

INTEGRATED STEREO AMPLIFIER

# SA-5200

KU  
FV

OPERATING INSTRUCTIONS



**PIONEER®**

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Congratulations upon your selection of the Pioneer SA-5200 stereo amplifier.

Combined with a set of quality speaker systems and other components such as a tuner, turntable, tape deck, cartridge tape player, etc., the SA-5200 will provide rich years of stereo performance. To make sure that you use the SA-5200's many outstanding features fully, and to assure long service life, read the operating instructions carefully and familiarize yourself with the handling of this model.

## **SA-5200 FEATURES**

### **High-stability Power Amplifier**

The all-direct-coupled quasi-complementary circuitry features a differential primary stage plus high-dependability NPN and PNP silicon transistors.

This assures outstanding frequency response, power bandwidth and low distortion characteristics. The power section has a muting circuit to avoid unpleasant clicking noises when the power is switched on and off, also protecting the speakers.

### **Ultra-fidelity Pre-amplifier**

A combination of specially-designed equalizer circuit for reduced low noise, and styrol capacitors for outstanding frequency response with lowest possible RIAA deviation—one of the most important characteristics in record listening. The tone control section is a CR circuit employing a highly-balanced potentiometer for excellent mid-range level control with no beat problems.

### **Quick-control Convenience**

Dual sets of speaker output terminals work with the selector switch to let you use two pairs of speaker system together or separately. The system provides music enjoyment in two rooms using this SA-5200. Fully-balanced low-volume listening, thanks to the special loudness switch.

### **Pick Your Program Source**

Turntable, tape deck (reel-to-reel or cassette), tuner and AUX-input terminals: all these program settings let you enjoy any kind of sound source. Form your favorite stereo system, part by part.

### **Tailor-make Your Own Tapes**

Hook up two tape decks and you're ready to edit anything you record, choosing your favorite numbers only. You can also duplicate from reel-to-reels to cassettes.

### **Stylish, Rational Design**

Rich sideboard, smart, clean top and sharp front panel designs blend with any decor. Front panel switches and controls are rationally spaced out for easy use, years of durability.



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## LINE VOLTAGE AND FUSE

The SA-5200 is available in two models: one model operates only on 120V, and the other operates on one of the five line voltages: 110V, 120V, 130V, 220V and 240V. If your SA-5200 is the latter model, set the unit to the proper line voltage by following the procedure described below.

### CHANGING LINE VOLTAGE SETTING AND FUSE

To remove the fuse, turn the fuse cap located on the line voltage selector in the direction of the arrow.

Then remove the fuse plug from the unit. Put the fuse plug back so that the proper line voltage marking can be seen through the cut in the edge of the plug. Whenever the position of the selector is changed, check the rating of the fuse. A 0.5A fuse is to be used for either 220V or 240V operation and a 1A fuse for 110V, 120V or 130V operation. If the rating of the fuse is correct, replace cap.

### FUSE REPLACEMENT

When the fuse blows, remove the fuse cap and replace the fuse with a new one.

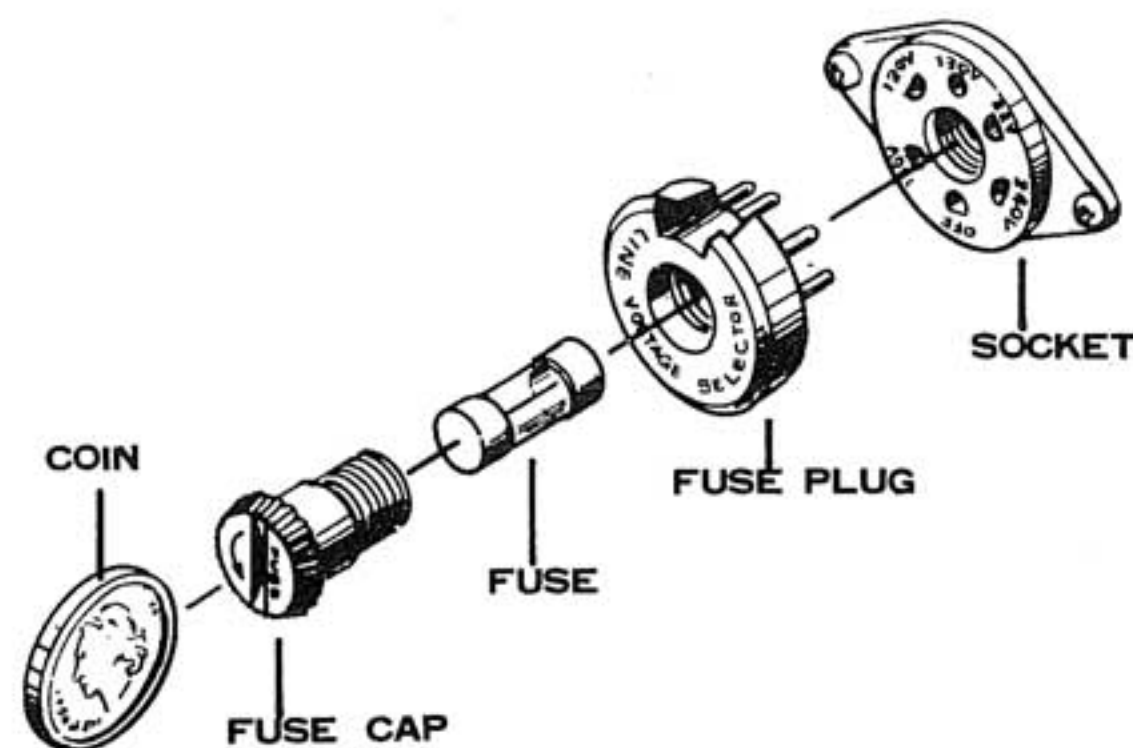


Fig. 1

# HOW TO ASSEMBLE A STEREO SYSTEM

The SA-5200 is an integrated stereo amplifier, meaning that it combines a pre-amplifier and power amplifier in one unit. For a stereo system, you will need at least one pair of speaker systems and one program source such as a turntable, a stereo tuner, or a tape deck (reel-to-reel or cassette). These should be of very high quality comparable to the SA-5200.

With the help of the Pioneer "decoder" Amplifier, model QL-600A and an additional pair of speaker systems, the SA-5200 can serve as the heart of an ultra modern 4-channel stereo system.

## HOW TO CHOOSE OTHER COMPONENTS

Pioneer manufactures a wide variety of all types of hi-fi components. These match your SA-5200 perfectly, in their technical aspects as well as in styling. In any event, observe the following hints when selecting other units for your stereo system.

### Turntable

Shop for low wow & flutter rating, high signal-to-noise ratio, and wide frequency response of pick-up cartridge.

### Tuner

Among tuner specifications, pay special attention to selectivity, signal-to-noise ratio, stereo channel separation, image rejection, AM suppression.

### Tape deck (reel-to-reel or cassette)

Pay attention to wow & flutter, signal-to-noise ratio, frequency response.

### Speaker systems

Speaker systems should have an impedance of 4~16 ohms, and frequency response curves without conspicuous dips and peaks. If at all possible, use identical speakers for the left and right channels.

According to their enclosures, speaker systems can be classified as "closed box" and "bass reflex" types. By the number of speaker units, they are grouped into "full range," "2-way," "3-way," etc. systems. There are floor-standing and bookshelf types, plus omnidirectional systems that can be placed anywhere.

## WHERE TO PLACE THE SA-5200

When selecting a place for your SA-5200, avoid locations that are,

- near stoves or other heat sources,
- in direct sunlight,
- poorly ventilated, very moist or dusty,
- wobbly or slanted,

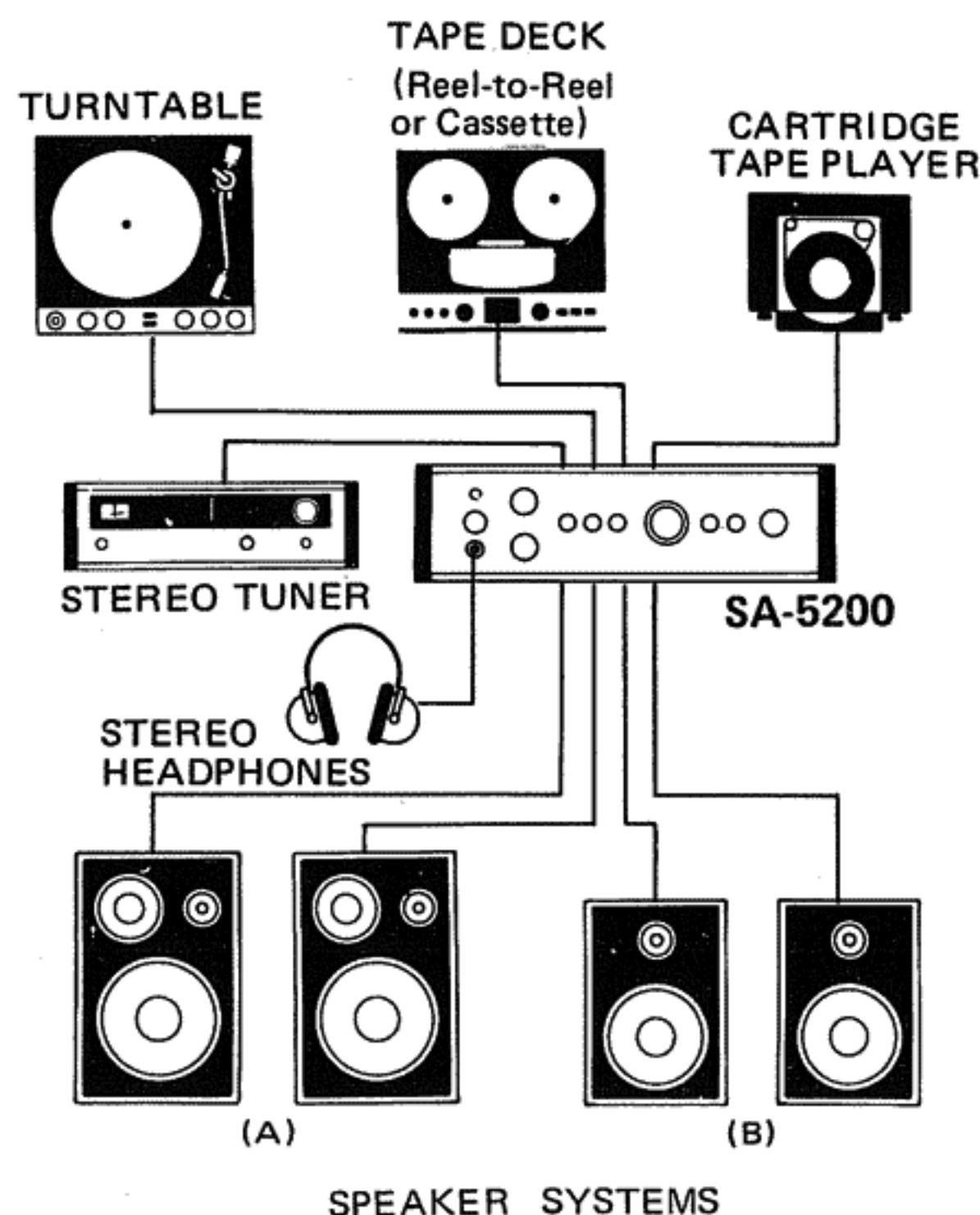


Fig. 2



# CONNECTIONS

## CONNECTION OF TURNTABLE

The stereo turntable with magnetic phono cartridge can be connected to the PHONO inputs. The upper terminal is for the left channel output cable from the turntable, the lower terminal for the right channel output cable. The ground wire from the turntable should be connected to the GND terminal on the SA-5200.

### NOTE:

A moving coil (MC) cartridge of low output voltage can be used only in combination with a separate stepped-up transformer or head amplifier.

## CONNECTION OF TUNER

The outputs of an AM/FM stereo tuner can be connected to the TUNER inputs with the supplied cable. Again, the upper terminal is for the left channel, the lower for the right channel.

A second tuner can be connected to the AUX 1 or AUX 2 inputs.

## CONNECTION OF TAPE DECK

Three different types in tape deck are put on the market: reel-to-reel type, cassette type and cartridge type. If your tape deck is equipped with pre-amplifier used for recording and playback, the tape deck can be connected directly to the SA-5200.

### Connection for recording

Connect the tape deck's LINE (or AUX or RADIO) inputs with the TAPE REC outputs of the SA-5200. Upper terminal: left channel.

### Connection for playback and monitoring

Connect the tape deck's LINE (or MONITOR) outputs with the TAPE MON inputs of the SA-5200. Upper terminals: left channel.

### Connection via REC/PB connector

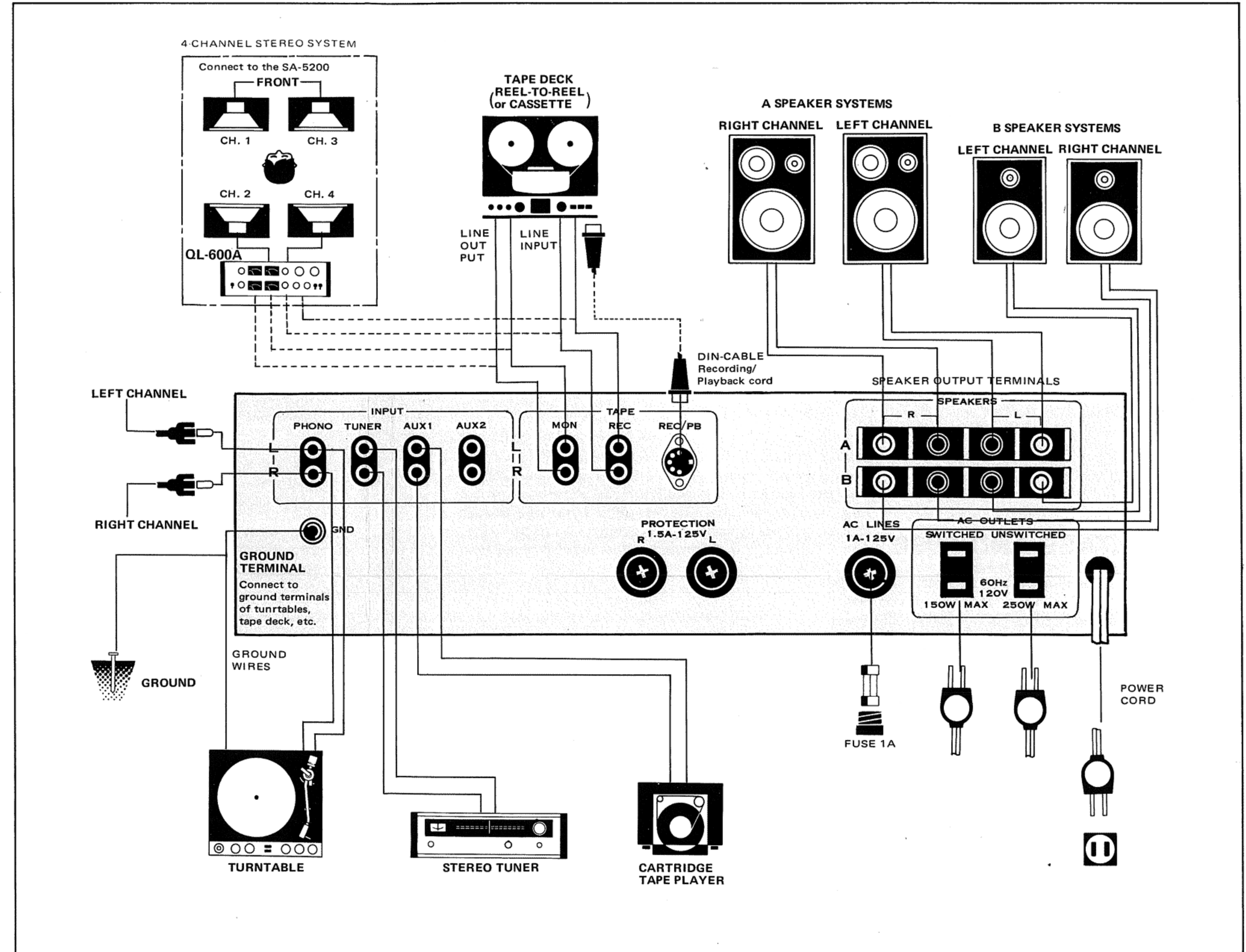
Instead of the recording and playback connections just described, the tape deck can be connected to the REC/PB connector of the SA-5200 if an identical connector is provided in the tape deck, too.

The required DIN-cable is available at all hi-fi and radio stores. This single cable completes all playback and recording connections at the same time. Use a DIN-cable for tape deck-to-amplifier connection.

Note that the REC/PB connector corresponds to the TAPE REC and TAPE MON terminals—the signal must be controlled with the TAPE MONITOR switch on the front panel.

Also, in the case of a three-head tape deck, connection via a DIN-cable may sometimes cause crosstalk. With three-head tape decks, connection to the REC outputs and MON inputs via regular phono cables is preferable.

# CONNECTION DIAGRAM





### WHAT ARE THE AUX 1 AND AUX 2 INPUTS FOR ?

These two pairs of inputs are provided to accommodate additional program sources such as an 8-track cartridge tape player, the sound track from a TV set, or a second tuner.

### CONNECTION OF SPEAKER SYSTEMS

The SA-5200 has two sets of speaker output terminals (A and B) and can accept two pairs of speakers, connect them to the A speaker terminals as follows.

Use common two-pole lead wire, preferable with different colors for the two leads. Speaker wire is often supplied with the speaker.

Connect the right channel speaker (the right-hand speaker when viewed from the front) to the speaker terminals marked "R" on the SA-5200.

Connect the left channel speaker to the speaker terminals marked "L" on the SA-5200.

Be sure to connect the plus (+) terminal (red terminal) on the SA-5200 to the (+) terminal on the speaker, and the minus (-) terminal (black terminal) on the SA-5200 to the (-) terminal on the speaker.

A second pair of speakers can be connected to the B speaker terminals in the same way.

#### Placement of speaker systems

The listening room—its size, shape, materials of walls, floor and ceiling, draperies, furniture, etc.—have considerable influence upon the sound. Generally, placing the speakers in corners or with their backs against the wall will improve bass response. If the room sounds too "live," i.e. with strong reverberations of high-range sound, it can be improved by heavy curtains and draperies, upholstered furniture and other sound-absorbing material. To obtain clear stereo channel separation, place the speakers sufficiently far apart. Your listening position and the two speakers should form an equal-sided triangle.

### SPEAKER OUTPUT TERMINALS

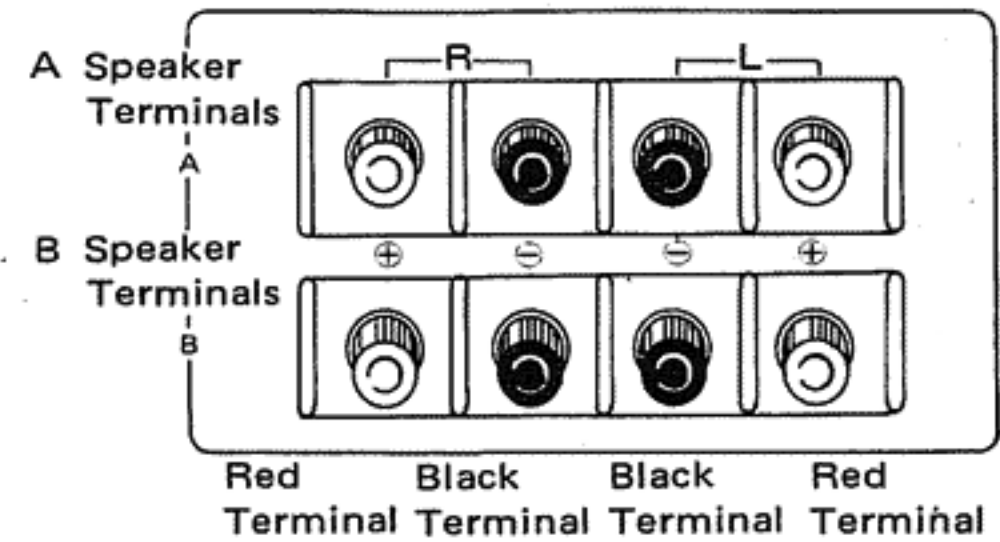
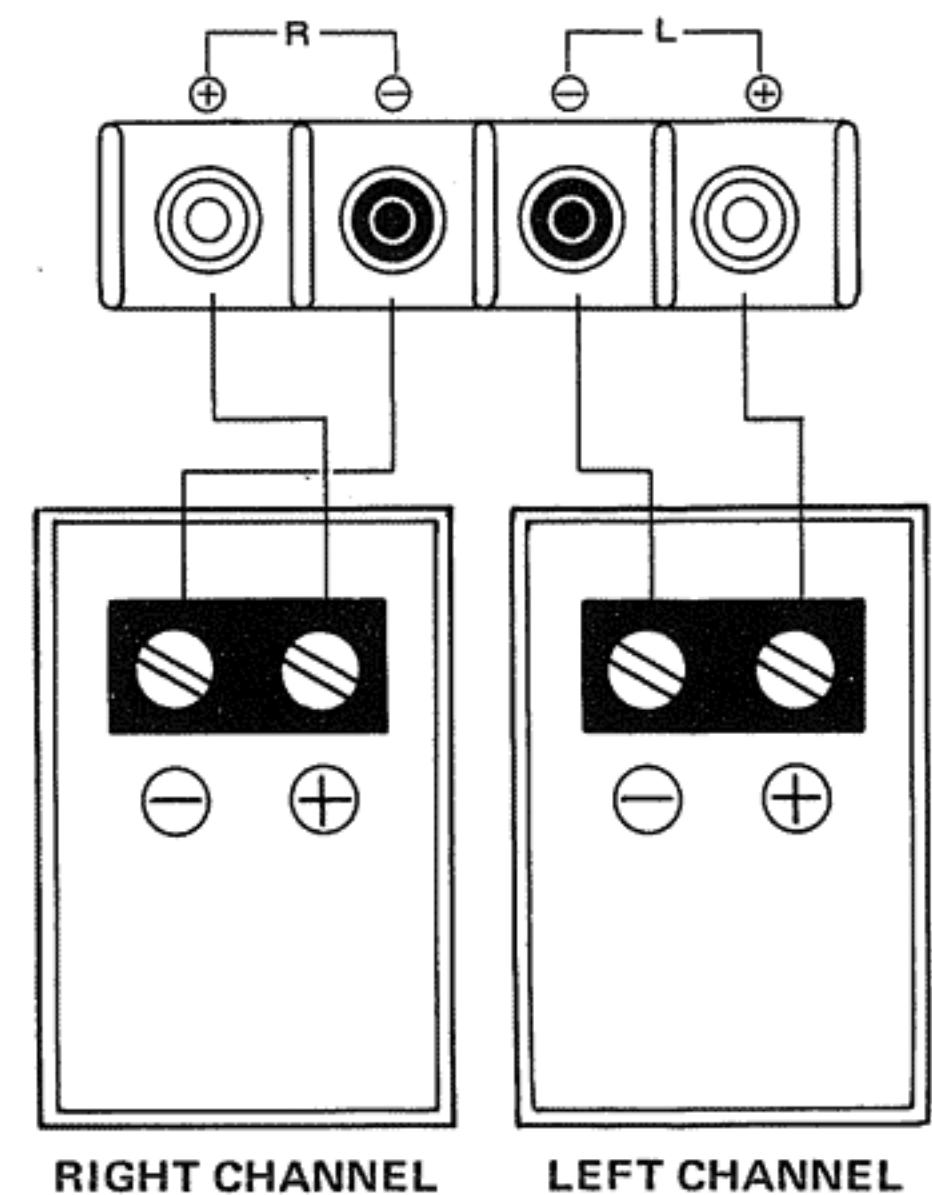


Fig. 3

### SPEAKER OUTPUT TERMINALS

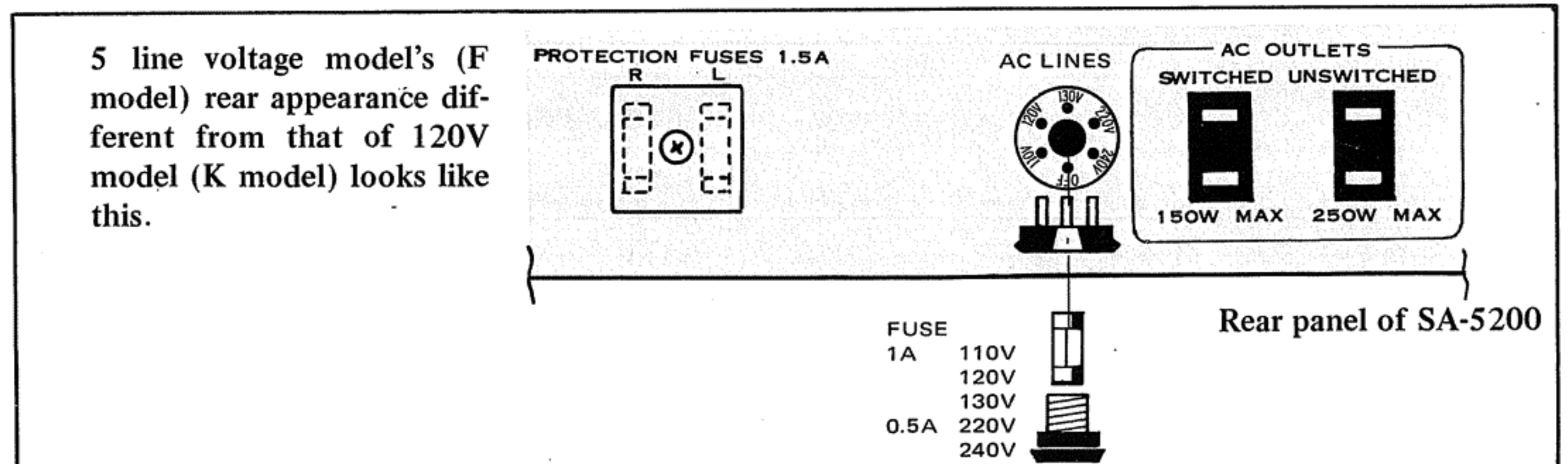


### SPEAKER SYSTEMS

Fig. 4

**NOTE:**

If two pairs of speakers are to be used at the same time (A+B), each speaker must have an impedance of 8 ohms or more.



# FRONT PANEL FACILITIES

## POWER SWITCH

Push once to switch the power on, once again to switch it off.

## HEADPHONE JACK

Stereo headphones can be plugged into this jack. A wide variety of quality headphones is available from Pioneer.

## TREBLE & BASS CONTROLS

Control treble and bass. Turning each control clockwise from the FLAT position will boost the tone, and turning it counterclockwise will diminish the tone.

## SPEAKERS SWITCHES

Selects the speaker systems (A) and (B). Push A or B according to speaker systems.

A: Speaker systems connected to speaker outputs A operate.

B: Speaker systems connected to speaker outputs B operate.

If both A and B are pushed simultaneously, sounds will be heard through both speaker systems (A) and (B).

Push the switches once again to stop sounds.

## TAPE MONITOR SWITCH

This switch is pushed for test-listening of recording in progress or playback of recorded tapes with tape decks, when the tape deck is connected to the TAPE MON and TAPE REC jacks, or to the REC/PB connector.

For all other listening modes (records, radio, etc.) this switch must remain off. Otherwise, no sound will be heard.

## VOLUME CONTROL

The volume increases (decreases) when this dual-concentric control is turned clockwise (counterclockwise).

Both parts of the knob usually rotate together. To adjust the volume of either the right or left channel alone, hold one part of the control knob with one hand and turn the other with the other hand. Convenient in balancing the volume of both channels. The front knob is for the left channel, the rear one for the right.

## LOUDNESS SWITCH

Push this switch to obtain a more natural sound contour at low volume level. Human hearing fails to register very low and very high notes when the overall listening volume is low. The loudness circuit compensates for this handicap by boosting the very low and very high parts of the sound spectrum.

## FUNCTION SWITCH

This switch is used for choosing the program source.

PHONO: For playing records on a turntable connected to the PHONO jacks.

TUNER: For listening to broadcasts through the tuner.

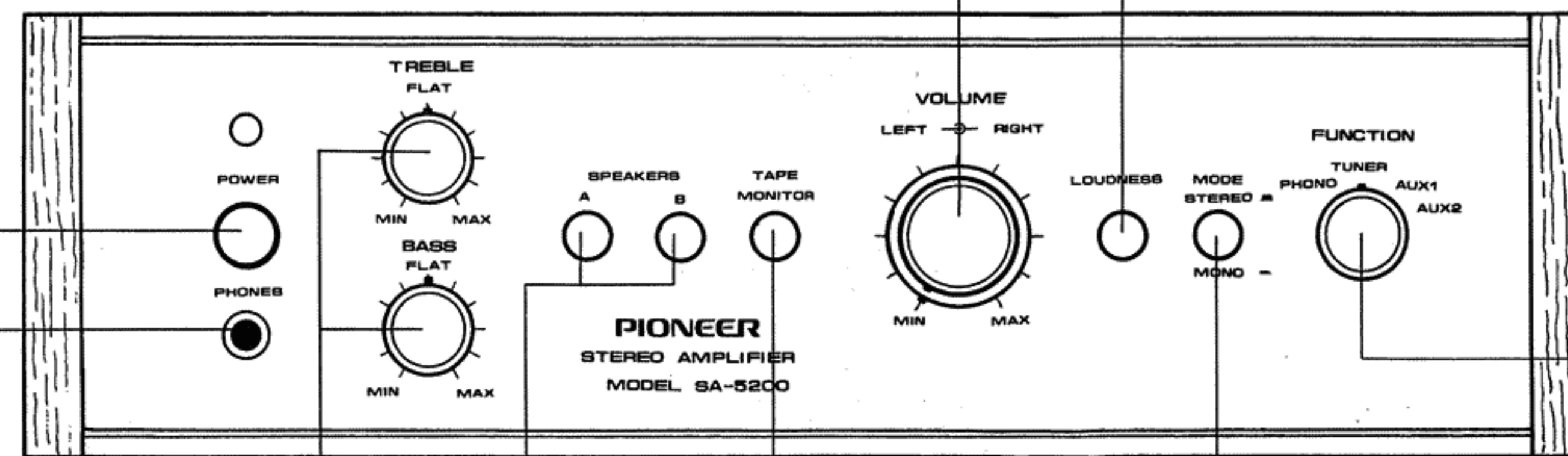
AUX 1: For playing signals fed to the AUX 1 jacks.

AUX 2: Same as above, for AUX 2 jacks.

## MODE SWITCH

STEREO: When set to STEREO, stereo sound is present.

MONO: When set to MONO, the left and right channel signals are blended to reproduce monophonic sound.





# HOW TO OPERATE MODEL SA-5200

## BEFORE SWITCHING ON THE POWER

Set the SPEAKERS switch to position A after checking the following points:

1. VOLUME control is turned all the way to the left.
2. MODE switch is at STEREO.
3. BASS, TREBLE controls at FLAT.
4. TAPE MONITOR switch is at off except for tape playback.

## RECORD PLAYING

1. Set the FUNCTION switch to PHONO.
2. Set the turntable in operation.
3. Use the VOLUME, BASS, TREBLE controls to obtain the desired listening volume and tonal quality.

## LISTENING TO RADIO BROADCASTS

1. Set the FUNCTION switch to TUNER. If the tuner being used is connected to the AUX 1, 2 terminals, set to AUX 1, 2.
2. Tune in the station.
3. Adjust the volume and tone as required.

## USING THE AUX JACK

When using components connected to the AUX jacks, operate as follows.

1. Set the FUNCTION switch to AUX 1 or AUX 2.
2. Start the cartridge tape player or other components.
3. Adjust the volume and tone as required.

## 4-CHANNEL STEREO SYSTEM

Compared to 2-channel stereo reproduction, a 4-channel system offers numerous advantages. It can reproduce a life-like sound field including indirect and reverberated sound as heard in a concert hall. It can give distinct localization of sound sources at the front, sides and rear. It can create special effects such as "surround sound" and motion of sound sources in any desired direction. Where a 2-channel system will recreate only what takes place on the stage, a 4-channel system can re-build the total musical environment.

Such a 4-channel system can be built as shown in Fig. 5, by adding the Pioneer 4-channel decoder amplifier, model QL-600A, and another pair of speakers for the rear channels. Connections and operational details are explained in the operating instructions furnished with model QL-600A.

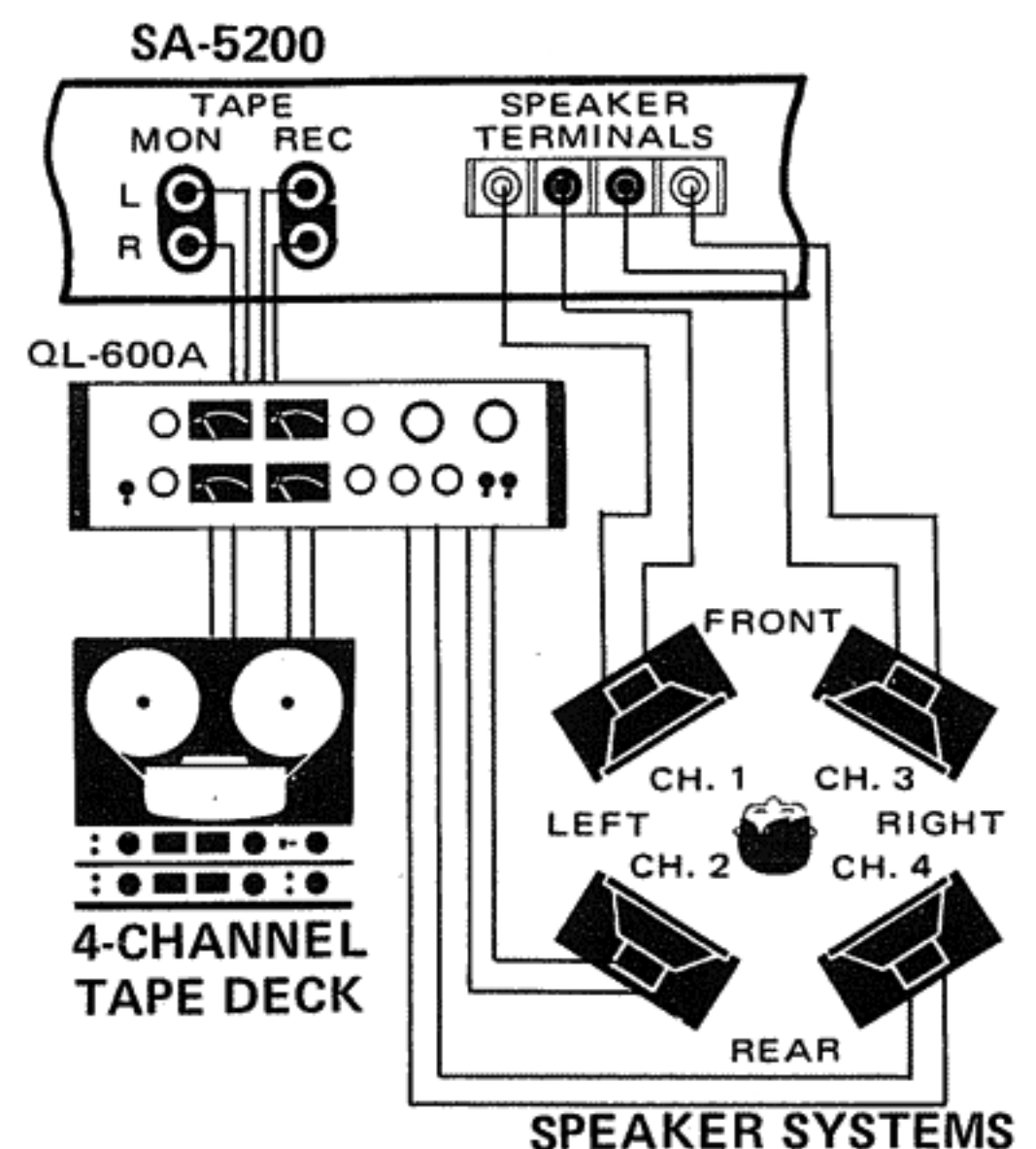


Fig. 5



# USING A TAPE DECK

## TAPE RECORDING

The signal being played over the amplifier is always present at the TAPE REC outputs for recording on tape. Select the program source with the FUNCTION switch as usual. Please note that the VOLUME, BASS, TREBLE controls and filter have no effect upon the signal at the TAPE REC outputs. The signal is recorded as it comes from the program source. Recording levels must be adjusted with the controls on the tape deck.

### Monitoring of a recording in progress

If the tape deck is a three-head type or equipped with monitor circuits, a recording in progress can be monitored by setting the TAPE MONITOR switch on the SA-5200 at position ON (Fig. 6).

## TAPE PLAYBACK

Set the TAPE MONITOR switch to ON for playback of tape. During tape playback, VOLUME, BASS, TREBLE controls of the SA-5200 function as usual. The FUNCTION switch, however, is meaningless during tape playback (Fig. 6).

## TAPE DUPLICATING

With two tape decks, you can duplicate tape-to-tape, or edit recordings while re-recording. For example, you can first tape a complete FM stereo program, with announcements and commercials, and later re-record on another tape while cutting out unwanted portions. For duplicating, proceed as follows:

1. Connect two tape decks as shown in Fig. 7.
2. Set the FUNCTION switch to AUX 1, and reproduce a recorded program by operating the tape deck plugged into the AUX 1 inputs.
3. Record the program in the way you want by operating the tape deck plugged into TAPE REC (MON) jacks. Operating the TAPE MONITOR switch allows you to monitor a recording in progress.

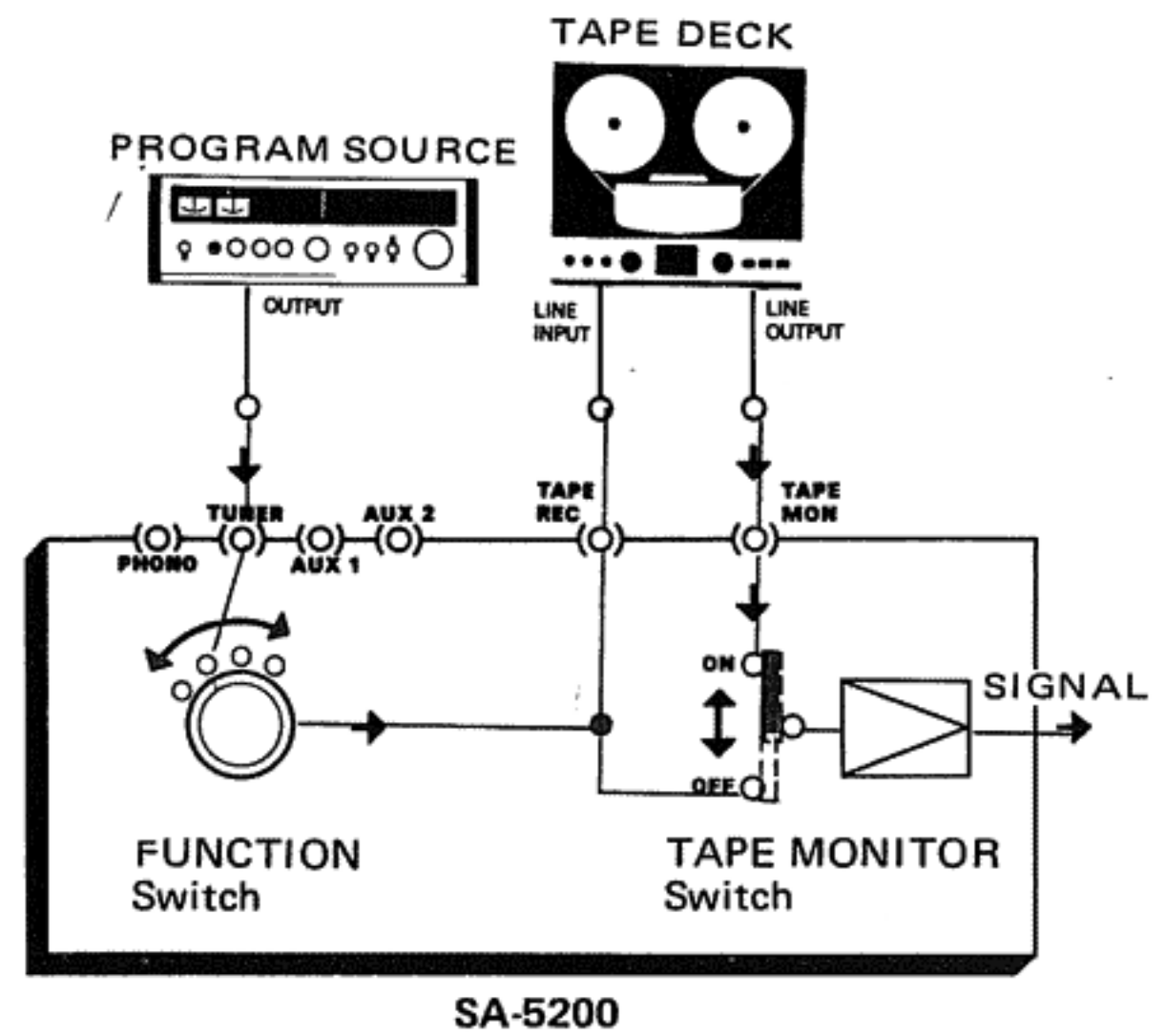


Fig. 6

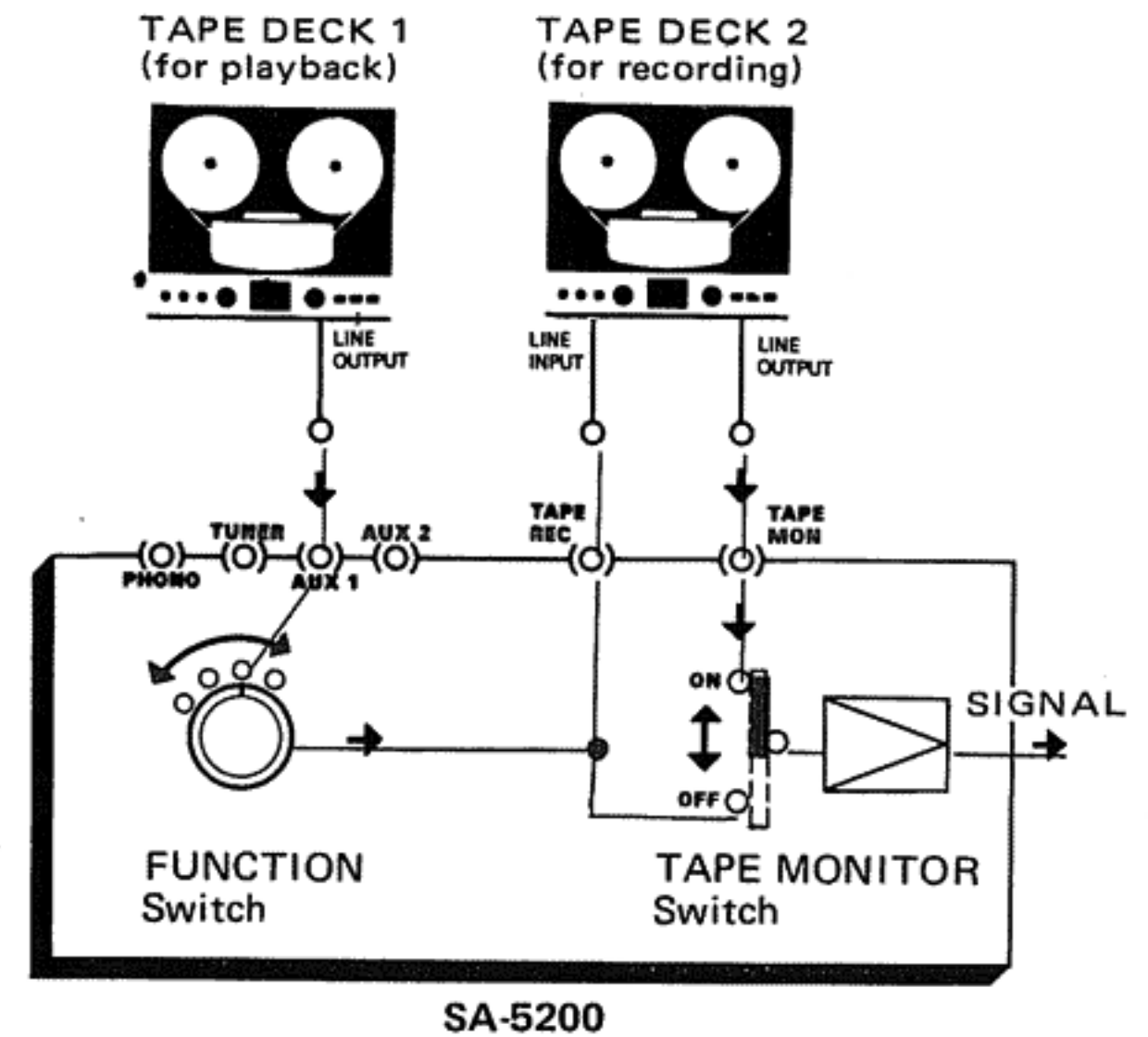


Fig. 7

# CONDITIONS FREQUENTLY MISTAKEN FOR MALFUNCTION

Noise: There are a variety of noises relating to the operation of a hi-fi unit. These are generally divided into two types; (1) the unit is faulty (a transistor or part has deteriorated) and (2) an external source is adding to the unit.

When a hi-fi unit produces an unpleasant noise, it is often assumed that the unit is faulty, but statistical records indicate that the majority of noises pro-

duced in hi-fi acoustic units result from external sources of noise: Due to the inherent high sensitivity and the high fidelity in reproduction, the unit amplifies and reproduces extraneous noises, however small, into definite output noise. If your amplifier produces a noise, check according to the following table and trace out the source of noise for the appropriate corrective action.

To find out something wrong with the stereo amplifier SA-5200, not only should this model be checked but also other components such as a stereo tuner, a turntable, etc. to which the SA-5200 is connected.

SYMPTOM	SUSPECTED SOURCE OF NOISE	DIAGNOSIS AND REMEDY
Continuous or intermittent noise like jjjjjj or zzzzzz.	<ul style="list-style-type: none"> <li>• Static (lightning)</li> <li>• Fluorescent lamp, motor, or thermostat may be in use in house or in the vicinity of the house.</li> </ul>	In many cases, it is very difficult to remove the source of noise. In order to make the radio input larger than the noise level, set up a good outdoor antenna and make a complete grounding.
When a station is tuned in, hum is mixed in the program	<ul style="list-style-type: none"> <li>• Poor fluorescent lamp, motor or electric heater may be in use in house or near the house.</li> </ul>	Reversing the line plug may occasionally alleviate this noise problem. Usually it is very difficult to eliminate the noise.
Static noise (in particular, when automobiles run close to the house).	<ul style="list-style-type: none"> <li>• White noise generated from automobile engines.</li> <li>• High-frequency sewing machine or welding machine being used near your house.</li> </ul>	In an area surrounded by hills or high buildings, the FM input signals are very weak. Thus the noise limiter in the circuit loses its function. Set up an FM outdoor antenna having many director elements.
Reception of FM stereo program contains more noise than FM mono program.	<ul style="list-style-type: none"> <li>• Note that the service area covered by an FM stereo broadcast is about 50% of that of a regular mono broadcast.</li> </ul>	Increasing FM input signal may alleviate this problem. Use an exclusive FM outdoor antenna instead of the indoor T-type antenna.
Hum of buss. When switched to radio reception, the noise disappears. Treble is not clear.	<ul style="list-style-type: none"> <li>• Poor connection of shielded wire (a)</li> <li>• Jack connection is loose. (b)</li> <li>• Line cord or fluorescent lamp is near the shielded wire. (c)</li> <li>• Poor grounding. (d)</li> <li>• HAM transmitting station or TV transmitting station is near your house. (e)</li> </ul>	Correct the conditions stated in (a), (b), (c) or (d). In case of (e), report it to an official activity.
Output tone quality is poor and mixed with noise.	<ul style="list-style-type: none"> <li>• Stylus wears out. (a)</li> <li>• Record wears out. (b)</li> <li>• Dust adheres to stylus. (c)</li> <li>• Stylus is improperly mounted. (d)</li> <li>• Stylus pressure is not proper. (e)</li> <li>• The TREBLE level is too high.</li> </ul>	Check (a) through (e) and correct the condition.  Lower the TREBLE level.

**WATCH FOR THE FOLLOWING CONDITIONS; THESE ARE ALSO APT TO BE MISTAKEN FOR MALFUNCTION.**

SYMPTOM	SUSPECTED SOURCE OF NOISE	DIAGNOSIS AND REMEDY
Power is not turned on although the power switch is set to ON.	<ul style="list-style-type: none"> <li>• Fuse blows. (a)</li> <li>• Line plug is loose. (b)</li> </ul>	Check (a) and (b) and correct the condition.
In playing a record, increasing the volume causes howling.	<ul style="list-style-type: none"> <li>• Distance between the turntable and the speakers is too short.</li> <li>• The place on which the turntable or speakers are set is unstable.</li> </ul>	Change the distance or rearrange the installation increase of the unit and speakers. (Installing the turntable on a firm, solid stand may alleviate this problem.) Do not enhance the BASS sound level excessively.



# SPECIFICATIONS

## Semiconductors

Transistors . . . . .	22
Diodes . . . . .	6

## Power Amplifier Section

Circuitry	1st Stage Differential Amplifier, Direct Coupled Quasi-complementary.
Continuous Power Output 20Hz~20kHz	
(Both channels driven)	10W+10W (8Ω)
1kHz (Both channels driven)	13W+13W (8Ω), 15W+15W (4Ω)
1kHz (Each channel driven)	16W/16W (8Ω), 20W/20W (4Ω)
Harmonic Distortion	
(Continuous Power Output)	Less than 0.8%
(1W+1W Power Output)	Less than 0.2%
Intermodulation Distortion	
(Continuous Power Output)	Less than 0.8%
(1W+1W Power Output)	Less than 0.4%
Power Bandwidth (IHF, Both channels driven)	10Hz~40kHz (H.D. 0.8%)
Output, Speaker	A, B, A+B (4~16Ω)
Headphones	4~16Ω
Damping Factor (1kHz, 8Ω)	More than 30
Residual Hum & Noise (8Ω, Pre & Power-amplifier)	Less than 1mV (0.13μW)

## Preamplifier Section

Circuitry	
Equalizer-amplifier	2-stage Direct Coupled NFB type
Control-amplifier	CR type
Input Sensitivity/Impedance	
PHONO	2.5mV/50kΩ
PHONO Overload Level (rms/p-p)	100mV/280mV
TUNER	150mV/100kΩ
AUX 1	150mV/100kΩ
AUX 2	150mV/100kΩ
TAPE MONITOR	150mV/100kΩ
TAPE REC/PB (DIN connector)	150mV/100kΩ
Output Level/Impedance	
TAPE REC	150mV
TAPE REC/PB (DIN connector)	30mV/80kΩ
Frequency Response	
PHONO (RIAA equalization)	30Hz~15kHz ±0.5dB
TUNER, AUX, TAPE MON	15Hz~30kHz ±1 dB
Tone Control	
BASS	+12dB, -10dB (100Hz)
TREBLE	+9.5dB, -10.5dB (10kHz)
Loudness Contour (Volume control set at -40dB position)	+10dB (100Hz), +6dB (10kHz)
Hum & Noise (IHF, Short-circuited, A Network)	
PHONO	More than 70dB
TUNER, AUX, TAPE MON	More than 90dB

## Miscellaneous

Power Requirements	AC 110V, 120V, 130V, 220V and 240V 50/60Hz (Switchable)
Power Consumption (Max.)	85W
AC Outlets	Switched 1, Unswitched 1
Dimensions (overall)	415(W) x 132(H) x 328(D)mm 16-5/16(W) x 5-3/16(H) x 12-15/16(D) in.
Weight	Without Package 7.2 kg (15lb 13oz) With Package 8.5 kg (18lb 11oz)

## Furnished Parts

Connection Cord with Pin Plugs . . . . .	1
Polishing Cloth . . . . .	1
Operating Instructions . . . . .	1
Fuse 0.5A (5-line voltage . . . . .	1
Fuses 1A mode only). . . . .	2

### NOTE:

*Specifications and the design subject to possible modification without notice due to improvements.*

**PIONEER ELECTRONIC CORPORATION**

15-5, 4-Chome, Ohmori-nishi, Ohta-ku, Tokyo, Japan

**U.S. PIONEER ELECTRONICS CORPORATION**

178 Commerce Road, Carlstadt New Jersey 07072 U.S.A.

**PIONEER ELECTRONIC (EUROPE) N.V.\***

Meir-center, Meir 21, 2000 Antwerp, Belgium

Printed in Japan

<ARB-076-A>