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**OPERATING MANUAL**

**44 WATT TRANSISTORIZED  
STEREO AMPLIFIER**

**MODEL LA-200**



## GENERAL DESCRIPTION

The LA-200 is an all-transistor integrated amplifier designed for high quality stereophonic or monophonic reproduction. It combines a stereophonic control preamplifier and 44-watt stereophonic power amplifier in one compact and handsomely designed unit. The advanced all-transistor design offers all the advantages expected from solid-state circuitry — instant warm-up . . . low current consumption . . . cool operation . . . low distortion and noise . . . good transient response . . . wider frequency response at full power. The amplifier has inputs for every type of stereo or monophonic program source — record players, multiplex FM tuners, tape recorders, etc. Separate phonograph inputs are provided for record players equipped with magnetic or ceramic (crystal) cartridges, each pair of inputs offering proper loading and equalization for accurate reproduction. Also included are inputs for direct connection to the tape playback heads of a tape mechanism. These, too, offer correct equalization for proper reproduction. Tape recorder outputs let you record all

stereo or monophonic programs reproduced through the amplifier. Speaker outputs consist of just two terminals for each channel — all speakers, regardless of whether they are of 4, 8 or 16 ohm impedance, connect to these terminals. A full range of controls provides complete flexibility of operation and ensures the finest sound reproduction at all times, regardless of the variations in program sources or room acoustics. Also included is a special circuit which offers protection against widespread transistor damage due to short-circuits in the speaker line or electrical overloads caused by component failure in the amplifier. To obtain the best performance from your high fidelity stereo system, we recommend that you carefully read all the instructions contained in this manual. Also, we suggest that you keep the manual close at hand and in a safe place so that you can refer to it when necessary.

## INSTALLATION

The amplifier may be used in any convenient location such as an equipment cabinet shelf, table or bookcase. Modern and attractive in appearance, the amplifier lends itself to this type of installation.

## CONNECTING YOUR ASSOCIATED EQUIPMENT

### SPEAKER IMPEDANCE

Transistorized amplifiers which do not employ output transformers in their design need only be equipped with one pair of speaker terminals (for each channel). Thus, all speakers, whether 4, 8 or 16 ohms impedance, are connected to these terminals. The absence of output transformers enables the amplifier to produce maximum power at low distortion levels. In addition, it permits a wider frequency range to be reproduced at high power — particularly in the bass range where large amounts of power are required for proper reproduction. With such an amplifier, however, the amount of output power produced will depend upon the impedance of the speaker to which it is connected. In this amplifier,

### WARNING

Never insert or remove input cables on the amplifier unless the volume control is at minimum or the amplifier is switched off.

### LOUDSPEAKERS

The interconnecting diagram illustrates how speakers are connected to this amplifier. For indoor installations, ordinary plastic-covered lamp cord (No. 18 gauge) should be used to connect the speakers to the amplifier. Before doing so, however, we recommend that you read the following information. It will enable you to understand one of the basic differences between a vacuum-tube amplifier and a transistorized one.



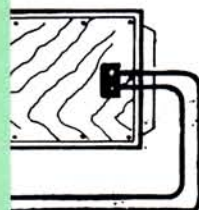
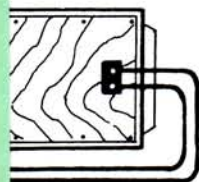
## MODEL LA-200 DESIGN CHANGE

Your Model LA-200 amplifier now incorporates a more advanced type of protective circuit to guard against output transistor damage. The multiple relay circuit described in the operating manual has been replaced by a special transistor circuit which performs the same function. This new circuit, however, is more effective and will act instantaneously to prevent the destruction of the output transistors due to short-circuits in the speaker line. Moreover, the protective circuit will remain in operation until such time as the short circuit is removed.

Operation of the protective circuit can be recognized by the following symptom. The sound output (program) will either go off permanently, or go off and come on again repeatedly. If this happens, switch the amplifier off and check all speaker connections carefully. Make sure there are no short-circuits at the amplifier terminals or even at the speakers themselves (if you have used staples anywhere to secure the speaker cables, check these points as well).

If the symptom described persists, even after it has been established that there are no short-circuits in the speaker outputs, a fault in the amplifier must be suspected and it should be returned for service.

CONTROLLED  
BY  
POWER  
SWITCH

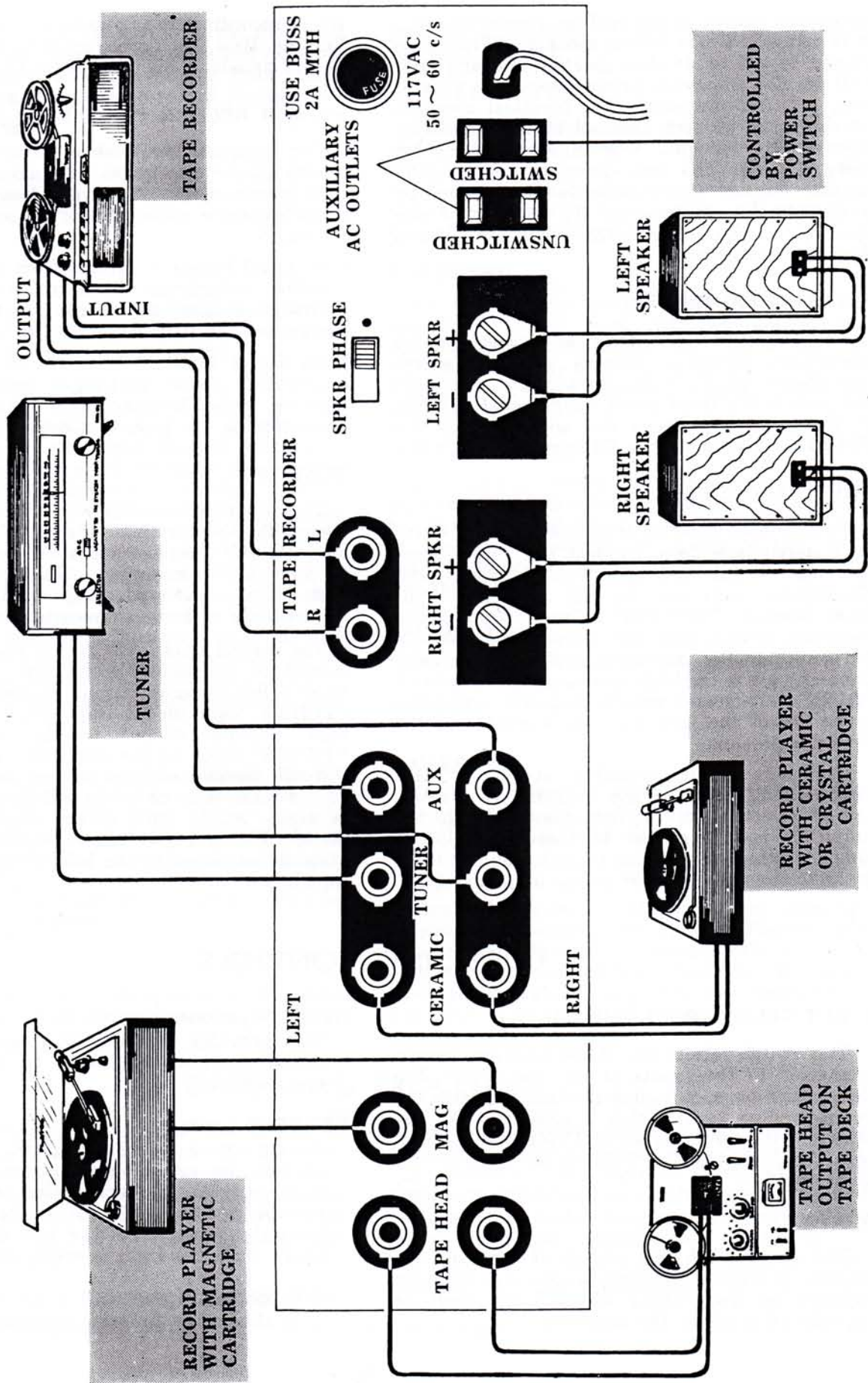


RECORD PLAYER  
WITH CERAMIC  
OR CRYSTAL  
CARTRIDGE





# INTERCONNECTING DIAGRAM





maximum output power will be developed when it is connected to a 4-ohm speaker. When connected to a 8 or 16-ohm speaker, the amplifier will develop somewhat lower power. In view of this, it is recommended that identical speakers be connected to each channel of this amplifier. Speakers of unequal impedance will develop unequal power and thus cause an imbalance in speaker outputs which can only be overcome by a considerable increase in the volume of one channel or the other. This would not be a desirable condition.

### STEREO HEADPHONES

This amplifier is also designed for stereophonic headphone listening. Simply plug the stereo headphones (4, 8 or 16 ohms impedance) into the jack in the front panel designated PHONES. If you wish to silence the speakers, set the SPEAKER switch to the OFF position.

### TAPE RECORDERS

To play back directly from the playback heads of a stereo tape deck, connect the output from the tape heads through shielded cables and phono-type plugs into the left and right input jacks labeled "TAPE HD". Output from stereo recorders having their own preamplifiers should be connected (by means of shielded cables and phono plugs) to the high level input jacks labeled "AUX". To avoid overloading the amplifier, make use of the level controls available at the recorder preamp.

Use the output available at the "TAPE RECORDER" jacks on the amplifier — all programs selected for reproduction through the amplifier are connected to these jacks. Use shielded cables with phono plugs to connect these jacks to the tape recorder phono or radio inputs.

While recording, the Loudness, Scratch, Rumble, Volume, Bass and Treble controls have no effect on the signals at the "TAPE OUT" jacks.

### STEREO RECORD PLAYERS

The two shielded cables from your stereo record player should be terminated with RCA-type phono plugs. To avoid loss of high frequencies, these cables should not exceed 10 feet in length.

**Low Level Inputs** — Inputs from a magnetic or variable reluctance (constant velocity type) cartridge should be connected to the jacks designated "MAG".

**High Level Inputs** — Inputs from "constant-amplitude" phono cartridges such as crystal, ceramic, and FM-capacitance types, should be connected to the jacks designated "CERAMIC".

### TUNERS

The input jacks designated "TUNER" are for use with FM or AM tuners, FM multiplex adaptors, TV receivers and other equipment with at least 0.25 volt output. Shielded cable complete with phono-type plugs should be used to connect any of these sources to the amplifier.

The output of an FM stereo multiplex tuner should be connected as follows: Connect the tuner's left channel output to the left channel "TUNER" input on the amplifier, and the tuner's right channel output to the right channel "TUNER" input on the amplifier. In the case of FM-AM stereo multiplex tuners, the AM output of the tuner may be connected to either the left or right "AUX" input of the amplifier. Monophonic FM and AM tuners should have their outputs connected to the left or right "TUNER" inputs.

## OPERATING CONTROLS

### INPUT SELECTOR

This switch selects any of the program sources connected to the inputs of the amplifier. The designation on each switch position indicates the corresponding input which is selected. For example, if the switch is set to TUNER, any equipment connected to the TUNER input jacks will be selected.

### MODE

The position of this switch determines the manner in which the program source (previously selected by the INPUT SELECTOR) shall be reproduced through the amplifier.

#### STEREO position:

This provides normal stereo reproduction for stereo programs connected to the inputs of the amplifier.

#### REVERSE position:

During stereo reproduction, you may wish to reverse the sound outputs from the left and right speakers. Placing the switch in the reverse position will cause the instruments formerly heard from the left speaker to be heard from the right speaker, and vice versa.

#### LEFT position:

This allows any program connected to the left



channel input jack through both channels and speakers. This position is therefore suitable for reproduction of single outputs from monophonic tuners, monophonic record players, etc.

#### **RIGHT position:**

This provides the same type of operation as for the Left position except that the program source connected to the Right channel input jack is heard through both channels and speakers.

#### **VOLUME**

This control provides simultaneous adjustment of the sound level from both channels and therefore acts as a master volume control.

#### **BALANCE**

This control enables you to equalize or "balance" the left and right channel sound outputs. The center or mid-position of this control normally produces balanced outputs. Due to varying conditions however, one channel in the complete system may be higher or lower in level than the other. In such a case "balancing" must be carried out (see "Speaker Phasing and Balancing"). Turning the balance control to the right of the mid-position causes the left channel volume to be reduced. Turning the control to the left causes the right channel volume to be reduced. Thus, the control is always turned in the direction of the weaker sound output.

#### **BASS**

These are concentric controls which permit individual adjustment of the bass (low) tones for each channel. The outer knob adjusts the left channel and the panel control behind it adjusts the right channel. The normal setting for each is at the 12 o'clock position. Clockwise rotation increases the bass tones and counter-clockwise rotation decreases them.

#### **TREBLE**

These concentric controls operate in the same manner as the BASS controls, except that they

provide adjustment of the treble (high) tones for each channel.

#### **RUMBLE FILTER**

This switch, when "on", removes any annoying low frequency rumble that may originate in your record player and can be heard from the speakers. Normally, this switch should be placed in the "off" position to permit the full reproduction of the low frequencies.

#### **LOUDNESS**

At low volume levels, there is always an apparent lack of bass response due to the characteristics of the human ear. To compensate for this effect by increasing the bass response during low volume listening, simply switch the loudness "on".

#### **SCRATCH FILTER**

This switch, when "on", removes annoying high frequency sounds (such as scratch and hiss) heard when using old or worn records. Normally, this switch should be placed in the "off" position to permit full reproduction of the high frequencies.

#### **SPEAKER**

For speaker operation, this switch must be set to the "on" position. To silence the speakers during headphone listening, set the switch to "off".

#### **POWER**

This switch applies AC power to the amplifier when placed in the "on" position, and also causes the pilot lamp to light up.

#### **PHASE (Rear)**

This switch is used to obtain correct "phasing" of your loudspeakers (see Speaker Phasing and Balancing). The side indicated with a dot is considered as the "normal" position. However, inaccurate Speaker connections may require that you place it in the other position.

## **OPERATING PROCEDURE**

Before attempting to operate the amplifier, make sure that you have connected your program sources (record player, tuner, etc.) and loudspeakers correctly. Before plugging in the amplifier, be sure that the power source to be used is 105-125 volts, 50/60 cycles AC, and that the power switch is "off".

#### **READ CAREFULLY BEFORE PROCEEDING**

High fidelity amplifiers which employ trans-

istors instead of vacuum-tubes offer many advantages. These include such features as instant warm-up, low current consumption, low heat, low distortion and noise, good transient response, and wider frequency response at full power. However, transistorized amplifiers cannot normally be subjected to the same electrical overloads or misuses that vacuum-tube units can survive, unless special circuit-protecting devices are incorporated. This has been done in the



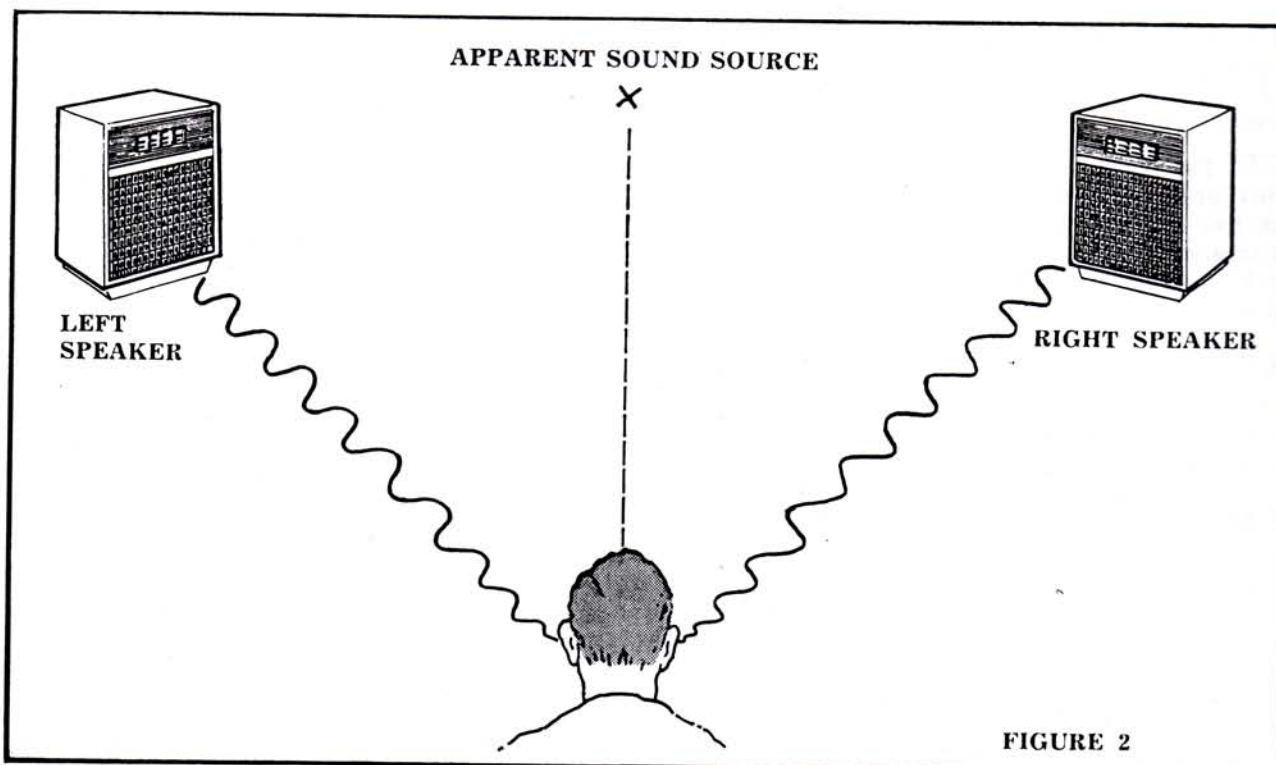


FIGURE 2

case of the LA-200. A special multiple relay unit is included in the circuit to guard against transistor damage due to unintentional short-failure in the amplifier. The electrical overload circuits at the speaker outputs, or component which would result from these conditions will cause the relay unit to operate automatically, removing operating voltages from the circuits and thus prevent widespread damage. Operation of the relay unit can be recognized by one or more of the following symptoms:

- a) The Pilot Lamp will go off.
- b) There may be a low level "popping" noise heard from the speakers, occurring either at long intervals or at a rapid pace (while the amplifier is on).
- c) Sound output (program) will either go off permanently, or go off and come on again in a repetitive manner.

IF ANY OF THE ABOVE SYMPTOMS ARE OBSERVED, SWITCH THE AMPLIFIER OFF. Check your speaker connections very carefully, making sure you have not inadvertently created a short-circuit either at the amplifier terminals or at the speakers themselves (if you have used staples anywhere to secure the speaker cables, check these points as well). As a final check,

disconnect your program sources (record player, tuner, etc.) and turn on the amplifier again. If any of the symptoms of electrical overload are still present, a fault in the amplifier must be suspected and it should be returned for service.

1. Set the INPUT SELECTOR to the input you wish to use, the MODE switch for the type of operation desired, and set VOLUME control to minimum. BASS and TREBLE controls should be set to their mid-positions, RUMBLE switch "off", PHASE to "normal", LOUDNESS to "Off", SPEAKER switch "on".

2. Set the Power Switch to "on". Operate your associated equipment (record player, tuner, etc.) and increase amplifier volume control for desired level of sound. If you are using a program source with a monophonic output (one cable), set the MODE Switch to Left or Right, depending on which channel input has been used for the single cable. If your program source is stereophonic, set the MODE switch to stereo or Reverse.

3. Adjust other controls and Switches as necessary.

#### SPEAKER PHASING AND BALANCING

Correct phasing and balancing is important in a stereophonic System. If the speakers are out



of phase, they will work in opposition to each other and there will be a noticeable loss in the low frequencies (bass). If the speaker output levels are not equal, there will be an unnatural distribution of the musical program, resulting in a loss of the stereo effect. To obtain correct balancing and phasing, use the following procedure. It is based on a simple listening principle which says that if two speakers send out identical sound, and you are equidistant from them, your ears will place the apparent source of sound half way between the two speakers, as indicated in Figure 2.

a) Set the Input Selector for the input to which your record player is connected (either Mag or Ceramic). Set Mode switch to "Stereo".

b) Play a **Monophonic** record containing heavy bass tones. Set volume to desired listening level from the speakers and make sure Bass and Treble controls for both channels are set to the same position.

c) For this test, the speakers should be placed about 6 to 8 feet apart and facing inward slightly as shown in Figure 2. You may also require the help of another person to operate the amplifier controls while you position yourself mid-way between the speakers as shown.

d) With the BALANCE control in the center or mid-position, set the PHASE switch (at the rear) first to one position and then to the other, listening carefully to the sound output as you switch back and forth. The correct position will produce the greatest amount of bass and you will also notice that the sound seems to come from a point somewhere between the two speakers.

Rotation of the BALANCE control to the left or right may be necessary to cause the apparent sound source to be located midway between the speakers. If they are out of phase, however, the sound will not seem to come from any clearly defined area (unless there is a large difference in output between speakers, and you may have to switch to the other position of the PHASE Switch. Remember, when the speakers are in phase and properly balanced during this test,

## SHIPPING INSTRUCTIONS

Tag the amplifier with your name, complete address and a brief description of the difficulties encountered. Wrap the unit in heavy paper before inserting into the carton, which should be large enough to permit the use of at least three inches of shredded paper or excelsior between all sides of the unit and the carton. Bear in mind that the carrier will disclaim responsibility for damage if, in his opinion, it was caused by improper packing. Mark the carton "FRAGILE — ELECTRONIC EQUIPMENT" and clearly address it as follows:

the sound will seem to come from between the speakers as shown in Fig. 2. During stereo operation, this condition will no longer exist, of course, and reproduction will be properly distributed, in accordance with the manner in which the original stereo recording was made.

## SERVICE

If any trouble is encountered with this amplifier we recommend that you do the following:

1. Make sure that the amplifier is plugged into the correct power source (105-125 volts, 60 cycles AC). Check the pilot light on the amplifier. If it is not lit, switch the unit off and check the fuse at the rear of the unit. If the fuse has blown, replace it with one of the same rating and reinsert it into the amplifier. If the fuse blows again, a fault in the amplifier must be suspected. **DO NOT ATTEMPT TO USE A FUSE OF A HIGHER RATING THAN SPECIFIED.**
2. If the built-in protective relay unit appears to be operating, read the section under "Operating Procedure" which deals with this condition.
3. Check for possible error in control settings. During the following checks, never insert or remove interconnecting cables while the amplifier is switched on. This could lead to damage.
4. Check all connecting cables between equipment.
5. If the trouble was experienced during the initial operation of the system, check all interconnections for accuracy. Make sure you are using the proper inputs and outputs on the amplifier as indicated in this instruction manual.
6. Check to make sure your program source is not at fault (record player, tuner, etc).

If you have definitely established that there is trouble in the amplifier, **DO NOT ATTEMPT TO SERVICE IT YOURSELF.** Return the amplifier to our factory service department, where it will be carefully checked and any trouble corrected.

To:

SERVICE DIVISION

LAFAYETTE RADIO ELECTRONICS CORP.

111 JERICHO TURNPIKE  
SYOSSET, L.I., NEW YORK

Include your own name and address on the carton and ship by prepaid express. The unit will be returned to you express collect.