LAFAYETTE

LA-224T

Stock No. 99-0167WX

30 Watt Solid State Stereo Amplifier

INSTALLATION AND OPERATING INSTRUCTIONS

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GENERAL DESCRIPTION

The LA-224T is an all-transistor integrated amplifier designed for high quality stereophonic or monophonic reproduction. It combines a stereophonic control preamplifier and 30-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. A phonograph input is provided for record players equipped with a magnetic cartridge.

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.

A special protective circuit employing a fuse in each channel offers protection against the destruction of output transistors due to short-circuits in the speaker line. This arrangement is completely effective and will act instantaneously to protect the output transistors.

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.

The amount of heat generated by this amplifier is relatively small compared to vacuum-tube amplifiers. Even so, provision must be made for some ventilation in order to disperse the small amount of heat that is generated.

CONNECTING YOUR ASSOCIATED EQUIPMENT

WARNING

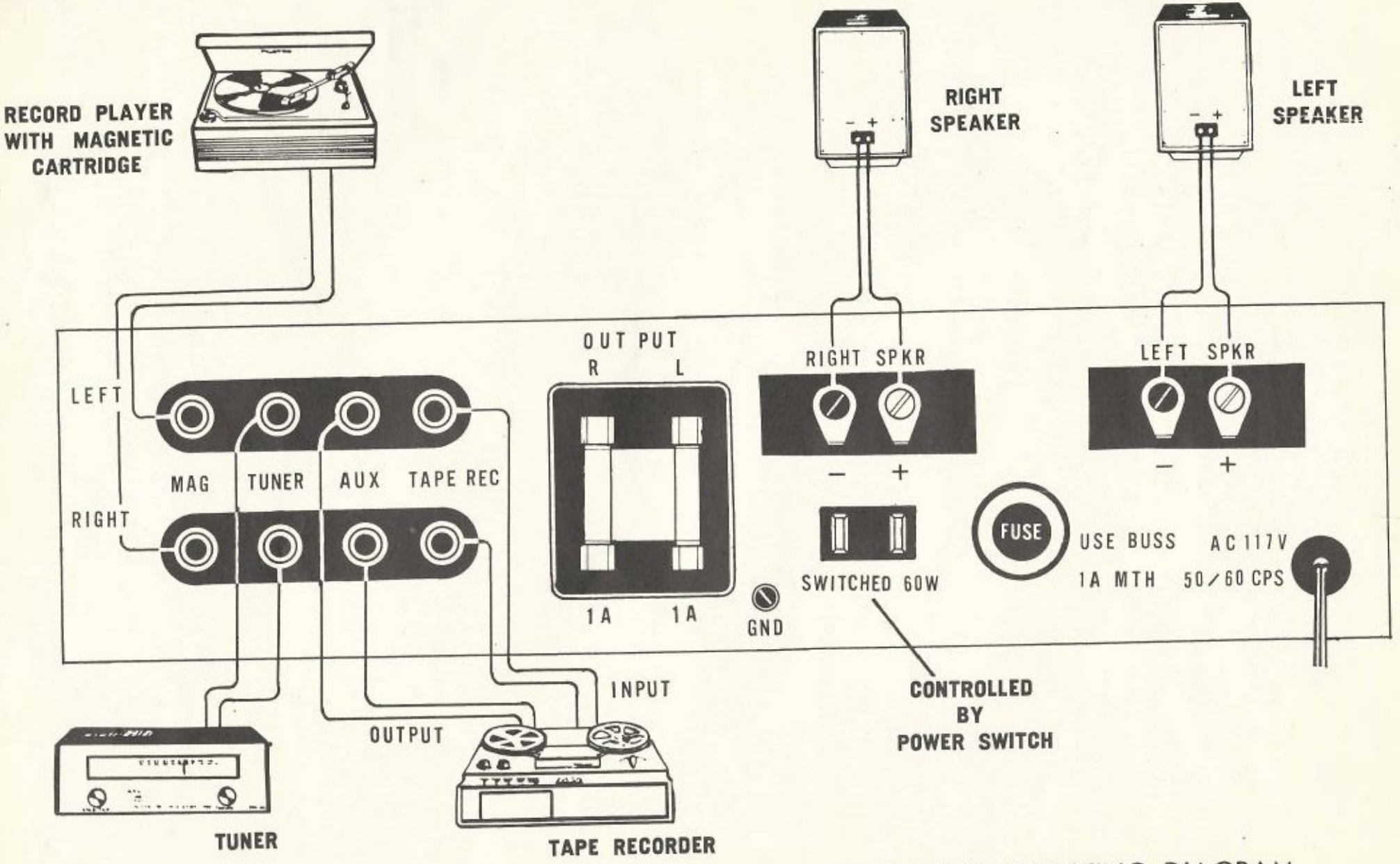
Never insert or remove input cables on the amplifier unless the volume control is at minimum or the amplifier is switched off.

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.

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, maximum output power and minimum distortion will be developed when it is connected to an 8 ohm speaker. When connected to a 4 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 unbalance 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.



INTERCONNECTING DIAGRAM

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 SPEAKERS switch to the OFF position.

TAPE RECORDERS

Recording

All source material selected for reproduction through the amplifier are internally connected by the INPUT SELECTOR to the TAPE REC jacks.

Use shielded cables with phono plug type connectors (see LAFAYETTE catalog index CABLES and CONNECTORS) to connect to either the high or low level input of your tape recorder. The output level or frequency response at the TAPE REC jacks is unaffected by the settings of the VOLUME, BASS or TREBLE controls.

Playback

The output from recorders having their own preamplifiers should be connected to the AUX jacks.

To avoid overloading the amplifier, use the volume control of the recorder preamplifier for setting the output level of same. The VOLUME, BASS and TREBLE controls of the amplifier can then be used in conventional manner.

STEREO RECORD PLAYERS

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

PHONO

Magnetic or variable reluctance (constant velocity type) cartridge should be connected to the jacks designated MAG.

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 LEFT TUNER jack; connect the tuner's right channel output to RIGHT TUNER jack. The same applies to AM/FM stereo multiplex tuners. In the case of monophonic tuners, use either LEFT or RIGHT TUNER jacks.

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.

MONO position:

Setting the MODE switch at the MONO position combines the signals connected to L and R channels and provides the same output on both channels.

VOLUME

These are concentric controls which permit individual adjustment of the volume for each channel.

This will allow the sound output of both channels to be "balanced" (see Speaker Phasing and Balancing). The knob closest to the front panel controls the right channel, and the other knob controls the left channel.

BASS

This control acts as a master tone control for both channels, either increasing or decreasing the relative level of the bass (low) tones. When the indicator line on the knob is in the vertical (12 o'clock) position, response of the amplifier is normal. Clockwise rotation (from vertical) increases the bass tones, and counter-clockwise rotation decreases them.

TREBLE

This control operates in the same manner as the BASS control, except that it provides adjustment of

the treble (high) tones for both channels.

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

Placing this switch in the ON position will switch the unit on and cause the pilot light to be illuminated.

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 in the OFF position.

READ CAREFULLY BEFORE PROCEEDING

High fidelity amplifiers which employ transistors 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 amplifier 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 case of the LA-224T. A special fused circuit is included in the unit to guard against output transistor damage due to unintentional short circuits at the speaker outputs. The electrical overload which would result from this condition will cause the protective fuse to blow, and thus prevent damage to the output transistors. Blowing of a protective fuse in one or both channels (depending where the shortcircuit occurs) will cause the sound output to go off permanently in that channel. Therefore, before proceeding to operate this unit, check your speaker connections very carefully. Make sure that you have not inadvertently created a short-circuit at the amplifier speaker terminals or at the speakers themselves by allowing strands of the connecting wires to touch the opposite terminals. Also, if you have used staples anywhere to secure the speaker cables these staples should be of the insulated type to guard against short-circuits.

The protective fuse used in each channel is a 1 ampere fast blow type. Do not under any circumstances, use a fuse of higher rating or one that is not a fast blow type.

OPERATION

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-position, SPEAKER switch to ON.

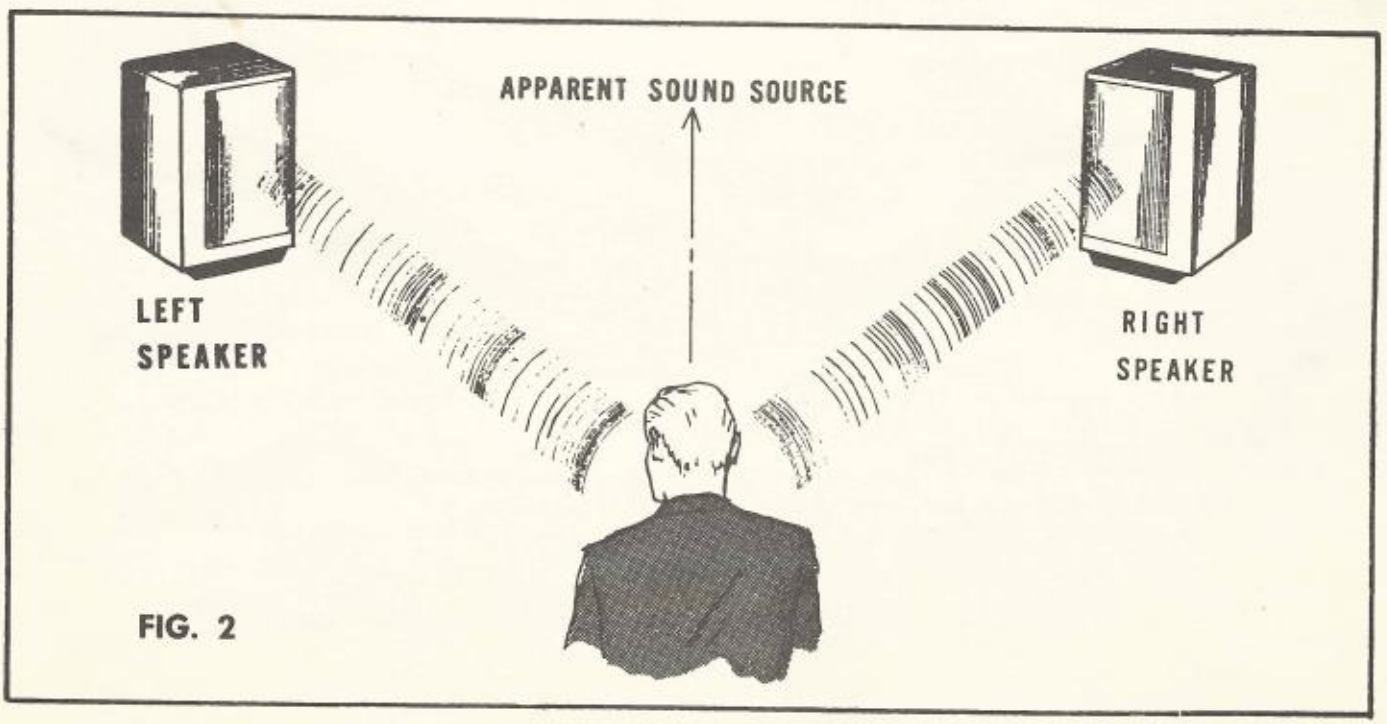


FIG. 2

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 single monophonic program source connected to either LEFT or RIGHT channel, set the MODE switch to MONO. If your program source is stereophonic or separate monaural sources, set the MODE switch to STEREO.
3. Adjust BASS and TREBLE controls to your listening preference.

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 to PHONO.
Set MODE switch to STEREO.

b) Play a monophonic record containing heavy bass tones. Set VOLUME to desired listening level from the speakers.

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) Adjust the VOLUME controls on the amplifier so that the sound output is approximately the same from both speakers. Listen to the sound output carefully then have someone reverse the speaker leads(+ and −) of one channel.

When the speaker output are in phase there will be a slight increase in the bass response and, if the output levels are equal and "balanced," the sound source will appear to come from a point between the two speakers, as shown in Figure 2. It may be necessary to reverse the speaker leads repeatedly until correct or "in-phase" condition becomes apparent. Thereafter, the speaker leads should remain permanently in the positions determined by this test.

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, 50/60 cycles AC). If the pilot light is not lit, switch the unit off and check the AC 1A. MTH screw-in 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. It 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. Check L and R output protective fuses and refer to section under "Operating Procedure" which deals with possibility of failure in output circuits. Also. external speaker selector switches that cause a momentary short circuit when switching from one set of speakers to another may blow these fuses. To replace these fuses, press down on the top of the inverted V spring and remove plastic cover.
3. Check for possible error in control settings. During the following check, 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 the store from which it was purchased or to LAFAYETTE Service Division, where it will be carefully checked and any trouble corrected.

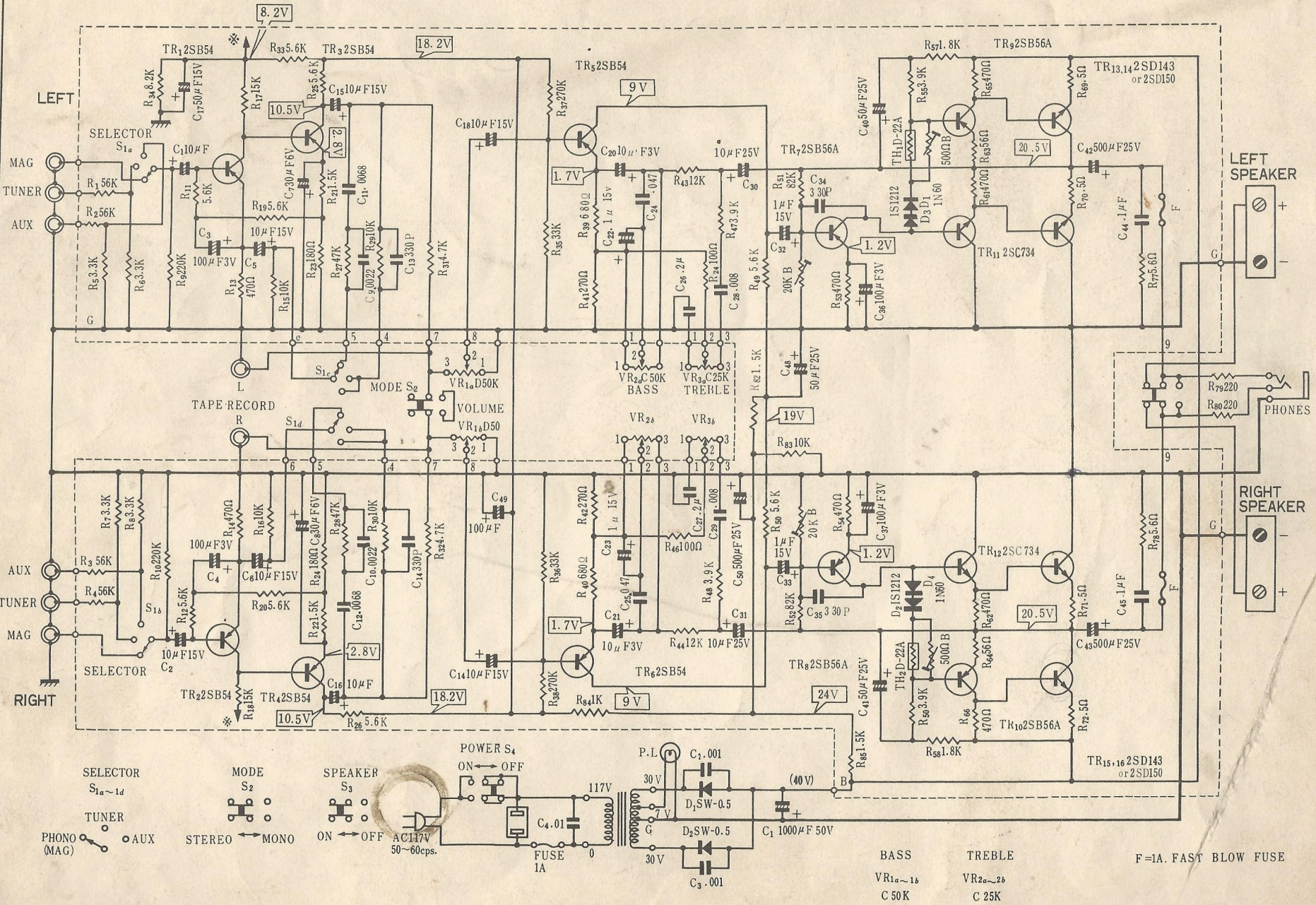
SHIPPING INSTRUCTION

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 as follows:

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.

Schematic for **LA—224T** starting from serial No.811601



SCHEMATIC DIAGRAM **LA-224T**