



Home Music
Recording Studio
Date: 140206

Note: This owner's manual for the Acoustic 450 has been reconstructed from digital scans of an original manual, run through OCR software and reconstituted into a printable document. Every effort has been made to retain the content integrity of the original document. Thanks Julien for the files.

OWNER'S MANUAL

acoustic[®]
control corporation

MODEL 450 LEAD / BASS AMPLIFIER



acoustic control corporation

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A WORD TO ACOUSTIC AMPLIFIER OWNERS

We would like to take this opportunity to thank you for choosing an ACOUSTIC product and to assure you of our continuing interest in your musical pleasure and satisfaction.

This manual has been prepared to acquaint you with the proper operation of your amplifier and to provide important information as to its many capabilities. We urge you to read it carefully and follow the recommendations contained to help assure the most enjoyable and trouble free operation of your amplifier.

When it comes to service, remember that an authorized ACOUSTIC Service Center knows your amplifier best and is interested in your complete satisfaction.

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ACOUSTIC LIFETIME WARRANTY

Acoustic Control Corporation guarantees its products to the original purchaser to be free from all defects in materials and workmanship.

THIS LIFETIME GUARANTEE IS VALID ONLY IF THE WARRANTY REGISTRATION CARD IS COMPLETED AND MAILED TO ACOUSTIC WITHIN 10 (TEN) DAYS FROM THE DATE OF PURCHASE.

Acoustic Control Corporation will validate the Warranty and return it to you for your files. The card **MUST** be validated for your warranty to be in effect.

Should an Acoustic product require service, the purchaser must take the product to an authorized ACOUSTIC Service Center for repair in order for the Warranty to be effective. A list of these centers is provided in the back of this manual. Once the produce has been delivered to the Service Center, all repairs will be made free of any charge to the original purchaser, provided the product has not been misused or mishandled.

IMPORTANT

It is necessary for your ACOUSTIC product to be registered in the event it should ever require service. In order to register your new Acoustic product and receive the Acoustic Life-Time Warranty, fill out both sections of the Warranty card and return it to Acoustic within 10 (ten) days of the purchase date. **PLEASE PRINT LEGIBLY.** The first part of the card will be kept in our files. The second part will be validated and returned to you. The card must be validated for your Warranty to be in effect.

To avoid unnecessary expense, an owner who desires service on a piece of equipment must always bring the validated Warranty card to the authorized Acoustic Service Center when the equipment is taken there. If the card is not presented at that time, a phone call, at the owner's expense, will have to be made to the factory to establish a valid Warranty on the equipment.

GENERAL DESCRIPTION

ACOUSTIC's Model 450 is a versatile guitar amplifier with many special features that produces **170 Watts RMS power into a 4 ohm speaker** with less than 5% distortion. The Lead/Bass switch located on the front panel is unique in that it allows the amplifier to be used as either a lead guitar or a bass guitar amplifier. Besides having a quality sound and a powerful sound system, the Model 450 excels in flexibility due to its advanced engineering. The location and function of each control is clearly described in this manual. To utilize the full capability of this instrument, it is again recommended that you **READ THIS OWNER'S MANUAL** thoroughly.

MODEL 450-SPECIAL FEATURES

1. LEAD/BASS SELECTOR SWITCH

The LEAD/BASS switch located on the front panel allows the amplifier to be used as either a lead guitar or a bass guitar amplifier. The amplifier in the LEAD switch position is a wide-band flat amplifier. It reproduces fundamental tones plus harmonics. This is most desirable when playing a lead guitar. When used in the BASS position, the harmonics are restricted. All harmonics beyond 1200 Hz are de-emphasized, a desirable characteristic when playing a bass guitar. The LEAD/BASS selection is made in the output section of the circuit which makes the LEAD/BASS conversion effective even when the amplifier is being overdriven or when it is used in the distort mode.

2. SPECIAL OUTPUT CIRCUIT CONFIGURATION

This provides constant power into the speaker, especially at low bass frequencies, to produce solid bass characteristics and to augment the higher harmonic frequencies.

3. AUXILIARY VOLUME CONTROL

This control allows you to pre-set two different volume levels and switch between them with the foot switch.

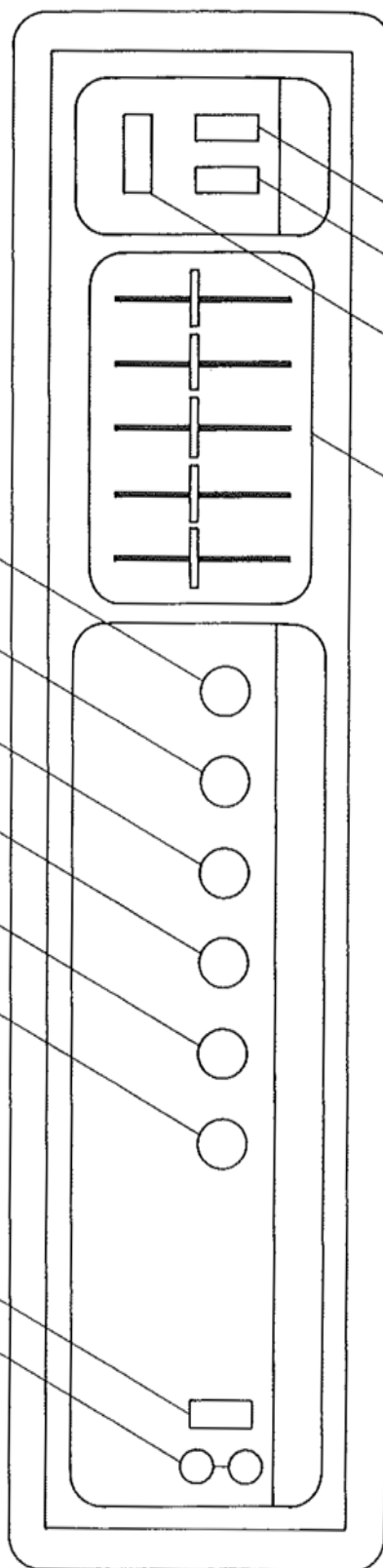
4. USE OUTSIDE THE UNITED STATES

If you wish to use your amplifier outside the United States, voltage selection can be made with slide switches that are located inside the back of the amplifier. (You must remove the cover to make the voltage selection.) The amplifier's various operating voltages are 107V, 120V, 210V, and 240V, all at 50 or 60 Hz.

CAUTION: Even though the switches are clearly marked, it is suggested that your dealer's service department make the adjustment.

- 1 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

____ INPUTS
 ____ BRIGHT SWITCH
 ____ VOLUME CONTROL
 ____ TREBLE CONTROL
 ____ MID-RANGE CONTROL
 ____ BASS CONTROL
 ____ DISTORTION CONTROL
 ____ AUXILIARY VOLUME CONTROL



- 13 GRAPHIC EQUALIZER
- 12 POWER ON/OFF SWITCH
- 11 LEAD/BASS SWITCH
- 10 GROUND REVERSE SWITCH

MODEL 450

OPERATION OF CONTROLS AND CONNECTIONS

1 & 2 INPUTS

There are two input jacks on the left side of the front panel. The top input is louder than the bottom input. The top input should be used in most cases to achieve maximum signal-to-noise ratio. If your instrument puts out such a large signal that you can turn the volume control only slightly above the off position, then you should use the second input to cut down on the signal. The difference between the two inputs is volume gain. Input 2 is 10 dB lower than input 1.

3 BRIGHT SWITCH

In the BRIGHT position, the treble is boosted in relation to the bass and mid-range. This enables you to achieve a crisper sound.

4 VOLUME

The Volume control increases the volume of all frequencies and special functions equally.

5 TREBLE

The Treble control is for control of upper-range tones. The tone circuitry is of the cut and boost type as opposed to the straight boost varieties. This control enables you to compensate more easily for most pick-up devices. Always keep in mind that flat (or normal) is with the knob pointer straight up.

6 MID-RANGE

The Mid-Range control is for the control of middle-range tones. The tone circuitry is of the cut and boost type as opposed to the straight boost varieties. This enables you to compensate more easily for most pick-up devices. Always keep in mind that flat (or normal) is straight up. Note: This control can also be used as part of Graphic Equalizer for frequencies between 460 to 700 Hz.

7 BASS

The Bass control is for low-range tones. The Bass tone circuitry is also of the cut and boost type. This allows you to obtain maximum "bottom" even if the instrument is weak in Bass response. This control is very active and when used in conjunction with the Graphic Equalizer allows you an infinite variety of tone settings. Flat (or normal) is straight up.

8 DISTORTION CONTROL

This control is used to create a desired amount of distortion. Distortion is somewhat similar to the sound effect known as "fuzz." When the distortion control is turned fully counter clockwise, the distortion circuit is bypassed. To obtain the desired distortion effect, advance the control knob to the right until the desired effect is achieved. The distortion circuit is electronically switched in and out with the foot switch while playing. Electronic switching eliminates clicks.

9 AUXILIARY VOLUME CONTROL

This control allows you to pre-set two different volume levels: one primary and the other secondary. Use the master Volume Control (4) to set the primary level, then press the foot switch down and set the secondary level with the Auxiliary Volume Control. The foot switch selects between primary and secondary volume levels. Again, switching is done electronically, therefore there are no clicks and pops that would interfere with your playing. This control enables the musician to switch with ease back and forth from lead playing to rhythm playing.

10 GROUND REVERSE SWITCH

Many times you will have a persistent hum or buzz from the guitar strings. The Ground Reverse Switch has been designed to reduce or eliminate this condition. Set the Switch in whichever position reduces or eliminates the problem.

11 LEAD/BASS SELECTOR SWITCH

The amplifier in the LEAD Switch position operates as a wide-band flat amplifier. It reproduces fundamental tones plus the harmonics. This is desirable when playing a lead guitar. When the Switch is used in the BASS position, the harmonics are restricted. Any harmonics that are more than 1200 Hz are de-emphasized, a desirable characteristic when playing a bass guitar. The LEAD/BASS selection is made in the output section of the circuit making the LEAD/BASS conversion effective even when the amplifier is being overdriven or when used in a distort mode.

12 POWER ON/OFF SWITCH

This Switch turns the entire system On. There may be a moderate thump when you turn the amplifier On. DON'T PANIC. This is normal. The "On" condition of the amplifier is indicated by the indicator light built into the switch button.

13 GRAPHIC EQUALIZER

The ACOUSTIC Graphic Equalizer is a unique device for musical instrument amplification similar in function to a studio equalizer. The Equalizer divides the guitar signal into five sections. Section 1 covers the 50 Hz to 110 Hz range; Section 2 covers the 110 Hz to 220 Hz range; Section 3 covers the 220 Hz to 460 Hz range; Section 4 covers the 700 Hz to 1500 Hz range; and Section 5 covers the 1500 Hz to 2800 Hz range. These slide controls allow you to boost or cut any of these ranges. The Mid-Range control can be used to cover the 460 Hz to 700 Hz range. You can shape the response of the amplifier to meet your exact requirements for a particular song. A flat response (no equalizer boost or cut) is achieved when all 5 controls are centered at "0". There is a special mechanical notch on the control to identify this location so that this adjustment can be felt without referring to the markings.

How the Graphic Equalizer Works.

Let's take a moment and discuss the typical electric guitar. The actual range of the fundamental notes is from 84 Hz to about 670 Hz. (The open low E string is about 84 Hz, and the E at the twelfth fret of the first string is about 670 Hz.) The important harmonic overtones occur from about 180 Hz to about 2200 Hz. It is the balance between the fundamental notes and their harmonic overtones that determines the type of sound you get. You probably haven't realized it, but you have been aware of this balance and controlling it to a limited degree for years. How? If your guitar has two pickups, you use the front pickup when you want fundamentals and heavy bottom. You use the back pickup when you want more overtones. Using your fingers gives you more fundamentals; using a pick gives you more overtones.

The Graphic Equalizer is a logical extension of this fundamental-to-harmonic balance control. With all this in mind, let's look at the Graphic Equalizer and see how it applies.

Section 1 (50 Hz to 110 Hz) covers all the notes on the E (sixth) string and about half of the notes on the A string. It also covers the range about one-half octave below the low E in case you are into Modal or slack tunings.

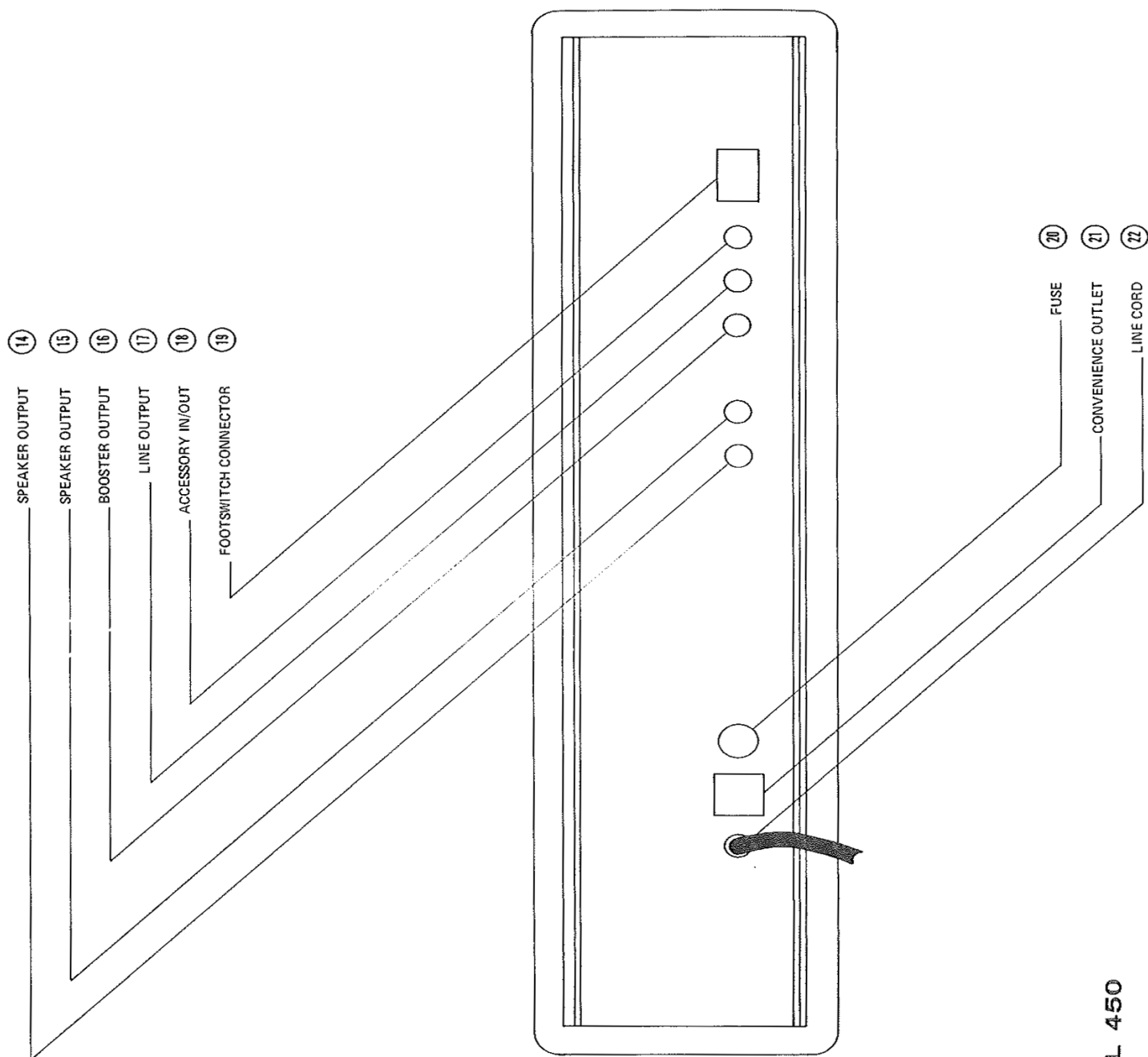
Section 2 (110 Hz to 220 Hz) covers all the notes on the D and G strings as well as half the notes on the B string.

Section 3 (220 Hz to 460 Hz) covers some of the notes on the B string as well as most of the notes on the High E string. Use the mid-range control for the highest notes of the high E string.

Section 4 (700 Hz to 1500 Hz) covers the second harmonics of the E string.

Section 5 (1500 Hz to 2800 Hz) covers the second harmonics of the high strings and higher harmonics on the middle strings.

Continues after diagram



MODEL 450

OPERATION OF CONTROLS AND CONNECTIONS, continued

Each section boosts or cuts only the notes covered by that section. Everything else stays the same. Raising the section above the center line boosts or emphasizes certain tones; lowering the section below the center line cuts or attenuates those same tones. When the section control is centered, the effect of the section is out of the circuit.

How to Use the Graphic Equalizer

Let's assume for one song you want a really heavy, but not boomy, bass sound with a little bit of snap to the highs. Try setting the treble control at about 3 o'clock. This gives you the boost to the highs for a little more snap. Now set the bass control at about 3 o'clock to get a heavy bottom end. Lower the 320 Hz section (Section 3) to its lowest position (full cut). This removes the objectional boomy overtones from the sound and lets the bottom and highs come through. Without changing any of the other settings, bring the 320 Hz (Section 3) back to the center and lower the 160 Hz section (Section 2). The change in sound which you will hear is that of the upper harmonics coming in and the lower set of harmonics being eliminated. Let's try another one. Set the Bright Switch to the Bright position and set the treble control at about 3 o'clock. Set the bass control to straight up. Put the 160 Hz section to its full boost position (all the way up). Turn the mid-range control clockwise to full boost. Let's see what we have achieved. Lots of treble so we have good punchy highs; a flat bass and, in addition, we have boosted the volume of the middle strings as well as the middle set of harmonics. It is very close to the sound of a tube-type amplifier in its overloaded position. Remember, when you are setting the amplifier to get a certain sound, use the treble, mid-range, and bass controls to get the basic sound, then modify it with the Graphic Equalizer to get the exact sound you desire.

14 & 15 SPEAKER OUTPUT JACKS

Connect your speaker plug into one of the jacks. The other jack is provided in case you need to use another speaker.

16 BOOSTER OUTPUT

This jack would be used if you desire to drive an additional power amplifier and speakers using the Model 450 head to control the extra amplifier.

17 LINE OUTPUT

This jack is tied to the output of the preamplifier. As the volume is lowered, the output of this jack is lowered. This jack should be used if you desire to control a bank of power amps and associated speakers from one main control amplifier. This jack cannot drive a speaker directly.

OPERATION OF CONTROLS AND CONNECTIONS, continued

18 ACCESSORY JACK

A three-conductor phone jack allows you to route the signal out through and in from any accessory equipment such as a wah-wah pedal, echo machine, etc. The accessory jack maintains an internal connection for normal use when no plug is inserted in it.

19 FOOTSWITCH CONNECTOR

A 3 circuit phone-type connector connects the distort and the auxiliary volume footswitch to the amplifier.

20 FUSE (See page 18 for fuse rating)

Keep in mind that a Fuse is simply a circuit breaker that operates if a potentially dangerous situation exists. If the fuse does blow, always replace it with the proper 5 amp (3AG) Slo-Blo fuse at 125 Volts. Do not use any other type or rating. When operating at 214 or 240 Volts, use a 3 Amp Slo-Blo 3 AB fuse.

21 AC CONVENIENCE OUTLET

This outlet will provide AC power for auxiliary equipment. Do not plug equipment into this outlet if the total power demands exceed the rating marked next to the outlet. The outlet stays on even when the amplifier is off. (See markings on the chassis.)

22 AC LINE CORD

All Acoustic amplifiers have a three-conductor grounding system which connects the chassis ground to the line ground. This grounding system eliminates the possibility of shock hazard and hum pick-up. When Acoustic amplifiers are being used in conjunction with other equipment, make certain that the other equipment has this standard grounding scheme. Grounding faults in other equipment or when using a "cheater" plug (a 2 pin ground-eliminating plug) can create the possibility of shock hazard and excessive hum. In such cases, the stage manager or electrician should be asked to correct the problem.

A NOTE ON SPEAKER IMPEDANCES

Any impedance between 2 ohms and 4 ohms will give optimum results; that is, 170 Watts RMS. 4 ohms is the best match because with a 4 ohm load, the amplifier runs slightly cooler.

Low Impedances

Use of impedances less than 2 ohms may reduce maximum power output and cause extraordinary heating.

High Impedances

Use of impedances greater than 4 ohms will reduce the maximum power output available and will enable operation at reduced temperatures.

Multiple Speakers

When using *Multiple Speakers*, find a series-parallel arrangement so that the total impedance is between 2 ohms and 4 ohms. (Ask your Dealer to show you how to do this.)

MODEL 450 PHYSICAL SPECIFICATIONS

1. CONNECTIONS

Inputs	2 (1/4" phone jacks, 2 conductor)
Speaker Outputs	2 (1/4" phone jacks, 2 conductor)
Line Outputs	2 (1/4" phone jacks, 2 conductor)
Booster Output	1 (1/4" phone jack, 2 conductor)
In / Out Accessory	1 (1/4" phone jack, 3 conductor)
Foot Switch Socket	1 (1/4" phone jack, 3 conductor)
Physical Dimensions	24-5/8" W x 7" H x 12-1/2" D
Shipping Weight	30 lbs. + 5 lbs. shipping carton

2. CONTROLS

Volume	Rotary Potentiometer
Treble	Cut and Boost Rotary Potentiometer
Mid-Range	Cut and Boost Rotary Potentiometer
Bass	Cut and Boost Rotary Potentiometer
Distort	Rotary Potentiometer
Auxiliary Volume	Rotary Potentiometer
Bright Switch	Rocker Switch
Lead / Bass Switch	Rocker Switch
Ground Reverse Switch	Rocker Switch
Graphic Equalizer	5 Section (Each section is a slide potentiometer with detent in the flat position.)
Power On / Off Switch and Pilot Light	Push-On / Push-Off Switch
Auxiliary Outlet	3 Conductor Grounded Standard
Fuse	3 Amps Slo-Blo or 5 Amps Slo-Blo
Line Adjustment	See page 18
Inside Adjustment	See page 18

MODEL 450 ELECTRICAL SPECIFICATIONS

1. OUTPUT

Power output (continuous) across 4 ohm load @ less than 5% distortion	170 Watts RMS
Peak power output (instantaneous) across 4 ohm load @ 5% distortion	450 Watts
Power output (continuous) across 2 ohm load @ 5% distortion	170 Watts RMS
Peak power output (instantaneous) across 2 ohm load @ 5% distortion	400 Watts

2. GAIN (All controls flat volume max.)

Preamp gain (from input to line output)	38 dB or 80X
Total gain	63.5 dB or 1500X
Power amplifier gain from ext. inputs to speaker output	55 dB or 500X

3. SENSITIVITY

Input voltage for maximum output	Input 1: 15 mv RMS Input 2: 45 mv RMS
Input voltage capability (maximum)	Input 1: 510 mv RMS Input 2: 1.6V RMS
Nominal Input impedance	Input 1: 470K OHMS Input 2: 69K OHMS

4. NOISE (all controls flat, inputs shorted)

Noise-to-full-output ratio - volume minimum	78 dB below full output
- volume maximum	78 dB below full output

5. FREQUENCY RESPONSE

At 10 Watt level	-3dB, 27Hz to 21KHz
Power bandwidth 1/2 power point	30 Hz to 18K Hz

MODEL 450 ELECTRICAL SPECIFICATIONS, continued

6. AUXILIARY OUTPUTS

Output Voltage	250 mv RMS
Impedance	5000 ohms
Booster Output	275mv RMS
Impedance	1 K ohms

7. DISTORTION CIRCUIT (all controls flat, distortion control and volume control max.)

Minimum Input Required to Clip Power Amp	425 Microvolts
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8. RANGE OF TONE CONTROLS

Bass	+15 dB Boost, -15 dB cut @ 50 Hz
Treble	+15 dB Boost, -25 dB cut @ 10KHz
Mid-Range	+7 dB Boost, -30 dB cut @ 400 Hz
Bright Switch Boost	6 dB per octave from 200 Hz to 5 KHz

9. RANGE OF GRAPHIC EQUALIZER

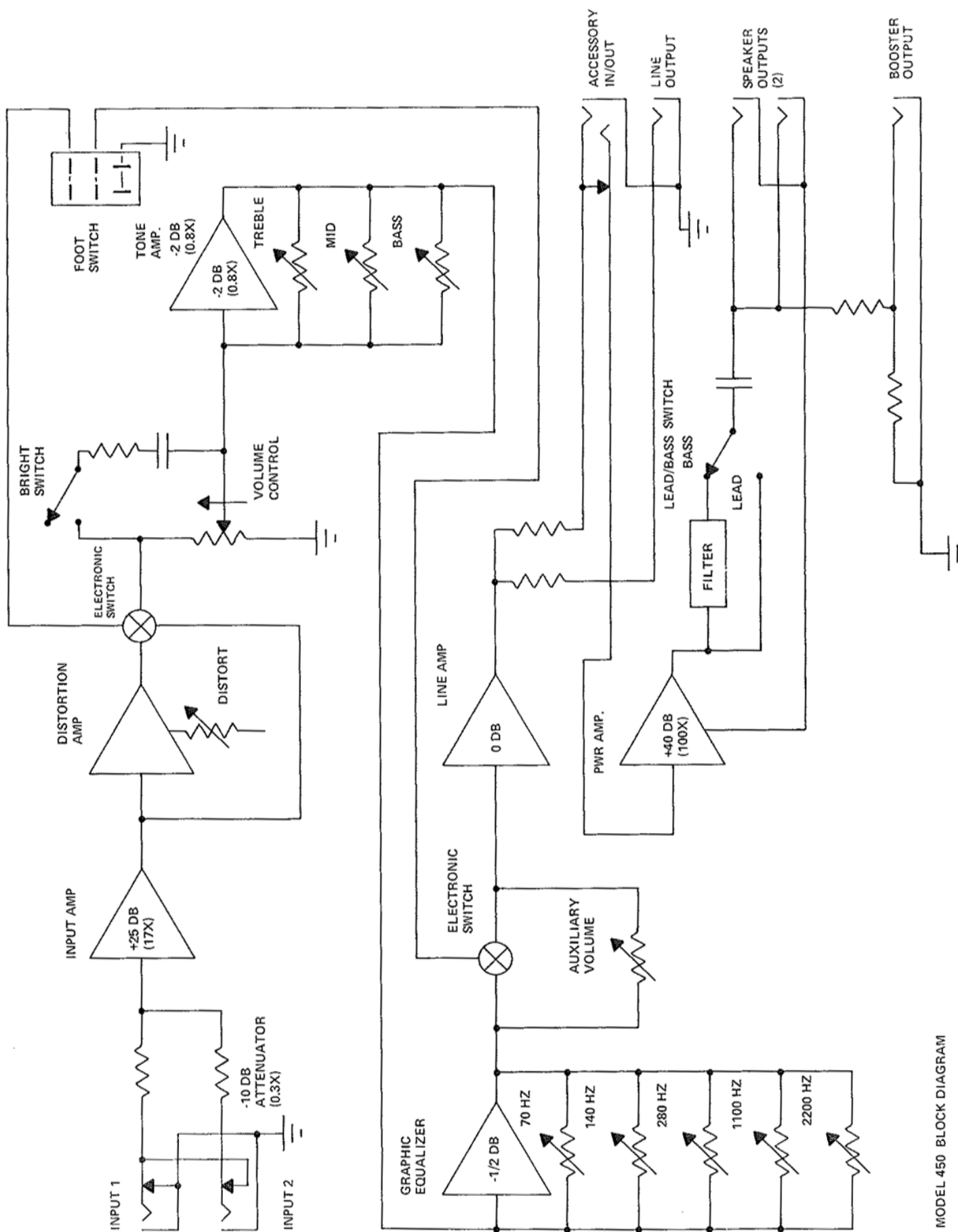
Section 1	±16 dB @ 70 Hz
Section 2	±16 dB @ 140 Hz
Section 3	±16 dB @ 280 Hz
Section 4	±16 dB @ 1100 Hz
Section 5	±16 dB @ 2200 Hz

AMPLIFIER LINE VOLTAGE REQUIREMENTS

FOR OPERATION IN U.S.A. AND FOREIGN COUNTRIES

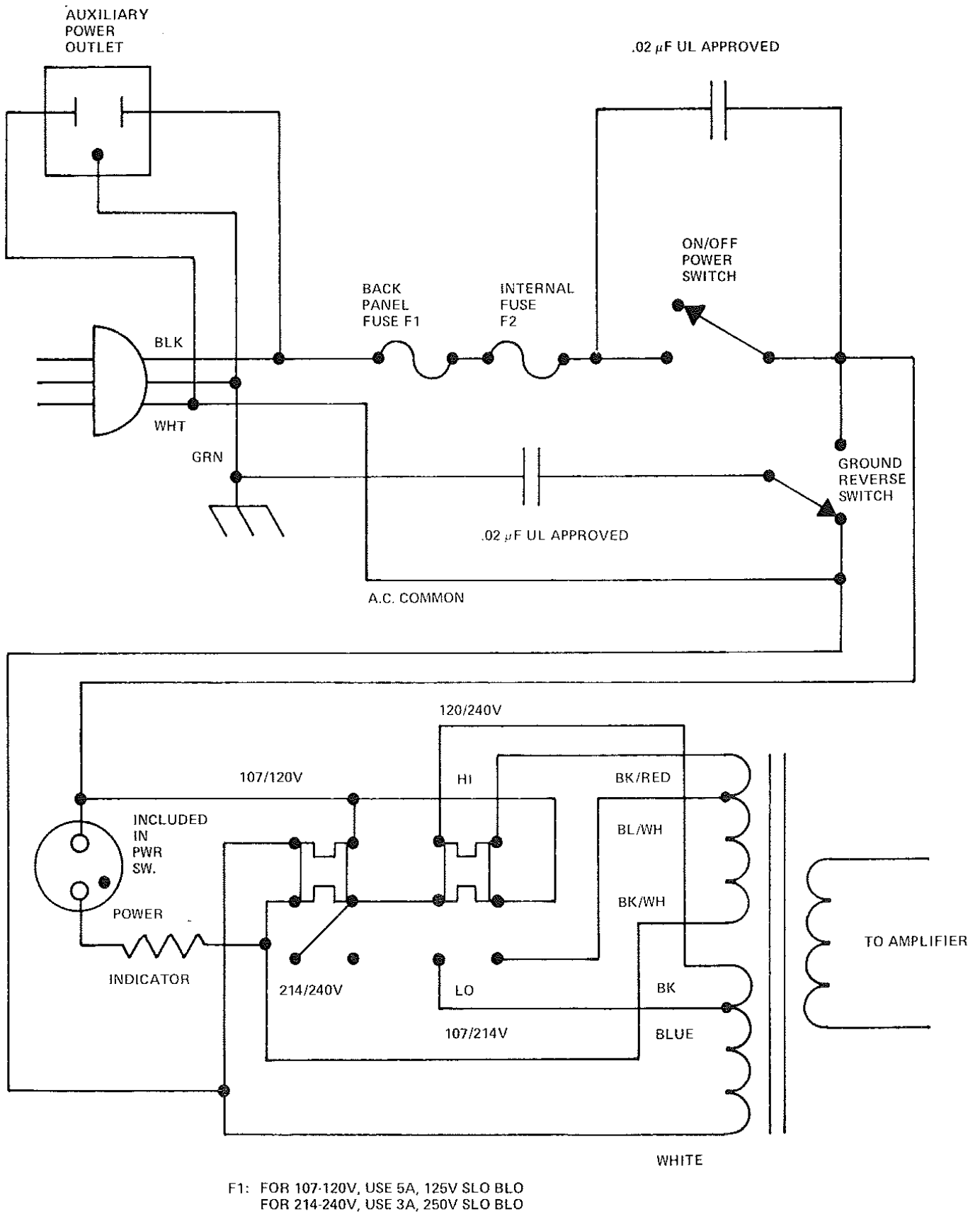
- | | |
|---|--|
| <p>1. 107 Volts Line
Use 5A, 125V Slo-Blo Fuse</p> | <p>Used when supply line is 100V - 50/60 Hz
as in Japan or
Used when supply line is rated 110V
CAUTION: Do not use 107V tap with 120V line</p> |
| <p>2. 120 Volts Line
Use 5A, 125V Slo-Blo Fuse</p> | <p>Used in U.S.A. or where Line Voltage
is specified as 117V or 120V - 50/60 Hz Lines</p> |
| <p>3. 214 Volts Line
Use 3A, 250V Slo-Blo Fuse</p> | <p>Used where Line is specified as 210V or
220V AC - 50/60 Hz
(mostly European Countries)
CAUTION: Do not use this tap with 225V,
230V or 240V Lines</p> |
| <p>4. 240Volts Line
Use 3A, 250V Slo-Blo Fuse</p> | <p>Used with 225, 230, and 240 Volts -
50/60 Hz Lines
(many European countries & Australia)</p> |

Note: See page 20 for line cord color code details.



MODEL 450 BLOCK DIAGRAM

A.C. WIRING DIAGRAM MODEL 450



SPECIFICATION

PART NO. 410173

SPEAKER CABINET SPECIFICATIONS

ACOUSTIC MODEL 406

Speaker Complement	2 - 15"
Cabinet Design	bass reflex
Cabinet Construction	3/4" plywood
Speaker Access	Front
Cabinet Size	43" H X 18" D X 24 1/2" W
Shipping Weight	130 lbs.
Nominal Impedance	4 ohms
Power Handling Capacity	200 Watts RMS