuse in series with the load.

CAUTION - HAZARDOUS ENERGY

Any high power amplifier is capable of destroying almost any loudspeaker, so fusing must be considered. If the speakers used already contain fuses or circuit breakers, they may be connected directly. If not, each speaker used should have its own fuse in series with the lead going to the red terminal on back of the amplifier.

The fuse size depends upon many factors, most of which work towards opposite ends, making it practically impossible to determine the proper fuse size from easily made measurements. The ideal situation exists when the loudspeaker manufacturer specifies a fuse size. Do not exceed his recommendations. You might destroy the speaker and void its warranty. If no fuse is specified, use the chart provided to choose the appropriate fuse size (Figure 1).

To use the chart, take a ruler and line up the speaker's impedance rating with the speaker's peak music power rating. Choose the fuse indicated. If a fuse of of the value indicated by the chart is not available, choose the fuse that is closest in value and below the value indicated.

The wires used for the speaker leads should be of the largest gauge possible in order to retain the highest damping factor possible. The chart provided shows the relation between wire size and damping factor (Figure 2).

To find the damping factor of a particular configuration of wire size and length and speaker impedance, take a ruler and line up the length of two-conductor-cable used with the wire gauge used and mark the resulting source resistance. Then line up this value with the resistance of the load and read off the resulting damping factor. For dynamic moving coil

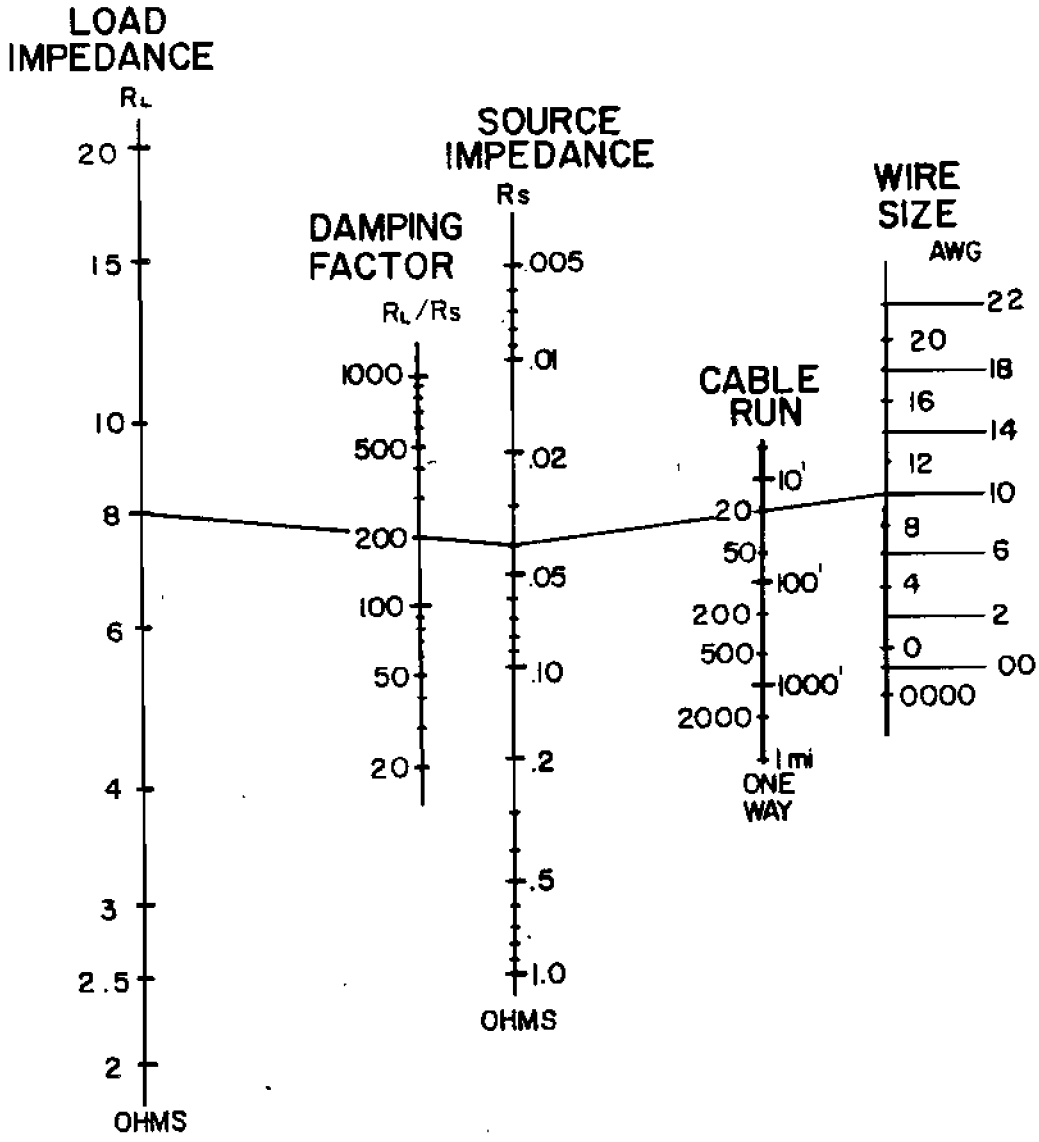
speakers, the load resistance should be that measured with an ohmmeter across the speaker terminals, not the manufacturer's stated impedance value. For electrostatic speakers, the manufacturer's value should be used. For best results, choose a configuration of wire size and length that will result in a damping factor of 50 or greater.

OUTPUT CONNECTIONS - BRIDGE MODE

Follow the same procedure as outlined for Stereo mode, but connect the single output across the two red binding posts of the left and right channels. Do not connect anything to the left or right channel ground binding posts.

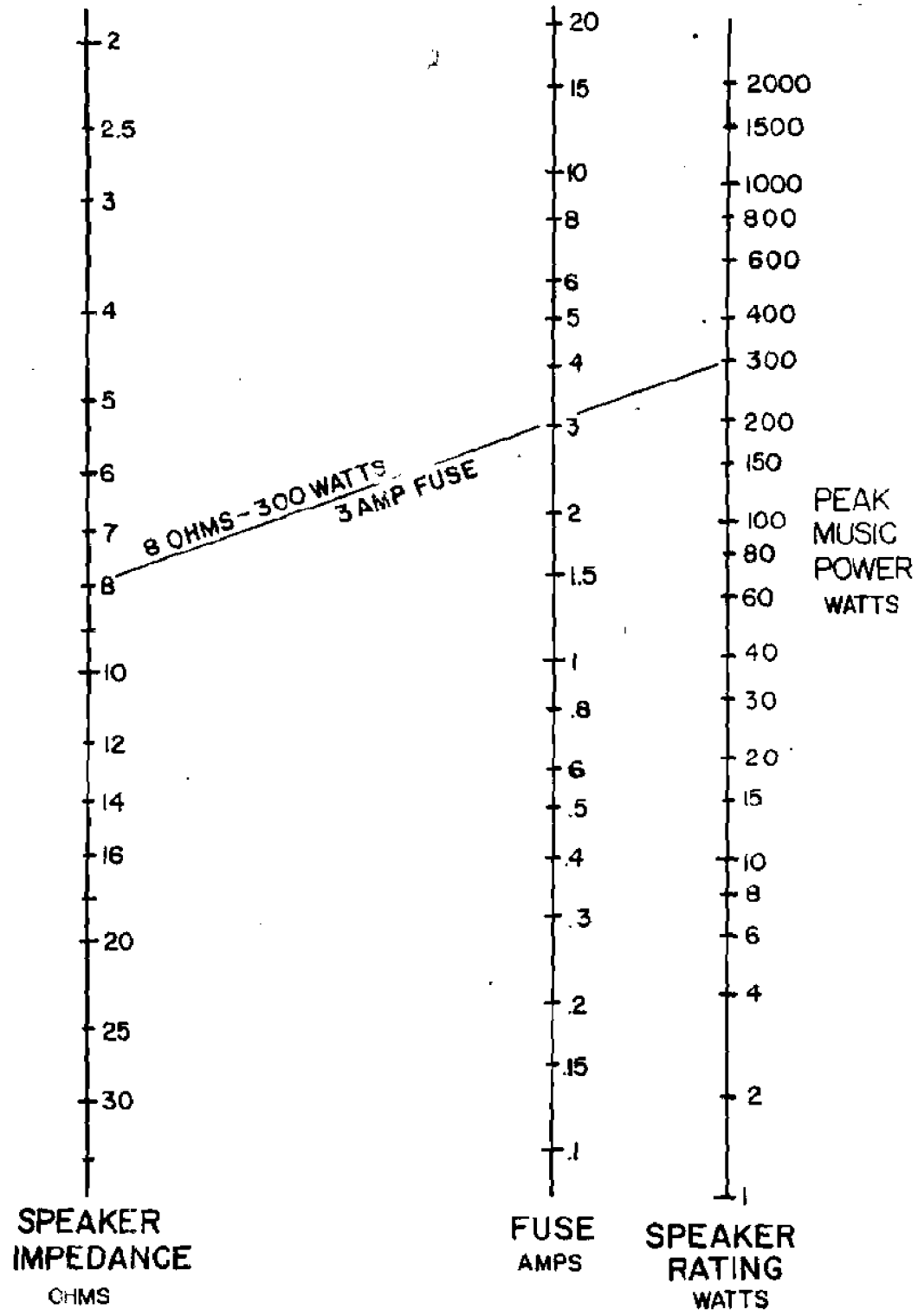
Designate the left channel red binding post plus (+) and the right channel red binding post minus (-). A fuse is required in only one lead.

Check to see that the stereo-mono switch on the rear of the amplifier is in the mono position.



DAMPING FACTOR & WIRE SIZE NOMOGRAPH (see text)

MFRM-03510A



FUSE SELECTOR NOMOGRAPH FOR LOUDSPEAKER PROTECTION

MFRM-03530A

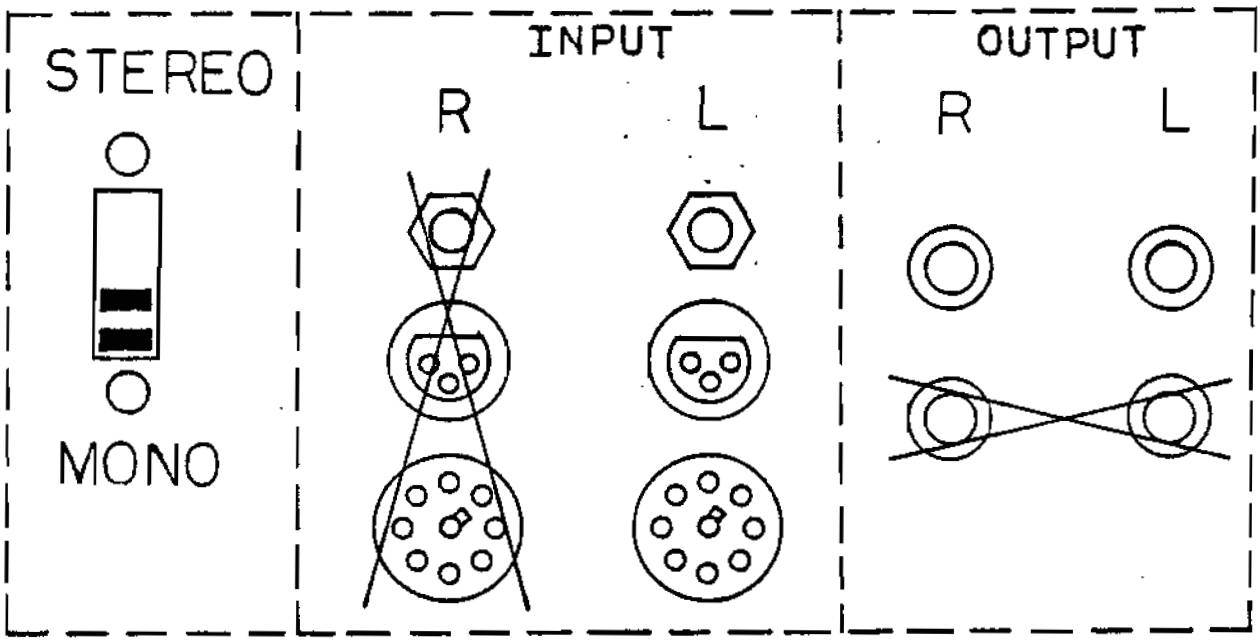
MONO OPERATION

The output power of the amplifier can be increased by operating it in the Mono (bridged) Mode. The correct procedure for Mono operation is as follows:

1. Set Stereo/Mono switch to Mono position.

2. Use left channel input only. DO NOT use the right channel input.

3. Connect the output across the two red binding posts. DO NOT use the black binding posts. DO NOT reference the load (speaker) to ground. Designate the left channel red binding post (+) and the right channel red binding post minus (-). Fuses, when necessary, should be placed in series with one red binding post.



NOTE: Minimum load impedance for Mono operation should be 8 ohms.

CIRCUIT DESCRIPTION

In the Mono mode, the output of the left channel is fed into the inverting input of the right channel. The two channels work opposite each other; when one goes positive, the other goes negative, thus doubling the output voltage swing. The single output is referenced between the two red binding posts.

POWER MAINS CONNECTIONS

The unit should be plugged in only when it has been established that it is wired for the correct power mains voltage and after all other connections have been made.

The mains (AC line) voltage is indicated on the serial number label on the rear of the unit. Products supplied for use in the United States and Canada are factory wired for 120 volts. Only the indicated mains voltage should be used. If the mains voltage must be changed, see POWER MAINS VOLTAGE CONVERSION.

A molded, parallel blade, U-ground plug is supplied. This connector is standard in the United States and Canada. For use elsewhere, the plug must be replaced with the correct connector. The color-code of the cord is as follows:

HI (switched Leg) - Brown (or Black)
LO (neutral Leg) - Blue (or White)
EARTH (chassis ground) - Green with Yellow tracer (or Green)

POWER CABLE CONNECTIONS AND VOLTAGE CONVERSION

CAUTION:

These servicing instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than that contained in the Operating Instructions, unless you are qualified to do so. Refer all servicing to qualified service personnel.

Voltage Conversion should be done by a BOSE Authorized service station only.

VOLTAGE CONVERSION

The Model 1802 is shipped from the factory wired for 120 volt operation for use in North America. The schematic diagram, MFRM 13330 indicates the connections for other voltage operations.

OPERATION

PRECAUTIONS

1. Speaker destruction is often due to improper equipment operation. This often occurs when someone without the proper appreciation for the components of a high power, high quality music system, has the opportunity to change records or adjust levels. The best protection here is caution. Keep the equipment out of reach of untrained adults and children. Make sure the speaker is properly protected with fuses (Output Connections Section).

2. Never parallel the two amplifier outputs together.

3. When driving any load with an impedance of less than 4 ohms, the load should be isolated from the amplifier with a series capacitor, in order to avoid both damage to the load and wasting of output power.

4. If the amplifier continuously trips its circuit breaker, something is wrong - do not continue operation.

5. Do not connect an input ground lead to an output ground lead; to do so may cause a ground loop and oscillations.

6. Do not operate the amplifier from power mains which exceed the indicated mains voltage by more than 10%.

7. Never connect the output of the amplifier to another power source such as a battery or power main.

8. Do not expose the amplifier to corrosive chemicals such as lye, soft drinks, salt water, etc. Also, never immerse the amplifier in any liquid.

9. Do not remove the amplifier's cover during operations.

10. The amplifier is not intended for high frequency-high power use and should not be used for high power ultrasonic applications.

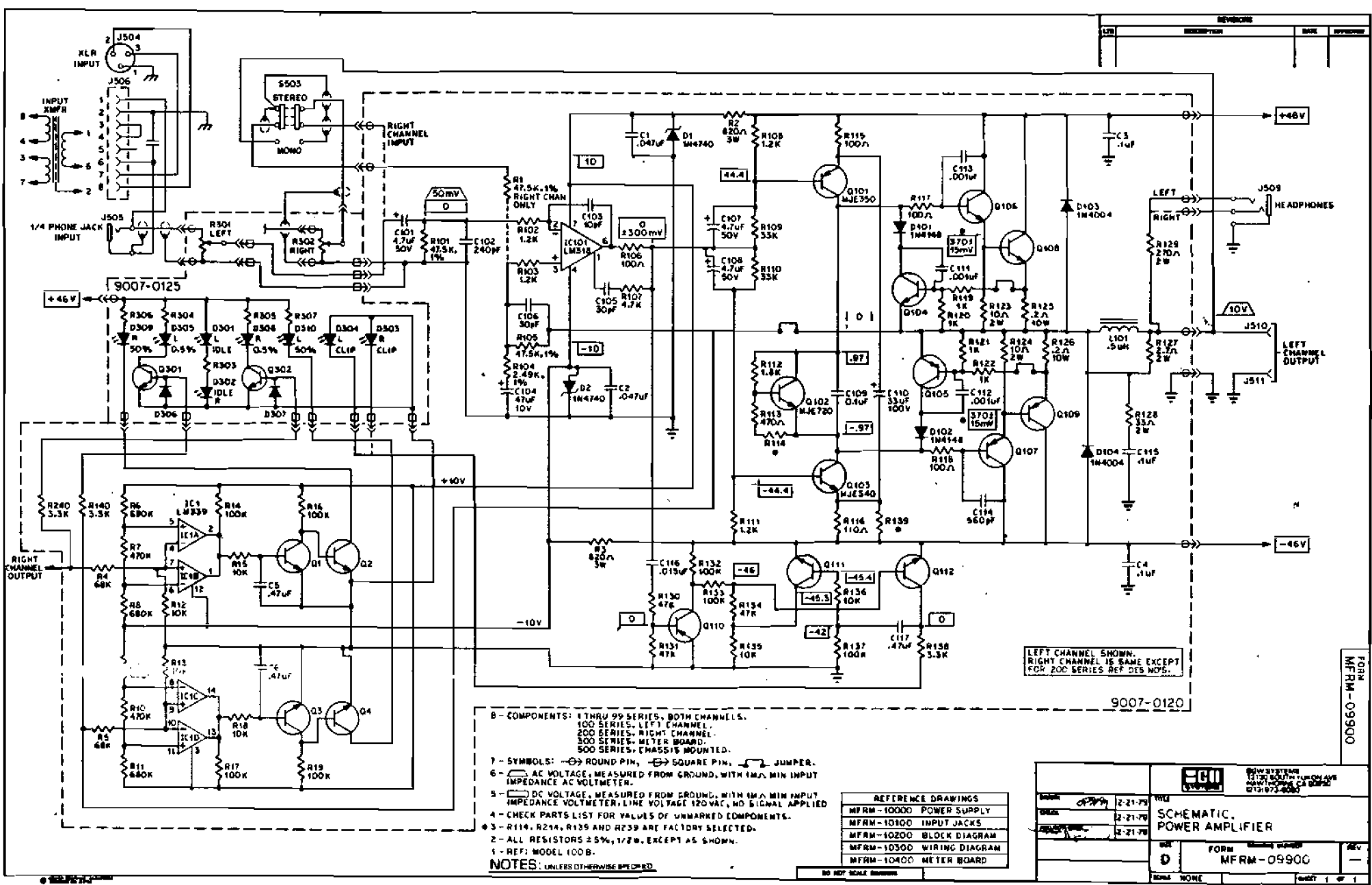
11. Neither the amplifier nor any of its leads should be exposed to areas likely to be struck by lightning.

PROCEDURES

After all connections have been made to the power amplifier, turn the gain controls fully counter-clockwise. Turn on the preamplifier or mixer, then turn on the power amplifier. The LED over the AC power switch should light. If they do not, check to see that the amplifier is plugged in to a live power outlet.

With the preamplifer or mixer gain controls fully off, advance the left and right power amplifier gain controls about half way clock-wise (slit in knob facing upwards). There should be no audible hum; if a hum is heard, check the connections between the power amplifier and preamplifier. Now advance the preamplifier gain controls until the desired maximum volume is achieved. Should the preamplifier gain control be in excess of the 3/4 setting, decrease it to half volume and increase the gain controls of the power amplifier to the desired level.

Often, turn-on transients originate in the pre-amp or mixer. This is especially true of tube-type units. If this situation arises, turn the amplifier on after the other units have had adequate time to stabilize.



8 - COMPONENTS: 1 THRU 99 SERIES, BOTH CHANNELS.
100 SERIES, LEFT CHANNEL.
200 SERIES, RIGHT CHANNEL.
300 SERIES, METER BOARD.
500 SERIES, CHASSIS MOUNTED.

7 - SYMBOLS: ⊖ ROUND PIN, ⊟ SQUARE PIN, ⌐ JUMPER.

6 - AC VOLTAGE, MEASURED FROM GROUND, WITH 1MΩ MIN INPUT IMPEDANCE AC VOLTMETER.

5 - DC VOLTAGE, MEASURED FROM GROUND, WITH 1MΩ MIN INPUT IMPEDANCE VOLTMETER, LINE VOLTAGE 120 VAC, NO SIGNAL APPLIED

4 - CHECK PARTS LIST FOR VALUES OF UNMARKED COMPONENTS.

* 3 - R114, R214, R139 AND R239 ARE FACTORY SELECTED.

2 - ALL RESISTORS ±5%, 1/2W, EXCEPT AS SHOWN.

1 - REF: MODEL 100B.

NOTES: UNLESS OTHERWISE SPECIFIED

REFERENCE DRAWINGS	
MFRM-10000	POWER SUPPLY
MFRM-10100	INPUT JACKS
MFRM-10200	BLOCK DIAGRAM
MFRM-10300	WIRING DIAGRAM
MFRM-10400	METER BOARD

DO NOT SCALE DRAWING

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 2-21-79
CHECKED 2-21-79
APPROVED 2-21-79

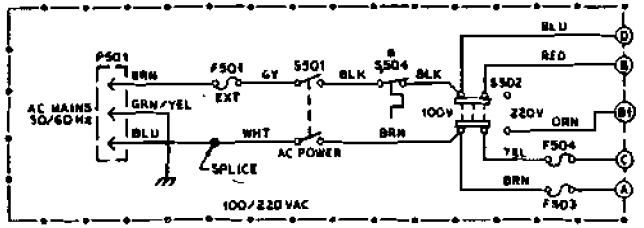
CRL SYSTEMS
SAN MARCOS, CA 92069

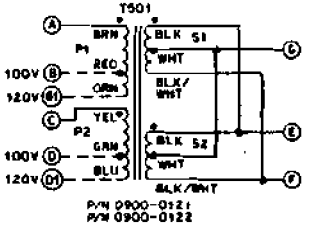
TITLE
SCHEMATIC,
POWER AMPLIFIER

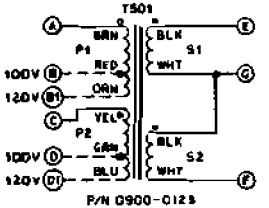
SIZE D | FORM MFRM-09900 | REV —

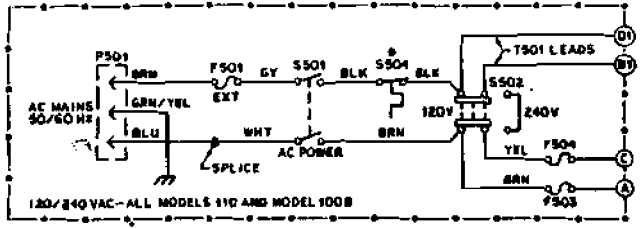
BOARD NONE | SHEET 1 OF 1

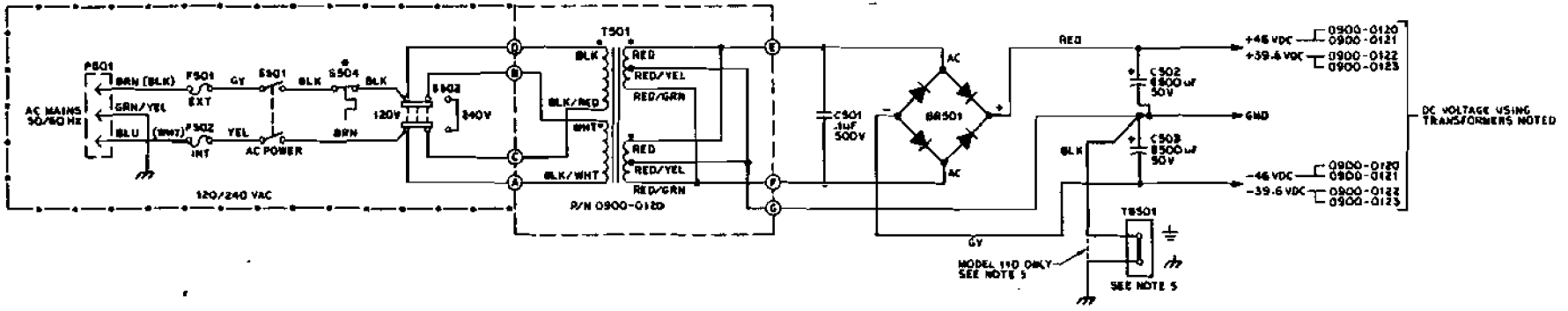
FORM MFRM-09900











* 6 - S504: THERMOSWITCH-OPEN ON RISE, 212° F.
5 - MODEL 110 IS THE SAME EXCEPT FOR 2 WIRE AC CORD AND NO T8501.
4 - FUSES: F501 2.5 AMP FOR 120 VOLTS.
F501 1.25 AMP FOR 240 VOLTS.
F502 5 AMP FOR 120 VOLTS.
F502 1.75 AMP FOR 240 VOLTS.
F503 } 2 AMP FOR ANY VOLTAGE.
F504 }
3 - GROUNDS: ⏚ CHASSIS, ⏚ SIGNAL.
2 - SYMBOLS: (A) CONNECTION POINTS FOR VARIOUS TRANSFORMERS.
1 - REF: MODELS 100B AND 110.

NOTES:

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

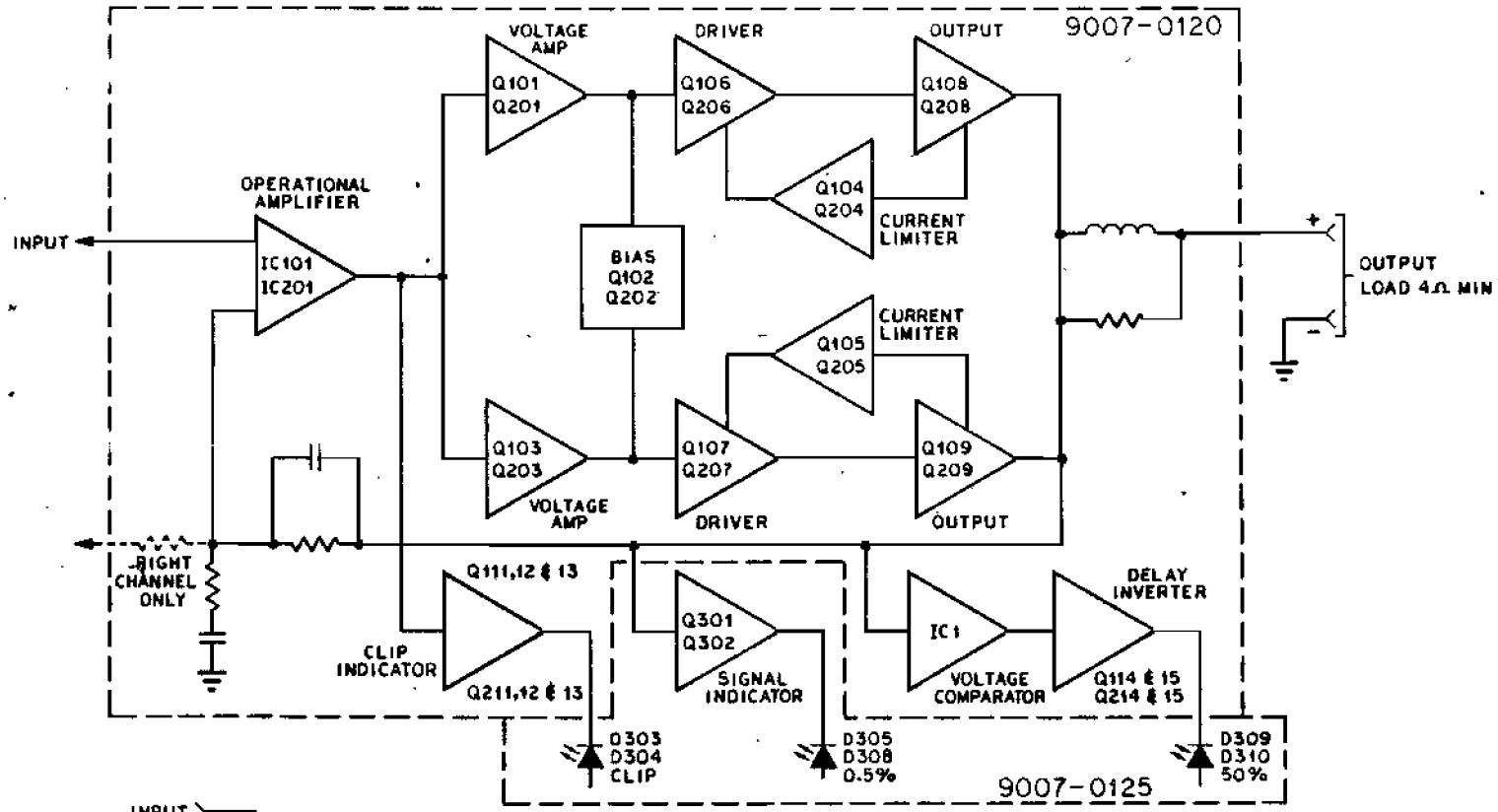
DRAWN		7-17-79
CHECK		
PROJECT MGR		7/27/79

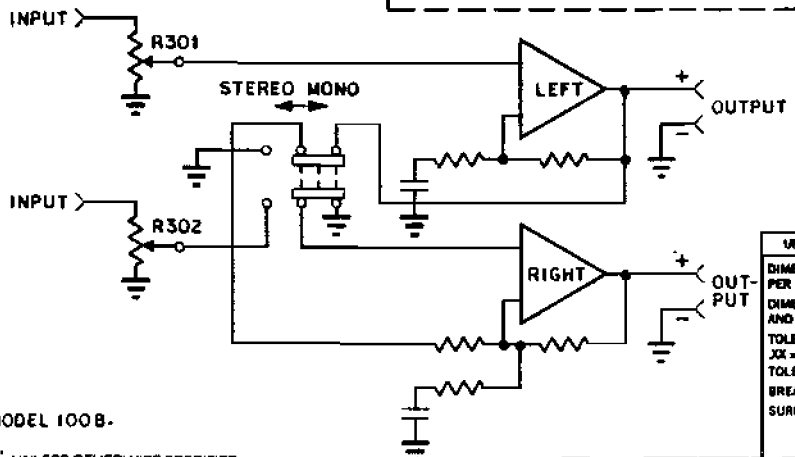
SCHEMATIC, POWER SUPPLY, POWER AMPLIFIER

SIZE D | FORM MFRM-10001 | REV —

FORM MFRM-10001

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED





1 - REF: MODEL 100B.

NOTES:

UNLESS OTHERWISE SPECIFIED
DIMENSIONING AND TOLERANCING PER USASI Y14.5.
DIMENSIONS ARE IN INCHES AND APPLY AFTER PLATING.
TOLERANCE ON DECIMALS: .XX = ± .03 .XXX = ± .016.
TOLERANCE ON ANGLES = ± 0° 30'
BREAK SHARP EDGES .010 MAX.
SURFACE ROUGHNESS 125

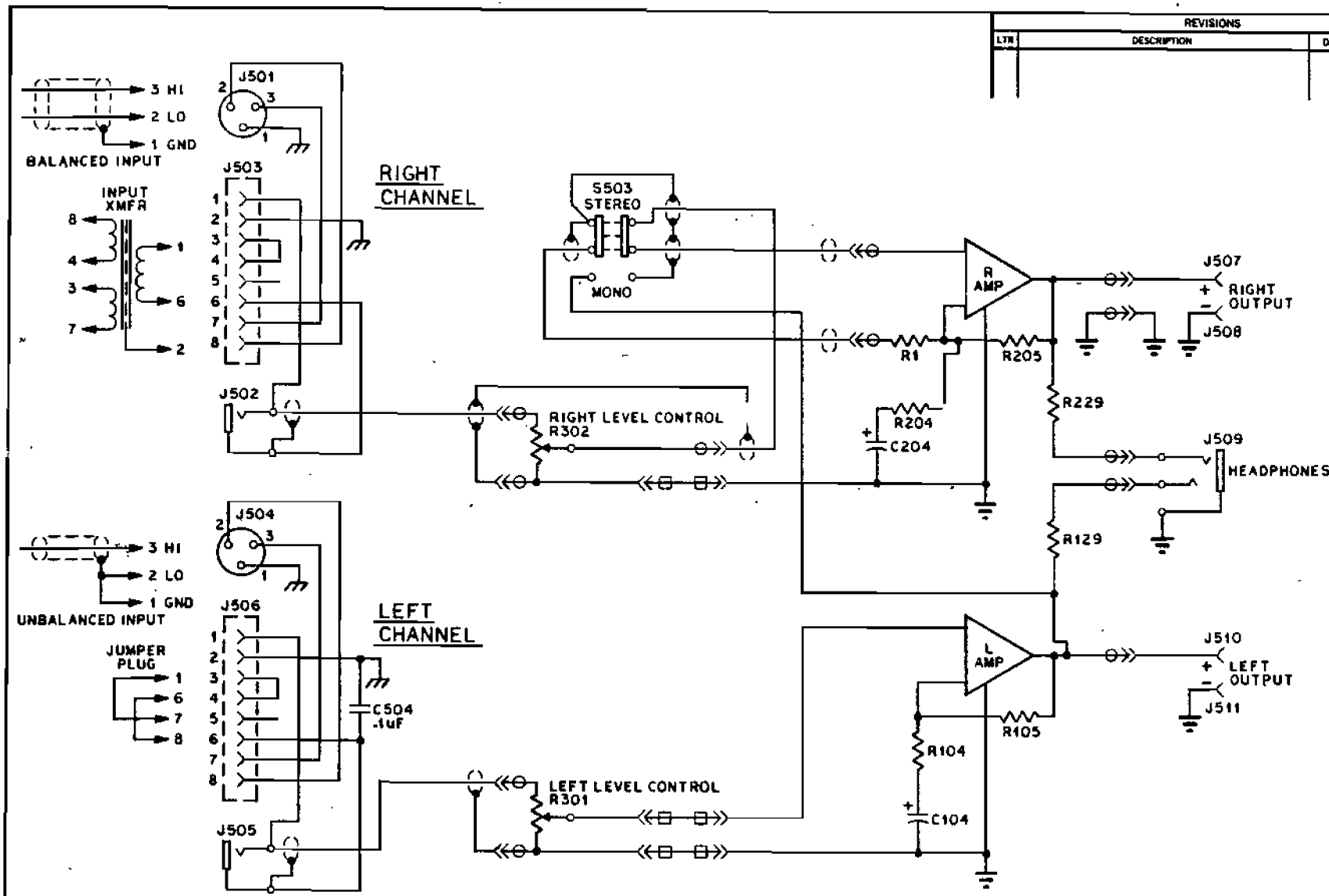
DRAWN		3-2-79
CHECK		3-2-79
PROJECT ENGR		3-2-79

BGW SYSTEMS
13130 SOUTH YUKON AVE.
HAWTHORNE, CA 90250
(213) 973-8090

TITLE
BLOCK DIAGRAM,
POWER AMPLIFIER

SIZE	FORM DRAWING NUMBER	REV
C	MFRM-10200	—

FORM MFRM-10200



3 - GROUNDS: CHASSIS, SIGNAL.

2 - SYMBOLS: ROUND PIN, SQUARE PIN.

1 - REF: MODEL 1008.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSIONING AND TOLERANCING PER USASI Y14.5.
DIMENSIONS ARE IN INCHES AND APPLY AFTER PLATING.
TOLERANCE ON DECIMALS: .XX = ± .03 .XXX = ± .010
TOLERANCE ON ANGLES = ± 0° 30'
BREAK SHARP EDGES .010 MAX.
SURFACE ROUGHNESS 125

DRAWN		2-28-79
CHECK		2-28-79
PROJECT ENG.		2-28-79

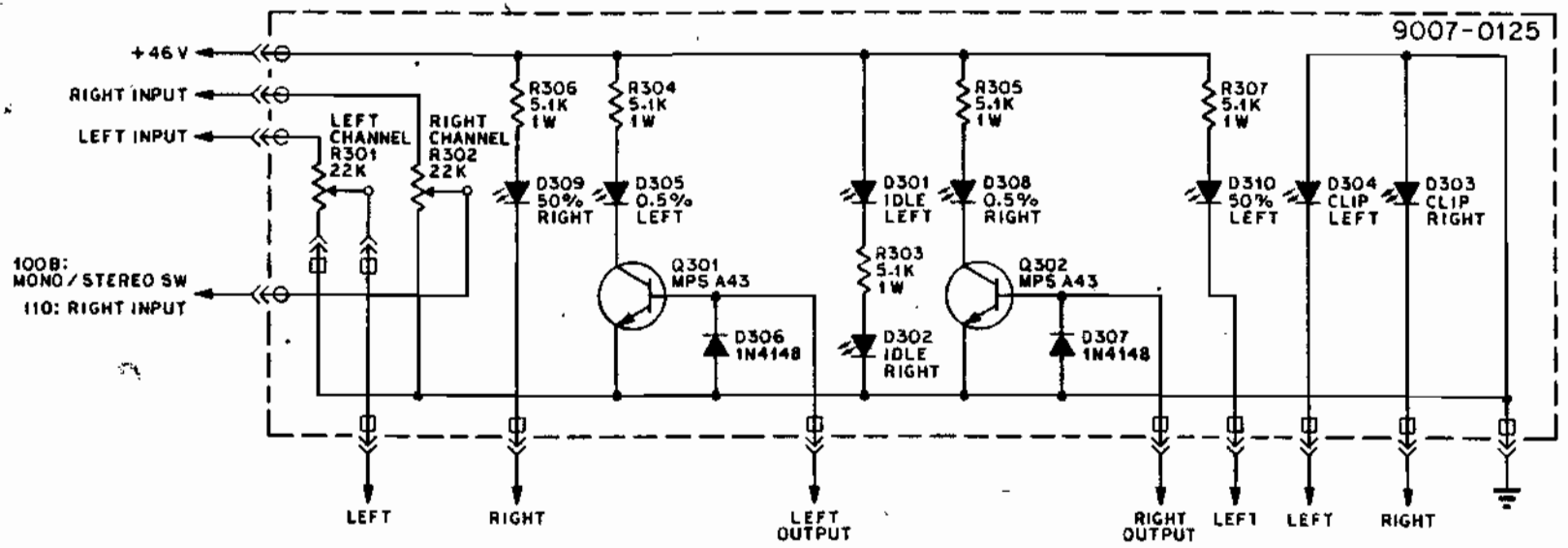
BGW SYSTEMS
13130 SOUTH YUKON AVE
HAWTHORNE, CA 90250
(213) 973-8090

TITLE: SCHEMATIC, INPUT JACKS, POWER AMPLIFIER

SIZE	FORM / DRAWING NUMBER	REV
C	MFRM-10100	—

SCALE NONE SHEET 1 OF 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



FORM MFRM-10400

2 - SYMBOLS: ⊖ ROUND PIN, ⊟ SQUARE PIN.
1 - REF MODELS 100B AND 110.

NOTES: UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED			
DIMENSIONING AND TOLERANCING PER USASI Y14.5.			
DIMENSIONS ARE IN INCHES AND APPLY AFTER PLATING.			
TOLERANCE ON DECIMALS: .XX = ± .03 .XXX = ± .010			
TOLERANCE ON ANGLES = ± 0° 30'			
BREAK SHARP EDGES .010 MAX.			
SURFACE ROUGHNESS 125			
	DRAWN	GWM	3-6-79
	CHECK		3-6-79
	PROJECT ENGR		3-6-79

BGW SYSTEMS
13130 SOUTH YUKON AVE.
HAWTHORNE, CA 90250
(213) 973-8090

TITLE
SCHEMATIC, METER BOARD, POWER AMPLIFIER

SIZE	FORM DRAWING NUMBER	REV
C	MFRM-10400	—
SCALE NONE		SHEET 1 OF 1

ENG NO	DESCRIPTION	PART NO
	*** PARTS LIST MODEL 100B ***	
	**** BRIDGE RECTIFIER ****	
BR501	25AMPS 200VOLTS	1886-2502
	*** CAPACITORS ***	
C1	.047UF 25V DISK CERAMIC	0129-0047
C2	.047UF 25V DISK CERAMIC	0129-0047
C3	.1UF 100V METALIZER MYLAR	0369-0101
C4	.1UF 100V METALIZED MYLAR	0369-0101
C5	.47UF 100V METALIZED MYLAR	0369-0472
C6	.47UF 100V METALIZED MYLAR	0369-0472
C7	330UF 10V ELECTROLYTIC	0446-0330
C8	330UF 10V ELECTROLYTIC	0446-0330
C9	.1UF 25V DISC CERAMIC	0129-0100
C101	4.7UF 50V DIPPED TANTALUM	0236-0005
C102	240PF 500V MICA	0090-0240
C103	30PF 100V MICA	0060-0030
C104	47UF 10V RADIAL ELECTROLYTIC	0456-0047
C105	30PF 100V MICA	0060-0030
C106	30PF 100V MICA	0060-0030
C107	4.7UF 50V DIPPED TANTALUM	0236-0005
C108	4.7UF 50V DIPPED TANTALUM	0263-0005
C109	.1UF 25V DISK CERAMIC	0129-0100
C110	33UF 100V RADIAL ELECTROLYTIC	0486-0033
C111	1000PF 500V DISK CERAMIC	0100-1000
C112	1000PF 500V DISK CERAMIC	0100-1000
C113	1000PF 500V DISK CERAMIC	0100-1000
C114	560 PF 500V MICA	0080-0560
C115	.1UF 1000V METALIZED MYLAR	0369-0101
C116	.015UF 100V MYLAR	0369-0015
C117	.47UF 100V METALIZED MYLAR	0369-0472
C201	4.7UF 50V DIPPED TANTALUM	0236-0005
C202	240PF 500V MICA	0090-0240
C203	30 PF 100V MICA	0060-0030
C204	47UF 10V RADIAL ELECTROLYTIC	0456-0047
C205	30PF 100V MICA	0060-0030
C206	30PF 100V MICA	0060-0030
C207	4.7UF 50V DIPPED TANTALUM	0236-0005
C208	4.7UF 50V DIPPED TANTALUM	0236-0005
C209	.1UF 25V DISK CERAMIC	0129-0100
C210	33UF 100V RADIAL ELECTROLYTIC	0486-0033
C211	1000PF 500V DISK CERAMIC	0100-1000
C212	1000PF 500V DISK CERAMIC	0100-1000
C213	1000PF 500V DISK CERAMIC	0100-1000
C214	560 PF 500V MICA CERAMIC	0080-0560
C215	.1UF 100V METALIZED MYLAR	0369-0101

ENG NO	DESCRIPTION	PART NO
C216	.015UF 100V MYLAR	0369-0015
C217	.47UF 100V METALIZED MYLAR	0369-0472
C501	.01UF 1400V DISK CERAMIC	0119-0010
C502	8500UF 50V COMP GRADE ELECTROLYTIC	0533-0008
C503	8500UF 50V COMP GRADE ELECTROLYTIC	0533-0008
C504	.1UF 25V DISK CERAMIC	0129-0100
	*** DIODES ***	
D1	1N4740A ZENER 10V	1900-4740
D2	1N4740A ZENER 10V	1900-4740
D101	1N4148 SILICON SWITCHING 1N914	1900-4148
D102	1N4148 SILICON SWITCHING 1N914	1900-4148
D103	1N4004 SILICON RECTIFIER 1 AMP 400V	1900-4004
D104	1N4004 SILICON RECTIFIER 1 AMP 400V	1900-4004
D201	1N4148 SILICON SWITCHING 1N914	1900-4148
D202	1N4148 SILICON SWITCHING 1N914	1900-4148
D203	1N4004 SILICON RECTIFIER 1 AMP 400V	1900-4004
D204	1N4004 SILICON RECTIFIER 1 AMP 400V	1900-4004
D303	RED LED	1990-5053
D304	RED LED	1990-5053
D305	RED LED	1990-5053
D306	RED LED	1990-5053
D307	RED LED	1990-5053
D308	RED LED	1990-5053
D309	RED LED	1990-5053
D310	RED LED	1990-5053
	**** FUSES ****	
F501	120V USE 3 AMP 3AG 125V	0600-3000
F502	120V INTERNAL USE 3AG4A SLO BLO	0600-4001
F503	240V USE 1.25 AMP 250V	0600-1250
F504	240V USE 1.75 AMP 250V	0600-1750
	*** INTERGRATED CIRCUITS ***	
IC1	LM339N QUAD COMPARATOR	1885-0339
IC101	LM318H OPERATIONAL AMPLIFIER	1885-0318
IC201	LM318H OPERATIONAL AMPLIFIER	1885-0318
	**** JACKS AND CONNECTORS ****	
J501	3 PIN XLR CONNECTOR CHASSIS MOUNT	9999-0130
J502	1/4 PHONE JACK INSULATED	9999-0120
J503	OCTAL SOCKET TRANSFORMER	1203-0008
J504	3 PIN XLR CONNECTOR CHASSIS MOUNT	9999-0131
J505	1/4 PHONE JACK INSULATED	9999-0120
J506	OCTAL SOCKET TRANSFORMER	1203-0008
J507	BINDING POST RED	1231-0008
J508	BINDING POST BLACK	1231-0009

ENG NO	DESCRIPTION	PART NO
J509	1/4 PHONE JACK STEREO INSULATED	9999-0112
J510	BINDING POST RED	1231-0008
J511	BINDING POST BLACK	1231-0009
	**** INDUCTORS ****	
L101	.5UHY RFC IRON CORE	9999-2440
L201	.5UHY RFC IRON CORE	9999-2440
	*** TRANSISTORS ***	
Q1	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q2	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q3	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q4	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q101	MJE 350 PNP SI MED POWER PLASTIC	1853-0350
Q102	MJE 340 NPN SI MED POWER PLASTIC	1854-0720
Q103	MJE 340 NPN SI MED POWER PLASTIC	1854-0340
Q104	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q105	MPS A93 PNP SI LOW SIGNAL TO92	1853-0093
Q106	NPN SI MED PWR TO66 2N3583/67570	1854-3583
Q107	PNP SI MED PWR TO66 2N6211/67569	1853-6211
Q108	SJ9215 NPN SI POWER TO3	1854-9215
Q109	SJ9216 PNP SI POWER TO3	1853-9216
Q110	MPS A93 PNP SI LOW SIGNAL TO92	1853-0093
Q111	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q112	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q201	MJE 350 PNP SI MED POWER PLASTIC	1853-0350
Q202	MJE 720 NPN SI MED POWER PLASTIC	1854-0720
Q203	MJE 340 NPN SI MED POWER PLASTIC	1854-0340
Q204	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q205	MPS A93 PNP SI LOW SIGNAL TO92	1853-0093
Q206	NPN SI MED PWR TO66 2N3583/67570	1854-3583
Q207	PNP SI MED PWR TO66 2N6211/67569	1853-6211
Q208	SJ9215 NPN SI POWER TO3	1854-9215
Q209	SJ9216 PNP SI POWER TO3	1853-9216
Q210	MPS A93 PNP SI LOW SIGNAL TO92	1853-0093
Q211	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q212	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q301	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
Q302	MPS A43 NPN SI LOW SIGNAL TO92	1854-0043
	*** RESISTORS ***	
R1	47.5K 1% METAL FILM	5001-4752
R2	820 OHMS 10% 3W WIRE WOUND	4030-8201
R3	820 OHMS 10% 3W WIRE WOUND	4030-8201
R4	68K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6803
R5	68K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6803
R6	680K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6804
R7	470K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4704
R8	680K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6804

ENG NO	DESCRIPTION	PART NO
R9	680K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6804
R10	470K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4704
R11	680K OHMS 5% 1/4 W DEPOSITED CARBON	5065-6804
R12	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R13	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R14	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R15	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R16	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R17	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R18	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R19	100K OHMS 5% 1/4 W DEPOSIED CARBON	5065-1004
R101	47.5K 1% METAL FILM	5001-4752
R102	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R103	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R104	2.49K 1% METAL FILM	5001-2491
R105	47.5K 1% METAL FILM	5001-4752
R106	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R107	4.7K OHMS 5% 1/2 W DEPOSITED CARBON	5005-4702
R108	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R109	33K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3303
R110	33K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3303
R111	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R112	1.8K OR 1.5K OHM 1/2 W 5% DEPOS CARBON	5005- 02
R113	470 OHMS 5% 1/2 W DEPOSITED CARBON	5005-4701
R114	FACTORY SELECT 0 TO 300 OHMS	
R115	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R116	110 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1101
R117	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R118	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R119	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R120	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R121	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R122	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R123	10 OHMS 10% 2 W WIRE WOUND	4020-1001
R124	10 OHMS 10% 2 W WIRE WOUND	4020-1001
R125	0.2 OHMS 5% 10 W WIRE WOUND	4100-0200
R126	0.2 OHMS 5% 10 W WIRE WOUND	4100-0200
R127	2.7 OHMS 10% 2 W WIRE WOUND	4020-2070
R128	33 OHMS 10% 5 W WIRE WOUND BWH	4020-3301
R129	270 OHMS 10% 2 W WIRE WOUND	4020-2701
R130	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R131	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R132	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R133	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R134	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R135	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R136	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R137	100K OHMS 5 % 1 '4 W DEPOSIT D CARBON	5065-1004
R138	3.3K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3302
R139	FACTORY SELECT NONE TO 680 OHMS	
R140	3.3K OHMS 5% 1/2 W DEPOSITE) CARBON	5005-3302

ENG NO	DESCRIPTION	PART NO
R201	47.5K 1% METAL FILM	5001-4752
R202	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R203	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R204	2.49K 1% METAL FILM	5001-2491
R205	47.5K 1% METAL FILM	5001-4752
R206	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R207	4.7K OHMS 5% 1/2 W DEPOSITED CARBON	5005-4702
R208	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R209	33K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3303
R210	33K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3303
R211	1.2K OHMS 5% 1/2 W DEPOSITED CARBON	5005-1202
R212	1.8K OR 1.5K OHM 1/2W 5% DEPOS CARBON	5005- 02
R213	470 OHMS 5% 1/2 W DEPOSITED CARBON	5005-4702
R214	FACTORY SELECT 0 TO 300 OHMS	
R215	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R216	110 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1101
R217	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R218	100 OHMS 5% 1/2 W DEPOSITED CARBON	5005-1002
R219	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R220	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R221	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R222	1K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1002
R223	10 OHMS 10% 2 W WIRE WOUND	4020-1001
R224	10 OHMS 10% 2 W WIRE WOUND	4020-1001
R225	0.2 OHMS 5% 10 W WIRE WOUND	4100-0200
R226	0.2 OHMS 5% 10 W WIRE WOUND	4100-0200
R227	2.7 OHMS 10% 2 W WIRE WOUND	4020-2070
R228	33 OHMS 10% 5 W WIRE WOUND BWH	4020-3301
R229	270 OHMS 10% 2 W WIRE WOUND	4020-2701
R230	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R231	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R232	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R233	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R234	47K OHMS 5% 1/4 W DEPOSITED CARBON	5065-4703
R235	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R236	10K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1003
R237	100K OHMS 5% 1/4 W DEPOSITED CARBON	5065-1004
R238	3.3K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3302
R239	FACTORY SELECT NONE TO 680 OHMS	
R240	3.3K OHMS 5% 1/2 W DEPOSITED CARBON	5005-3302
R301	22K OHMS ROTARY POT	7008-2203
R302	22K OHMS ROTARY POT	7008-2203
R303	5.1K OHMS 5% 1 W CARBON COMP	6015-5102
R304	5.1K OHMS 5% 1 W CARBON COMP	6015-5102
R305	5.1K OHMS 5% 1 W CARBON COMP	6015-5102
R306	5.1K OHMS 5% 1 W CARBON COMP	6015-5102
R307	5.1K OHMS 5% 1 W CARBON COMP	6015-5102
	**** SWITCHES ****	
S501	AC POWER PST ROTARY WITH SOLDER GUARD	0680-0120
S502	120/240V DPDT SLIDE	0620-0206

ENG NO	DESCRIPTION	PART NO
S503	DPDT SLIDE MONO/STEREO	0620-0260
S504	THERMAL SWITCH, OPEN ON RISE, 212F	0630-3444
	**** TRANSFORMERS ****	
T501	POWER TRANSFORMER 100B EARLY MODELS USED 0900-0120,0121,& 0122 NUMBER IS MARKED ON TRANSFORMER. ALL CAN BE REPLACED BY 0900-0123. SEE SCHEMATIC FOR WIRING INFORMATION.	0900-0123
T901	INPUT TRANSFORMER 600/600 ISOLATING ACCYITEM	0900-9106
T902	INPUT TRANSFORMER 15K/15K BRIDGING ACCY ITEM	0900-9150
T903	INPUT TRANSFORMER 600/15K MATCHING ACCY ITEM	0900-9156
	**** TERMINAL ****	
TB501	2 LUG GROUND BARRIER STRIP	0720-3022
	**** PACKING CONTAINER ****	
	RAIL BLOCK, STYRO 1 3/8 X 3 3/4 X 10	9852-0000
	RAIL BLOCK, FRONT	9852-0120
	INSERT, TOP & BOTTOM	9852-0122
	RAIL BLOCK, REAR	9852-1021
	MANUAL 100B	9700-1120
	CARTON SHIPPING 100B	9851-1120
	BUBBLE PAC 24 INCH WIDE	9854-0024
	PLASTIC BAG FOR CORD	9899-0004
	PLASTIC BAG FOR AMPLIFIER	9899-2030
	**** ELECTRONIC HARDWARE ****	
	BARRIER INSULATION PAPER 1.77X70.18	0720-0121
	2 TERM GROUND BARRIER STRIP W STRAP	0720-1696
	BARRIER INSULATION PAPER 4.75X10.18	0721-0122
	BARRIER INSULATION PAPER 1.88X10.18	0721-0123
	TERMINAL PIN, FEM, TAKES .093 PIN MOLEX	1231-1102
	CLOSED END SPLICE, INSUL	1231-2218
	3/16 QUICK CONNECT INSUL LUG	1321-2216
	LUG, SLIP ON TERM 18-22 WIRE FEMALE	1322-9600
	LUG, SLIP ON TERM 16-14 WIRE FEMALE	1322-9700
	PC BOARD POWER AMP	9007-0120
	PC BOARD LED INDICATOR	9007-0125
	SOLDER GUARD FOR ON/OFF SWITCH	9011-6206
	RUBBER GROMMET FEED THRU	0722-2174
	MICA WASHERS PLASTIC DRIVERS CASE 77	0723-0005
	MICA WASHERS TO-66	0723-0031
	MICA WASHERS TO -3	0723-0321
	SHOLDER WASHER TRANSISTOR	0723-3347
	JUMPER GROUNDS FOR TB501	1231-0020

ENG NO	DESCRIPTION	PART NO
	LUG ROUND WIRE MOLEX	1231-1139
	STRAIN RELIEF AC POWER CORD HEYCO	1235-6034
	#10 LUG 14GA WIRE	1313-3457
	#10 LUG 18GA WIRE	1313-4123
	GROUND LUG #6	1331-1416
	PIN SQUARE PCB MOLEX	1349-0401
	PIN ROUND PCB MOLEX	1349-9312
P501	POWER CORD 3 WIRE U GROUND	8706-0183
	FUSE HOLDER EXTERNAL	9999-4406
	FUSE HOLDER INTERNAL	9999-4500
	*** MECHANICAL HARDWARE ***	
	SHAFT LOCKS FOR GAIN POTS	0700-1373
	HEAT SINK FOR POWER TRANSISTORS	1000-0250
	SPACER .140X.250X.156	8605-0156
	1/4 INCH ROUND SPACER 3/8 LONG	8606-0375
	SCREEN COMPONENT GUARD FOR HEAT SINK	9009-0120
	KNOB, .88 DIA BLK	0700-1273
	HEAT SINK 100B	100 -0250
	CAPCAITOR CLAMPS 1-3/8	1235-0002
	SPACERS LEDS	8606-0375
	1/4 HEX X1-3/8 STANDOFF	8662-0014
	FRONT PANEL 100B	9000-1120
	CHASSIS 100B	9002-1120
	POWER TRANSFORMER BRACKET 100B	9004-1120
	TOP COVER 100B	9005-1120
	BOTTOM COVER 100B	9006-1120
	**** NUTS BOLTS SCERWS AND WASHERS ****	
	10-32X3/8 FLAT ALLEN HEAD MACHINE SCREW BLK	2331-5375
	#6 INTERNAL TOOTH LOCK WASHER	8132-0000
	#10 INTERNAL TOOTH LOCK WASHER	8152-0000
	3/8 INTERNAL TOOTH LOCK WASHER	8172-0000
	3/8 FLAT WASHER	8191-0000
	6-32X1/4 HEX NUT	8530-0250
	10-32X3/8 HEX NUT	8550-0375
	3/8-32 X 1/2 HEX NUT, BLK	8570-0500
	6-32X3/8 PAN HD MACH SCREW PHILLIPS BLK	2111-3375
	6-32X5/8 PAN HD MACH SCREW PHILLIPS BLK	2111-3625
	6-32X3/4 PAN HD MACH SCREW PHIL CADMIUM	2115-3750
	6-32X5/8 PAN HD MACH SCREW SLOT CAD	2125-3625
	6-32X1 ROUND HD MACHINE SCREW SLOT CAD	2225-3001
	4-40X3/8 FLAT HD MACH SCREW PHIL CAD	2315-2375
	6-32X3/8 FLAT HD MACHINE SCREW PHIL BLK	2331-3375
	6X1/4 PAN HD SHEET METAL SCREW PHIL BLK	3111-3250
	6X3/8 PAN HD SHEET METAL SCREW PHIL BLK	3111-3312
	#4 INTERNAL TOOTH WASHER	8122-0000
	#8 INTERNAL TOOTH WASHER	8142-0000
	4-40X1/4 HEX NUT	8520-0250

ENG NO	DESCRIPTION	PART NO
	8-32X5/16 HEX NUT	8540-0312
	3/8-32X1/2 HEX NUT NICKEL	8574-0500

POWER MAINS VOLTAGE CONVERSION

NOTICE: Voltage conversion should be done by a BGW Authorized service station only.

CAUTION: These servicing instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than that contained in the Operating Instructions, unless you are qualified to do so. Refer all servicing to qualified service personnel.

The Model 100B is shipped from the factory wired for either 120/240-volt operation or 100/220-volt operation. The schematic diagrams below indicate the connections for both arrangements. Please note that these connections apply only to transformers marked with part number 0900-0122 or 0900-0123. For conversion of units with other transformers, please contact the factory.

In addition to changing the connections, the external fuse must be changed according to the following table:

	100V	120V	200V	220V	240V
Outside Fuse	2.5A S/B	2A S/B	1.25A S/B	1A S/B	1A S/B