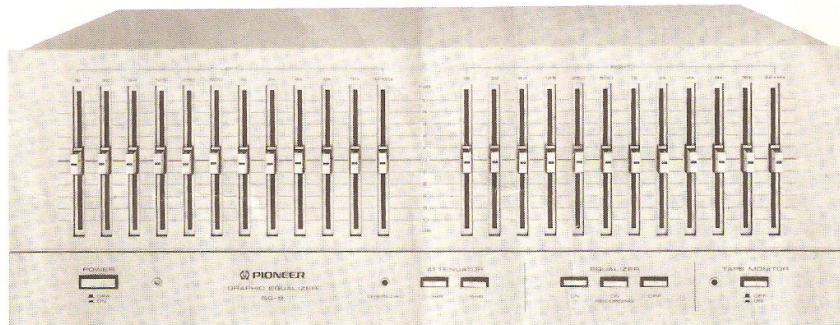


# Operating Instructions

## GRAPHIC EQUALIZER **SG-9**

CE4810305 F

WB, R/G



### IMPORTANT

To prevent electric shock, do not remove cover. No user serviceable parts inside, refer servicing to qualified service personnel. Always disconnect all the equipment from the mains supply when disconnecting the signal leads. The power cord should be connected last, make sure that the power switch is off. Unplug the set from the wall socket when it is not to be used for an extended period of time.

#### FOR USE IN UNITED KINGDOM AND AUSTRALIA

**CAUTION 240 V:** Mains supply voltage is factory adjusted at 240 V.

#### FOR USE IN UNITED KINGDOM

Equipment sold in the U.K. is not supplied with a power plug.

The wires in this mains lead are coloured in accordance with the following cord:

Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

**PIONEER®**

*Larry Katz*

# LINE VOLTAGE VARIATIONS

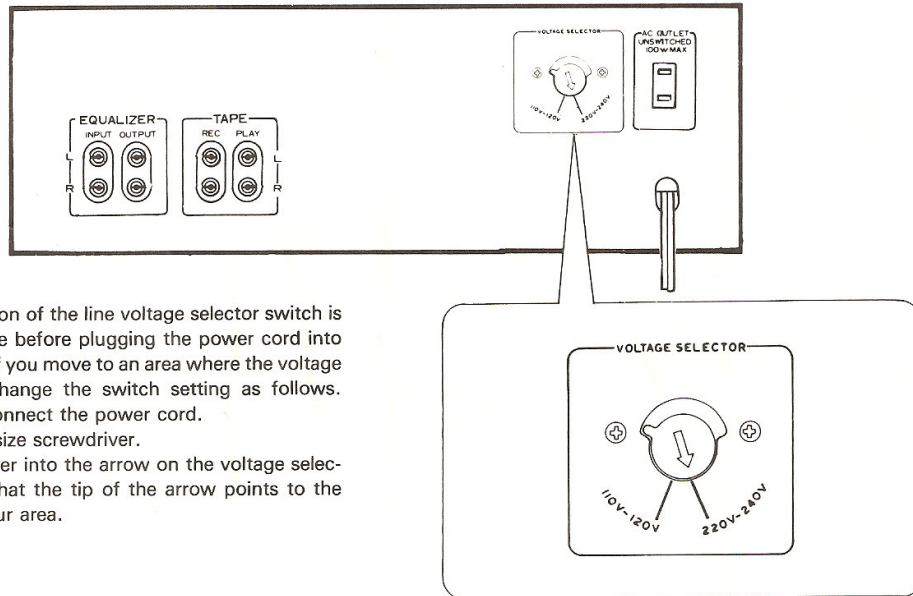
The specifications of this model differ according to the shipment destination.

- For U.K. (WB stamped on packing case): Power line voltage is 220 — 240 volts. AC outlet is provided on the rear panel.
- For destinations excluding above: (R/G stamped on packing case): A 2-point (110 — 120 V/220 — 240 V) voltage selector switch and AC outlet are provided on the rear panel.

For the sake of convenience, the illustrations and explanations are based on the SG-9 R/G.

**NOTE:**

*In case of R/G model, please confirm the setting of the VOLTAGE SELECTOR switch on the rear panel. If it is not set properly, change the setting of it according to the VOLTAGE SELECTOR switch below.*



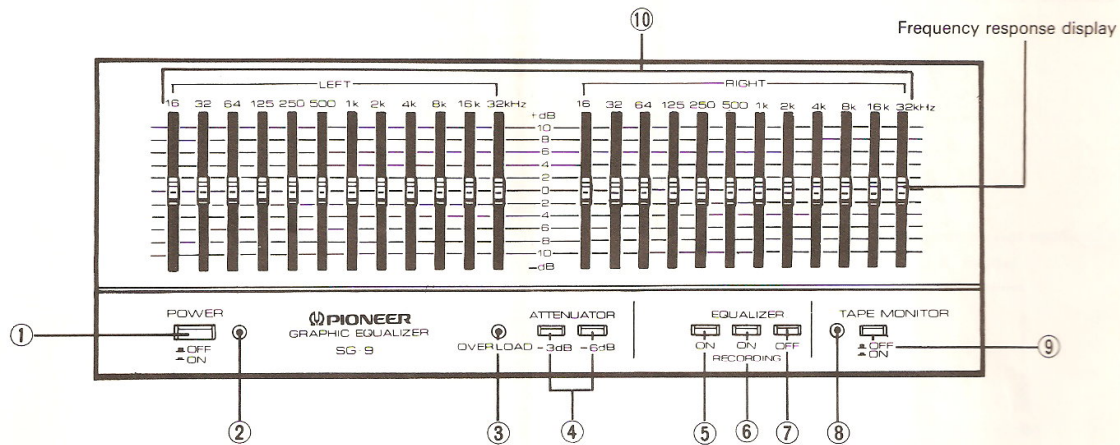
Check that the indication of the line voltage selector switch is same as your residence before plugging the power cord into the outlet. If it isn't or if you move to an area where the voltage requirements differ, change the switch setting as follows. Before adjusting, disconnect the power cord.

1. Prepare a medium size screwdriver.
2. Insert the screwdriver into the arrow on the voltage selector and adjust so that the tip of the arrow points to the voltage value of your area.

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# FRONT PANEL FACILITIES



## ① POWER SWITCH

Power is supplied to the model SG-9 when this switch is depressed. The power indicator comes on as soon as the power is supplied.

## ② POWER INDICATOR

This comes on as soon as the SG-9's power switch is set to ON to indicate that power is being supplied.

## ③ OVERLOAD INDICATOR

This indicator comes on when the octave control is set too high and the peaks come in only part of the frequencies, or when a strong input signal is applied directly from the preamplifier. Adjust the attenuator switch and the octave control across a range where this indicator does not light up.

## ④ ATTENUATOR SWITCHES

These are used to attenuate the input signal before equalization. Under normal conditions, operate the octave control knob with the switches at the 0 dB (released) position. With a program displaying a wide dynamic range or with equalization, depress either the -3 dB or -6 dB switch when the overload indicator comes on.

## ⑤ EQUALIZER ON SWITCH

Depress this switch to equalize the signals fed from the EQUALIZER INPUT jacks. The frequency response display will come on, and signals featuring an equalization only will be fed out from the model SG-9's OUTPUT jacks.

## ⑥ EQUALIZER ON RECORDING SWITCH

Depress this switch when recording a program source whose signals feature an equalization onto a tape in a deck connected to the model SG-9's TAPE jacks. This will allow signals with the equalizing sound to be made available from both the SG-9's OUTPUT jacks and the TAPE REC jacks.

## ⑦ EQUALIZER OFF SWITCH

Depress this switch to cut off the equalization effect. This will allow signals without an equalizing sound to be made available from both the SG-9's OUTPUT jacks and the TAPE REC jacks.

### NOTE:

*The equalizer on switch, the equalizer on recording switch and equalizer off switch are all coupled. When you depress one switch, make sure that all the others are released. Do not depress more than one switch at a time.*

## ⑧ TAPE MONITOR INDICATOR

This comes on when the tape monitor switch is depressed.

## ⑨ TAPE MONITOR SWITCH

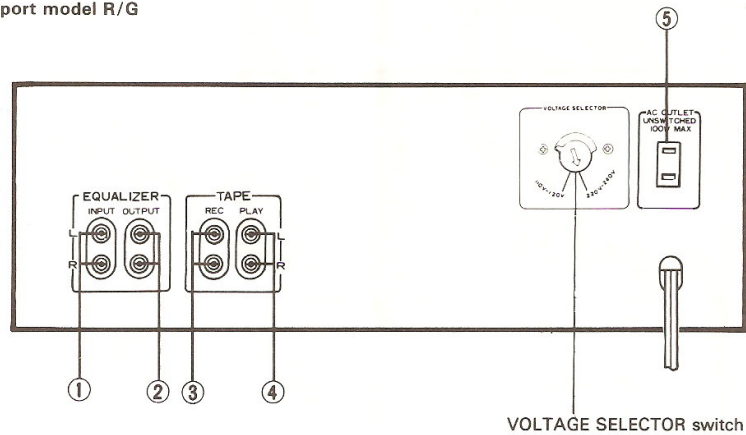
Depress this switch to monitor the sound on the tape as it is being recorded or when playing back a tape using a tape deck connected to the SG-9's TAPE jacks. (The tape monitor indicator comes on.)

## ⑩ OCTAVE CONTROLS

These controls provide continuous level variation of its indicated frequency from -10 dB to +10 dB. Each frequency segment becomes enhanced when its control is positioned above center (0) and attenuated when positioned below center. With all controls set to 0, the input signal is fed to the OUTPUT jacks unchanged. The frequency response display on the octave controls displays the level variation of the frequency response of the output signals.

## REAR PANEL FACILITIES

Example: For general export model R/G



### ① EQUALIZER INPUT JACKS

Connect these jacks to the TAPE REC jacks on the stereo amplifier or to the ADAPTOR OUT jacks on the preamplifier.

### ② EQUALIZER OUTPUT JACKS

Connect these jacks to the TAPE PLAY jacks on the stereo amplifier or to the ADAPTOR IN jacks on the power amplifier.

**NOTE:**

*The maximum rated input of the model SG-9 is 7.5 V. When it is being used between the PRE OUT jacks of the preamplifier and the MAIN IN jacks of the power amplifier, set the ATTENUATOR switch beforehand to -3 dB or -6 dB if the output level of the preamplifier will exceed 7.5 V.*

### ③ TAPE REC JACKS

Connect these to the INPUT (REC) jacks on the tape deck.

### ④ TAPE PLAY JACKS

Connect these to the OUTPUT (PLAY) jacks on the tape deck.

### ⑤ AC OUTLET

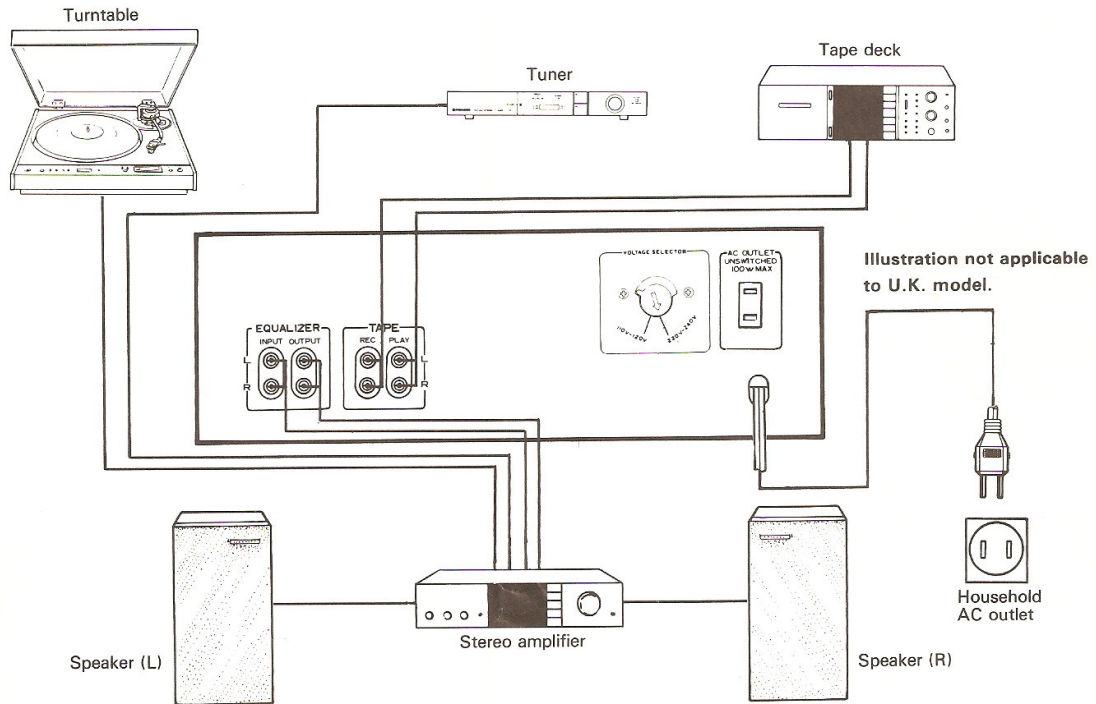
This is an auxiliary power outlet. Connect the power plug of your tape deck or other stereo hi-fi component to this outlet. It is not coupled with the power switch on the model SG-9 (UNSWITCHED). The maximum power capacity is 100 W and so do not connect electrical appliances with a power capacity exceeding this value.

## INSTALLATION PRECAUTIONS

To ensure the best sound quality and trouble-free operation, avoid setting up the graphic equalizer in any of the locations described below:

Locations liable to downgrade performance and result in breakdowns	Resulting trouble
1. Locations exposed to direct sunlight, or near heaters.	1. External heat causes the performance of the electronic parts to deteriorate, and operation becomes unstable.
2. Locations with poor ventilation, with high humidity or moisture contents, or dusty locations.	2. Cause of faulty contact in input-output terminals, and rust. High humidity and a high moisture content cause deterioration in insulation. There is also the danger of current leakage and heat generation in the circuit parts. Dust or grease in the rotating parts causes them to deteriorate.
3. Locations susceptible to vibration.	3. These locations affect the precision parts adversely.

# CONNECTIONS



## CONNECTIONS TO STEREO AMPLIFIER

Use the accessory connecting cords to connect the EQUALIZER INPUT and OUTPUT jacks on the SG-9 to the TAPE REC and TAPE PLAY jacks on a stereo amplifier (Fig. 1). Take care not to reverse L (left) and R (right) channels, and make sure they are connected securely.

## TAPE DECK CONNECTIONS

SG-9 is provided with recording output jacks and playback input jacks for adding equalization to the program source to be recorded or the playback signals.

### Connections for recording

Connect the recording input jacks (INPUT) on the tape deck to the TAPE REC jacks on the SG-9.

### Connections for playback

Connect the playback output jacks (OUTPUT) on the tape deck to the TAPE PLAY jacks on the SG-9.

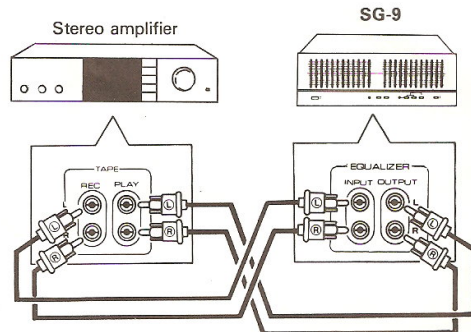


Fig. 1

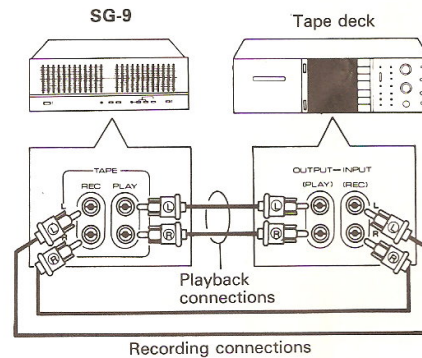


Fig. 2

# OCTAVE CONTROL OPERATION

As shown in Fig. 3, each octave control allows adjustment only in a narrow band with the center frequency as indicated above the control. Adjust the controls according to conditions or personal preferences.

## 16 Hz Control:

This control is used to control the frequency components lower than 16 Hz. This makes it possible to suppress the noise components in the ultra-low frequency region which are caused by record warp, etc. and also to keep intermodulation distortion down to the bare minimum. The control also serves to protect your speakers from potentially harmful noise.

## 32 Hz Control:

This can be used to compensate for an excessively strong low frequency output from the speaker system, or as a low cut filter to reduce motor rumble, record cutting noise and similar low frequency noise.

## 64 Hz Control:

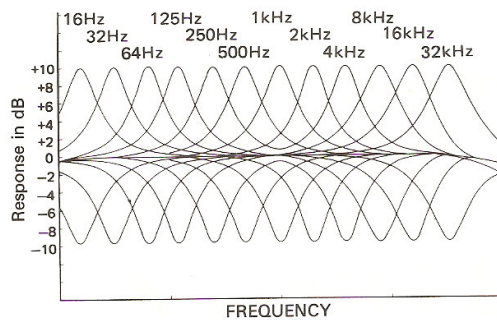
Increasing this control setting brings out the fascination of massive bass sounds such as produced by bass violins, drums and pipe organs. The sound is given an impression of solidness and imposing grandeur.

## 125 Hz Control:

Enhancing this region imparts a fullness to the sound, while reducing the control setting provides a more transparent sound.

## 250 Hz Control:

Clapping causes echo reflections in certain types of rooms; such as those adjacent to hallways. Reduce this control setting to eliminate these reflections.



Octave control variation curve Fig. 3

## 500 Hz Control:

This region governs the strength of the sound. Increasing the control setting can add impact to the sound, while conversely, an excessively low setting can lend an impression of incompleteness.

## 1 kHz Control:

Adjusting this control during vocal performances can either render the singer's voice more distinct or cause it to become nearly inaudible. Presence can be greatly varied by controlling the midrange sound frequency.

## 2 kHz Control:

Sound in the 2 kHz area provides the strongest stimulus to the human ear and also evokes a psychological response. If the sound has a hard, metallic impression, reduce this control.

## 4 kHz Control:

When set too high, the sound can become irritatingly brassy and metallic. Setting the control for attenuation can result in a gentle, non-fatiguing sound for easy listening.

## 8 kHz Control:

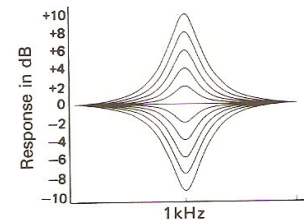
Increasing this control setting enhances the brilliance of music containing string and wind instruments. If a conventional type tone control is used to increase this band, undesirable effects may be imparted and the sound can be made unpleasant. The 8 kHz frequency band delicately influences tone variations.

## 16 kHz Control:

The 16 kHz control can be used to extend subtle high frequencies. Sound presence becomes richer with instruments possessing narrow reverberations such as cymbals and the triangle.

## 32 kHz Control:

This control is used to control the ultra-high frequencies which are beyond your range of hearing. It allows the peaks in the ultra-high frequency region, such as those from a MM cartridge, to be compensated for, and for smooth curves to be provided.



1 kHz Variation response Fig. 4

**LISTENING ROOM EQUALIZATION**

A graphic equalizer is commonly used to compensate for listening room acoustics and cartridge and speaker response characteristics. The ideal listening situation is one where frequency response is perfectly flat — no peaks or dips. However, walls, furniture, curtains and other factors cause variations from the acoustic ideal at most listening positions. Peaks and dips in frequency response can be corrected by listening to the speakers and adjusting the octave controls to obtain a listening environment where sound reproduction is well balanced.

**SPECIAL EFFECTS**

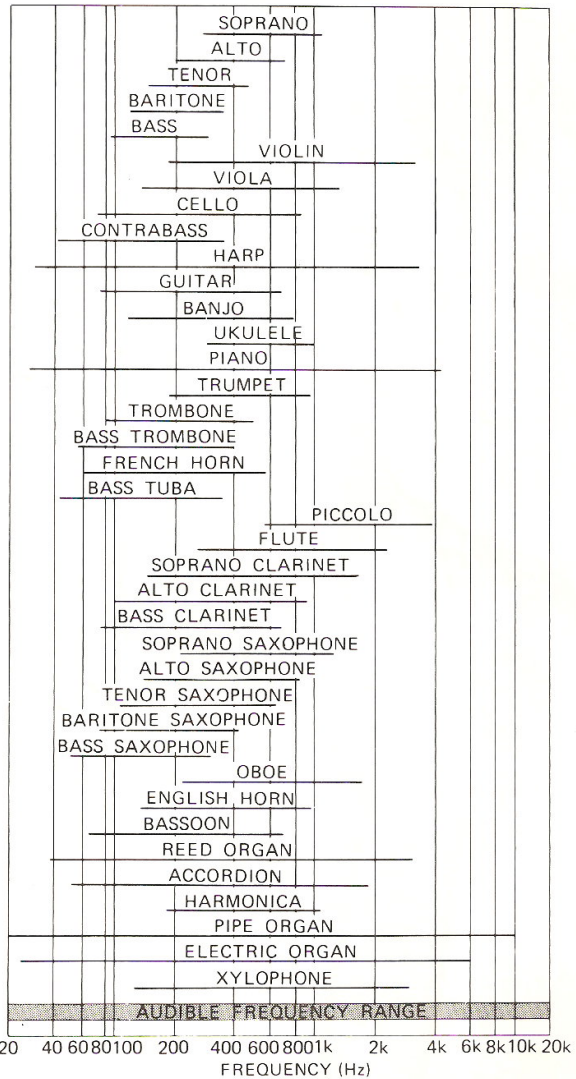
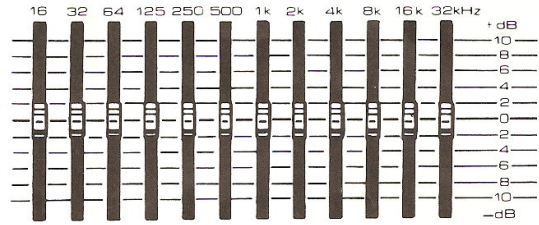
Adjusting the octave controls on the graphic equalizer can boost or attenuate the “presence” of particular musical instruments. In this way, the equalizer can be used to create a variety of sound effects.

Vocal music can be controlled by using the 64 Hz, 125 Hz, 250 Hz, 500 Hz and 1 kHz controls.

String instruments can be controlled by using the 64 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 8 kHz controls.

Wind instruments can be controlled by using the 64 Hz to 2 kHz controls.

Because instrumental and vocal music includes many harmonics of their basic frequencies, the 4 kHz and 16 kHz octave controls should be adjusted for the most natural, musical timbre and sonority.



(Olson: Acoustical Engineering, D. Van Nostrand Company, Inc. Princeton, 1957)

Frequency range of most musical instruments and vocal music

Fig. 5

## BEFORE OPERATION

It is suggested that the SG-9 power cord be plugged into a switched convenience outlet of the stereo system. The POWER switch of the SG-9 can then be left in the ON position and power to the unit supplied by operating the power switch of the stereo system.

- Set the TAPE MONITOR switch of the stereo system to ON.
- Set the LOUDNESS switch, TONE control switch and other filter switches of the stereo system to OFF.

## OPERATION

### EQUALIZING PROGRAM SOURCE (Fig. 6)

1. Adjust the VOLUME control of the stereo system as desired.
  2. Set the TAPE MONITOR switch of the SG-9 to OFF.
  3. Set the EQUALIZER switch to ON.
  4. Operate the octave controls to obtain equalization.
  5. Readjust the VOLUME control of the stereo system.
- In this mode, the unequalized program source will be recorded by a tape deck connected to the SG-9 TAPE jacks and recording conditions cannot be monitored.

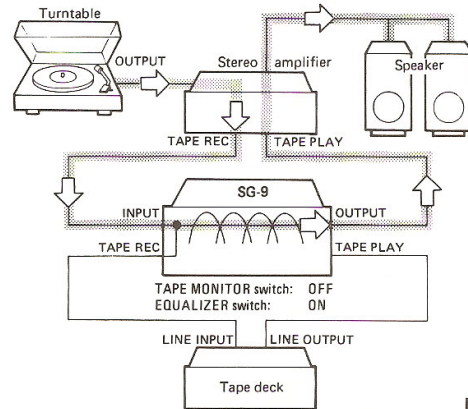


Fig. 6

### EQUALIZING TAPE PLAYBACK SIGNAL (Fig. 7)

1. Set the TAPE MONITOR switch SG-9 to ON.
  2. Set the EQUALIZER switch to ON.
  3. Operate the tape deck and play the tape.
  4. Adjust the VOLUME control of stereo system as desired.
  5. Operate the octave controls to obtain equalization.
  6. Readjust the VOLUME control of the stereo system.
- When recording, the original sound of the program source is recorded without being modified at all. Recording conditions cannot be monitored at this time.

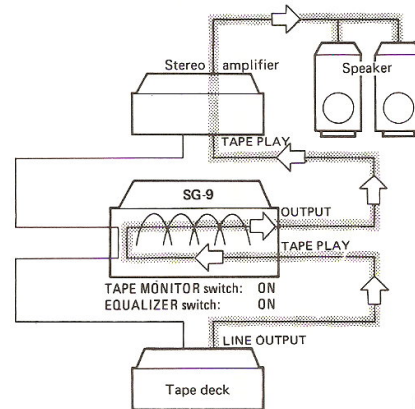


Fig. 7

### TAPE RECORDING EQUALIZED PROGRAM SOURCE WHILE MONITORING WITH SPEAKERS (Fig. 8)

1. Set the TAPE MONITOR switch of SG-9 to ON.
  2. Set the EQUALIZER switch to ON/RECORDING.
  3. Operate the tape deck and set for recording standby.
  4. Operate the octave controls to equalize the program source, then record. Perform equalizing while monitoring the recording conditions with the speakers.
- Note that due to the variation in human ear response according to volume (loudness response), the equalizing effect recorded on tape and the sound monitored from the speakers can differ.
  - In this mode, the tape playback signal cannot be equalized.

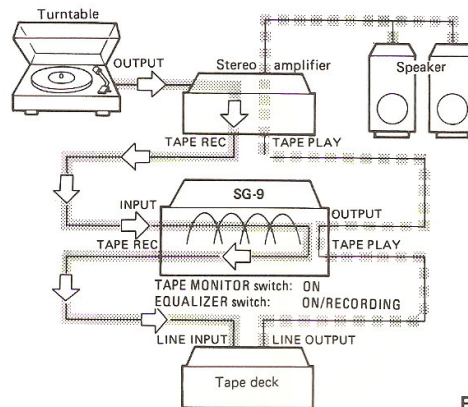


Fig. 8



**EQUALIZING PROGRAM SOURCE WHILE SIMULTANEOUSLY LISTENING WITH SPEAKERS AND RECORDING ON TAPE (Fig. 9)**

1. Set the TAPE MONITOR switch of SG-9 to OFF.
2. Set the EQUALIZER switch to ON/RECORDING.
3. Adjust the VOLUME control of stereo system as desired.
4. Operate the tape deck and set for recording standby.
5. Operate the octave controls to perform equalization.
6. Readjust the VOLUME control of the stereo system and proceed with recording.

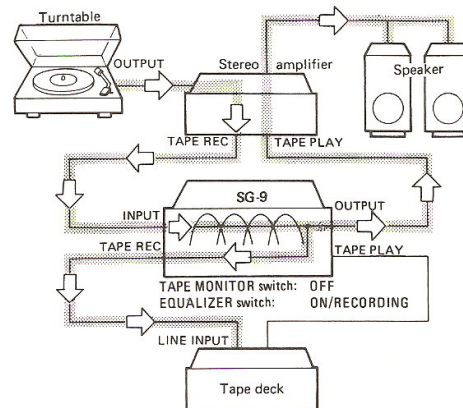


Fig. 9

**TAPE RECORDING OR PLAYBACK WITHOUT EQUALIZING THE PROGRAM SOURCE (Fig. 10)**

1. Set the TAPE MONITOR switch of the SG-9 to ON.
2. Set the EQUALIZER switch to OFF.
3. Operate the tape deck to record program source or play a tape.

When recording in this mode, recording conditions can be monitored through the speakers.

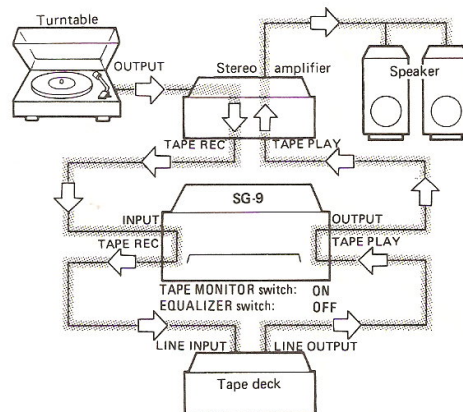


Fig. 10

**PLAYING PROGRAM SOURCE WITHOUT EQUALIZATION (Fig. 11)**

1. Set the TAPE MONITOR switch of the SG-9 to OFF.
2. Set the EQUALIZER switch to OFF.
3. Adjust the VOLUME and tone controls of the stereo system as desired.

In this mode, the program source can be recorded by a tape deck connected to the SG-9 TAPE jacks, but recording cannot be monitored.

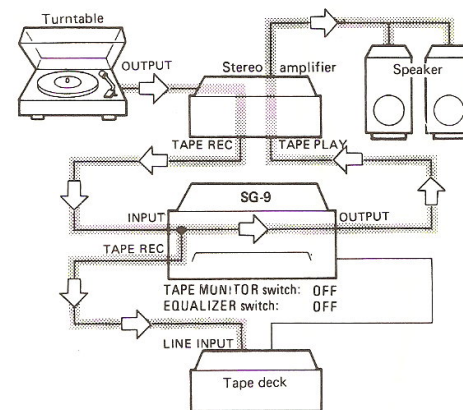


Fig. 11

**NOTE:**  
When no equalization is performed, it will offer no problem to depress any control switch on the SG-9 after setting its POWER switch to OFF.

# SPECIFICATIONS

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## Equalizer Section

Equalizer Range	
(Individual channel adjust)	±10 dB, 16 Hz, 32 Hz, 64 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz
Total Harmonic Distortion	
20 Hz — 20 kHz, All control; Flat, Output: 1 V	0.006%
10 Hz — 30 kHz, All Control; Flat, Output: 1 V	0.02%
1 kHz, All Control; Max., Output: 3 V	0.01%
1 kHz, All Control; Flat, Output: 2 V	0.005%
1 kHz, All Control; Min., Output: 1 V	0.02%
Gain	0 dB (Control; Flat)
Max. Output Voltage	
(1 kHz, T.H.D.: 0.02%, RL 47 kΩ)	7.5 V
Frequency Response	5 Hz — 100 kHz ±3 dB
Signal to Noise Ratio	
(IHF, A Network, short-circuited, 1 V Output)	92 dB
Input Impedance	50 kΩ
Output Impedance	600 Ω

## Miscellaneous

Power Requirements	
R/G model	AC 110 — 120, 220 — 240 volts, 50/60 Hz
WB model	AC 220 — 240 volts, 50/60 Hz
Power Consumption	25 watts
Dimensions	420 (W) x 150 (H) x 355 (D) mm 16-1/2 x 5-7/8 x 14 in
Weight	7.1 kg, 15 lb 8 oz

## Furnished Parts

Connection Cord with Pin Plugs	2
Operating Instructions	1

**NOTE:**

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