

Technics

STEREO GRAPHIC EQUALIZER

SH-E51

OPERATING INSTRUCTIONS



Notes:

- Specifications differ according to the area code.
- The "EB" area code, for example, indicates United Kingdom specifications.
- The "EB" indication is shown on the packing case and serial number tag.

Before operating this unit, please read these instructions completely.

Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Technics product owners around the world. We feel certain you will get maximum enjoyment

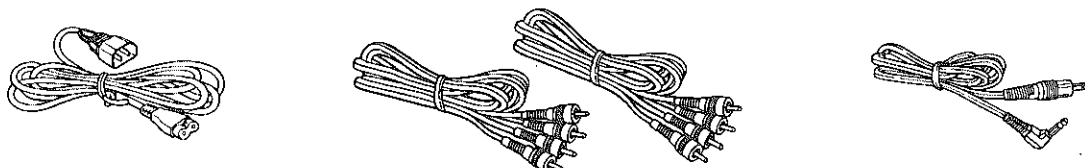
from this new addition to your home. Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

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Accessories

•AC power supply cord	1	•Stereo connection cables	2	•L-type cable	1
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Note: The configuration of AC power supply cord differs according to area.

For United Kingdom

("EB" area code model only)

The "EB" indication is shown on the serial number tag. The plug of the AC power supply cord must only be connected to electronic apparatus equipped with suitable sockets. Otherwise cut off and dispose of the plug, and fit an appropriate one in accordance with the instruction below.

Important

THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings 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.

Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

This apparatus was produced to BS 800.

Suggestions for Safety

■ Use a standard AC wall outlet

1. **Use from an AC power source of high voltage, such as for an air conditioner, is very dangerous.**

There is the possibility that a fire might be caused by making such a connection.

2. **A DC power source cannot be used.**

Be sure to check the power source carefully, especially on a ship or other place where DC is used.

■ Grasp the plug when disconnecting the power supply cord

1. **Wet hands are dangerous.**

A dangerous electric shock may result if the plug is touched by wet hands.

2. **Never place heavy items on top of the power supply cord, and never force it to bend sharply.**

■ AC outlet on rear panel

(not equipped for some countries)

1. **Any equipment connected here should have the specified power consumption or less.**

This outlet is exclusively for the connection of other audio equipment, such as a tape deck. Be sure the power consumption does not exceed the wattage specified near the AC outlet.

2. **Never connect other electrical appliances, such as an iron or toaster.**

If appliance with a large power consumption is connected, an accident might occur as a result of overheating.

■ Place the unit where it will be well ventilated

Place this unit at least 10 cm (4") away from wall surfaces, etc.

■ Avoid places such as the following:

In direct sunlight or in other places where the temperature is high.

In places where there is excessive vibration or humidity.

Such conditions might damage the cabinet and/or other component parts and thereby shorten the unit's service life.

■ Be sure to place the unit on a flat, level surface

If the surface is inclined, a malfunction may result.

■ Never attempt to repair or reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidentally touched.

■ Take particular care if children are present

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.

■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.

■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they might cause flaking or cloudiness of the cabinet finish.

■ Disconnect the power supply cord if the unit will not be used for a long time

If the unit is left for a long time with the power ON, this will not only shorten its useful operation life, but may also cause other troubles.

■ If trouble occurs

If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.

Connections

This is an equalizer that provides effects both during tape recording and playback if it is used while connected to an amplifier that has "EXT INPUT/OUTPUT" terminals.

If this unit is connected to an amplifier that does not have "EXT INPUT/OUTPUT" terminals, its effects are limited to playback only.

Make connections in the numbered sequence by using the included cables.

- 1** Connect the stereo connection cables.
- 2** Connect the L-type cable.
- 3** Connect the AC power supply cord.

The illustration below shows an example of connections made when this unit is combined with a Technics hi-fi component system, and shows only the connections to be made to and from this unit in that combination.

Refer to the illustration together with the instructions provided below.

"UNSWITCHED" outlet

Power is always available, regardless of power switch.

This outlet is only for use with other audio equipment.

Also, do not exceed the indicated power rating when connecting to this outlet.

Note:

The configuration of AC outlet differs according to area.

AC power supply cord (3)

To the AC outlet of the audio equipment, or household AC outlet.

For United Kingdom

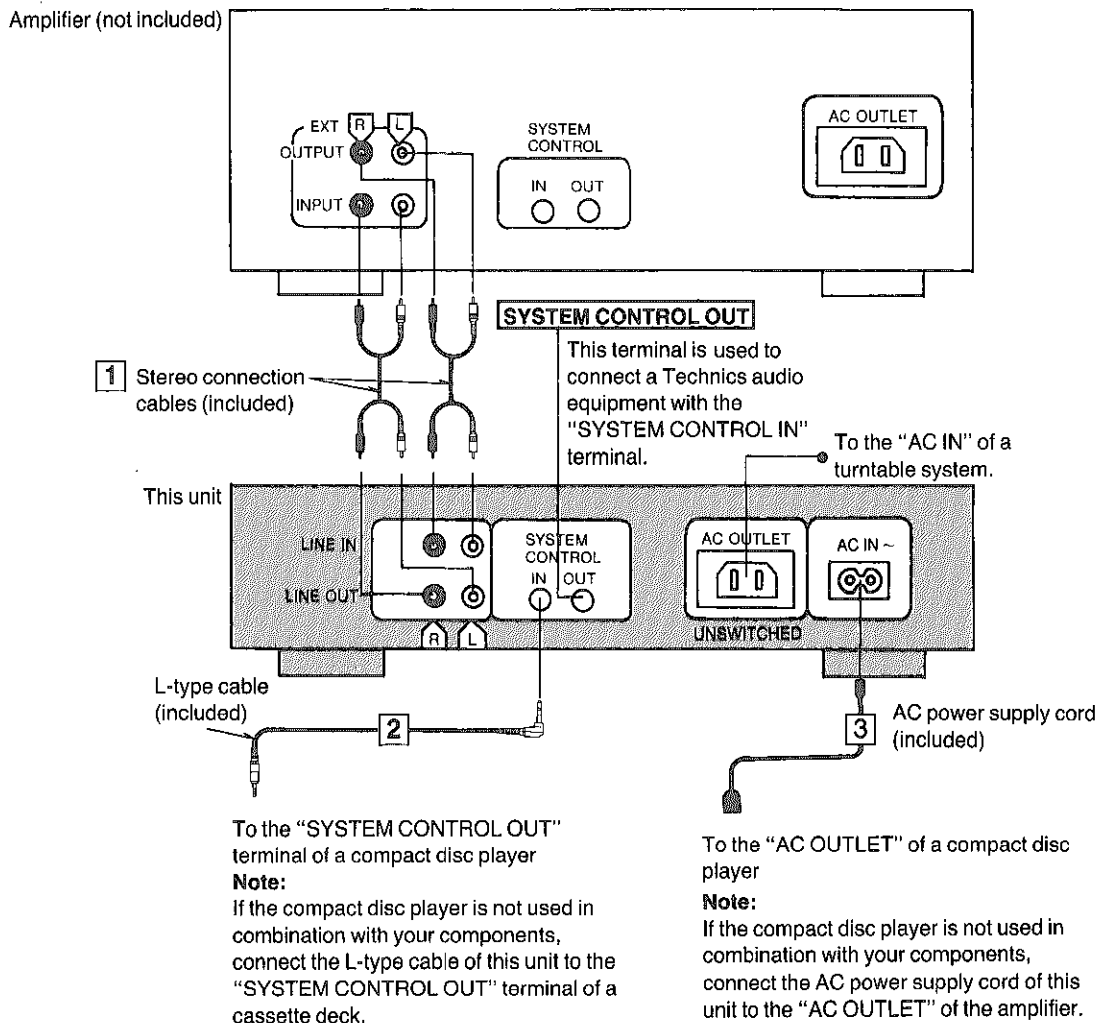
If the cord is to be connected to the household AC outlet, cut off and dispose of the plug and replace with a suitable plug. (Refer to "For United Kingdom".)

Fit a suitable plug to an AC power supply cord.

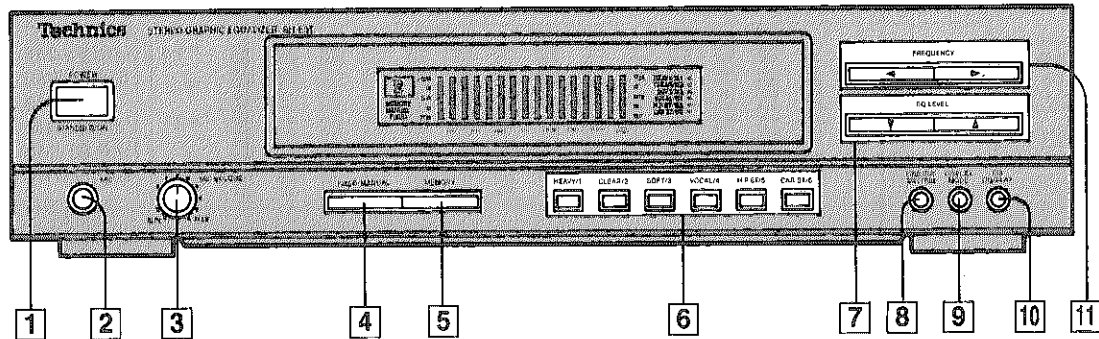


Notes:

- The configuration of AC power supply cord differs according to area.
- Connect this cord only after all other cables and cords have been connected.



Front Panel Controls and Functions



Control section

1 Power "STANDBY $\text{\textcircled{O}}$ /ON" switch (POWER STANDBY $\text{\textcircled{O}}$ /ON)

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY $\text{\textcircled{O}}$ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

Note:

•For this unit, even if this switch is switched to the "STANDBY" position, there is still a slight power consumption of about 5.7 watts; this is in order to assure the retention of the "most recent" memory and the preset-memory functions.

"Power-through" function

Discs, radio broadcasts, etc. can be heard even if the power of this unit is switched to STANDBY.

Note, however, that the power plug should be left connected to the AC outlet.

2 Microphone jack (MIC)

3 Microphone volume control (MIC VOLUME)

4 Memory mode-select button (FIXED/MANUAL)

This button is used to select the equalization memory mode to be used.

FIXED: Select this mode to retrieve a curve that was originally pre-programmed to the unit's memory.

MANUAL: Select this mode to program a desired curve to the unit's memory or to retrieve a curve that you have programmed.

5 Memory button (MEMORY)

This button is used to program the equalization curve into the memory.

6 Preset-memory buttons (HEAVY-CAR ST, M1-M6)

These buttons are used to program an equalization curve into the memory, or to retrieve a curve originally programmed into the unit's memory of a curve that you have programmed into the memory.

7 Equalizer level-control buttons (EQ LEVEL)

These buttons are used for adjustment of the equalization level of the left channel and right channel simultaneously.

8 Equalization-level/spectrum mode-select button (EQUALIZER/SPECTRUM)

This button is used to select the equalization-level display mode and the spectrum display mode.

9 Display mode-select button (DISPLAY MODE)

The display mode changes each time this button is pressed. The unit can be set to any of the five spectrum display modes. (Refer to page 11.)

10 Equalization mode-select button (EQ ON/FLAT)

This button is used to switch the equalization correction function "EQ ON" and "FLAT".

EQ ON: Select this mode to make an equalization correction.

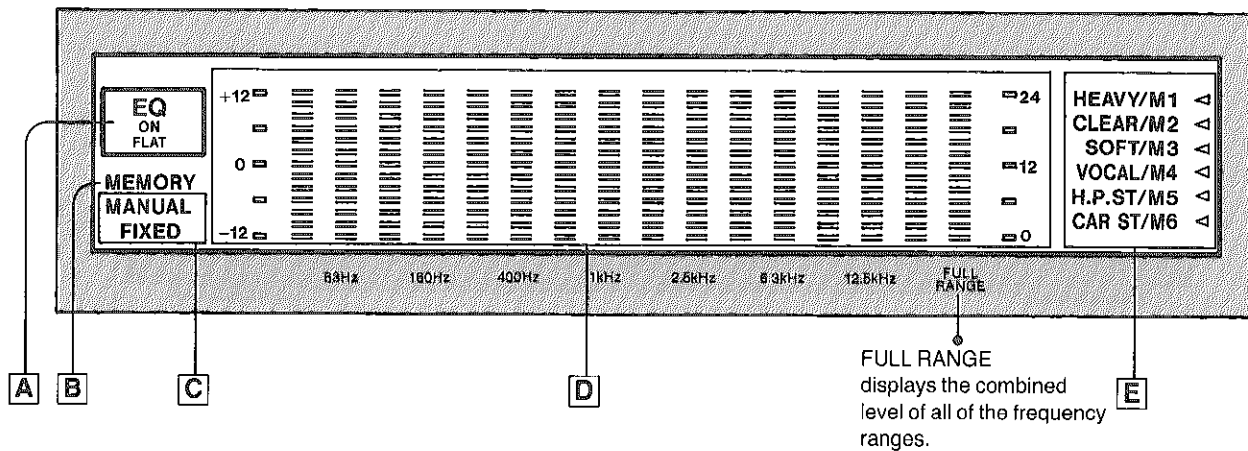
FLAT: Select this mode if no equalization correction is desired.

11 Frequency band selector buttons (FREQUENCY)

Use these buttons to select the frequency band to be adjusted.

Front Panel Controls and Functions

(continued)



Display section

A Equalization-mode indicators

EQ ON: Indicates that the equalization effect has been switched ON.

FLAT: Indicates that the equalization effect has been switched FLAT.

B Equalization-memory indicator

This indicator illuminates when the memory button is pressed, thus indicating that an equalization curve can be programmed into the memory.

C Memory-mode indicators

FIXED: Indicates that one of the equalization curves that were originally programmed into the memory can be retrieved.

MANUAL: Indicates that an equalization curve that you programmed into the memory can be retrieved.

D Equalization/Spectrum display

The following equalization-level display and five types of spectrum display are possible.

■ Equalization-level display

The amount of correction is displayed by a series of lines (=) for each sound range (frequency range).

■ Spectrum display

The unit has five built-in display modes. (Refer to page 11.)

Note:

If an equalization level-control or the memory-mode selector or a preset-memory button is pressed during any display other than the equalization-level display, the equalization-level display will be shown for about three seconds, after which the former display will return.

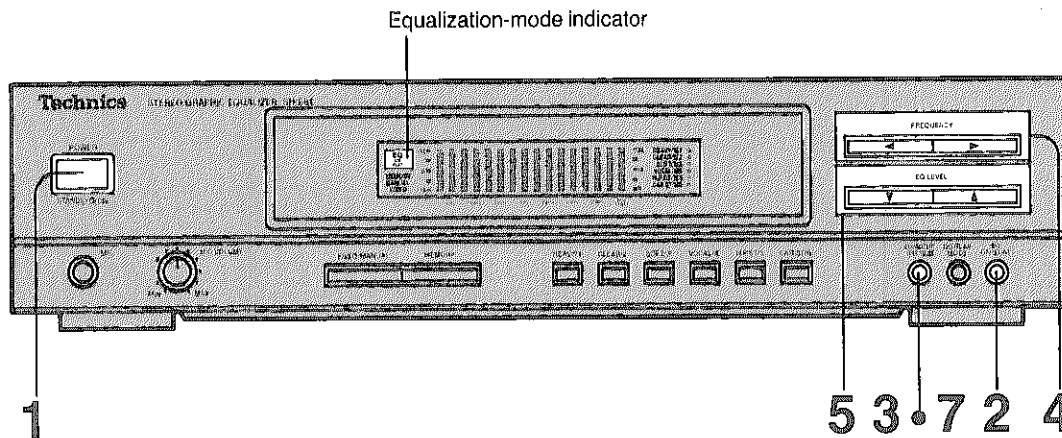
E Equalization-preset indicators

These indicators show which of the six FIXED or six MANUAL equalization curves is currently used.

HEAVY-CAR ST: Indicates one of the equalization curves that were originally programmed into the memory.

M1-M6: Indicates an equalization curve that you programmed into the memory.

Operation



To adjust to the desired tone quality

- 1 Switch ON the power.
- 2 Switch ON the equalization mode-select button.
(The "EQ ON" equalization-mode indicator will illuminate.)
- 3 Press the equalization level/spectrum mode-select button to select the equalizer display.
- 4 Select the frequency band to be adjusted using the frequency band selector buttons. The bar (lighted dots) on the equalizer display flashes on and off indicating that the band can be adjusted.

■ Characteristics of the different frequency bands

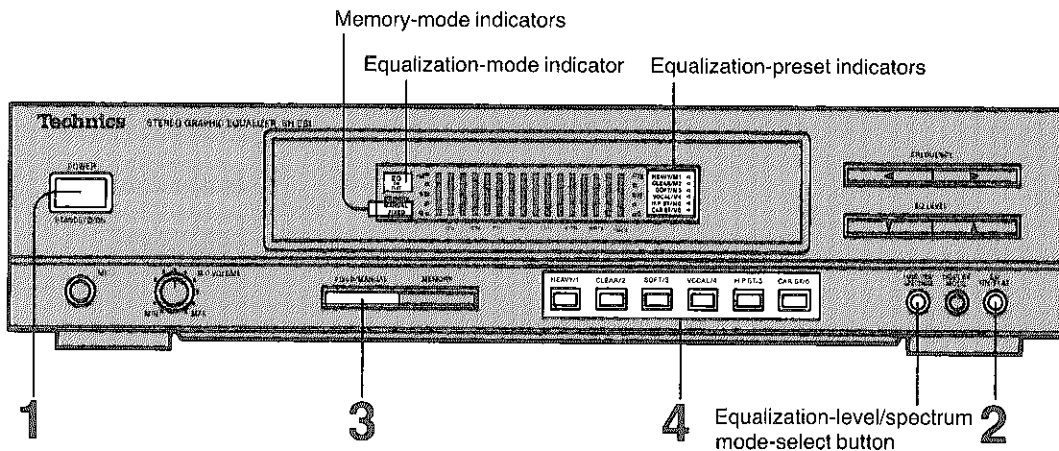
63 Hz:	The deep bass range
160 Hz:	The bass range
400 Hz:	The fundamental tonal range of music
1 kHz:	The tonal range which adds tension to the sound
2.5 kHz:	The tonal range where strings and winds are most prominent
6.3 kHz:	The tonal range which adds gloss to the sound
12.5 kHz:	The tonal range which adds glitter to the sound

- 5 Adjust the equalization level of the frequency band using the equalization level-control buttons.
When the equalizer level-control button corresponding to the frequency to be adjusted is pressed, the equalization level changes in 2 dB steps.
- 6 Repeat steps 4 and 5 above to adjust to the desired sound.
- 7 Press the equalization level/spectrum mode-select button to select the spectrum display. After adjustments have been completed, press the display mode-select button to select the desired display from among the following: BAR-TYPE, PEAK-HOLD, DOT, HUSTLER, AURORA. (Refer to page 11.)

Notes:

- To listen or record without the equalization effect, either press the equalization mode-select button (to the "FLAT" setting).
- Do not attempt to adjust the equalization level during recording.
- To listen the tape with the equalization effect, press the equalization mode-select button (to the "FLAT" setting).

Operation (continued)



To retrieve equalization curves pre-programmed to this unit

This unit has been pre-programmed with six types of typical equalization curves (which are applicable to certain characteristics of music) that has been programmed into the unit's memory.

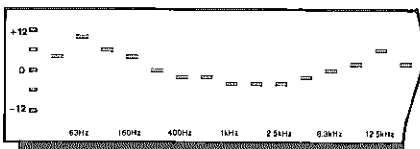
- 1 Switch ON the power.
- 2 Switch ON the equalization mode-select button.
(The "EQ ON" equalization-mode indicator will illuminate.)

- 3 Press the memory mode-select button to select **FIXED**.
(The **FIXED** memory-mode indicator lights.)
Select this mode when you want to retrieve a equalization curve that was originally programmed to the memory as a permanent ("FIXED") curve.

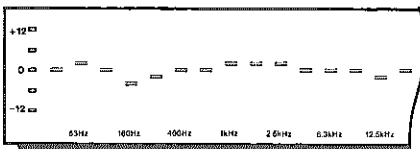
- 4 Press one of the preset-memory buttons to select the tone quality of your choice.
(The equalization-preset indicator lights and the equalization curve display appears.)
 - While in the "FIXED" mode, if one of the equalizer level-control buttons is pressed, the unit will automatically switch to the "MANUAL" mode.
 - To display the equalization curve, press the equalization-level/spectrum mode-select button in the spectrum display.

Equalization curves pre-programmed to this unit

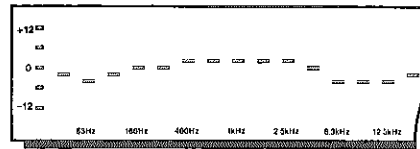
- 1 **HEAVY**
This curve can be used to add "punch" to rock and other music.



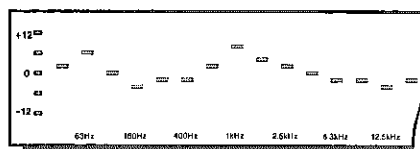
- 2 **CLEAR**
This curve can be used to obtain a "clear" sounding high range for jazz, etc.



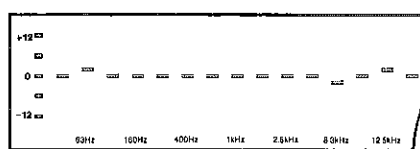
- 3 **SOFT**
This curve can be used to listen to background music, etc. at a low volume level.



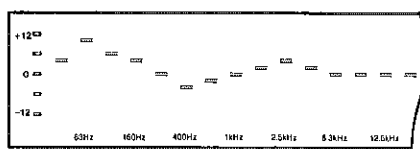
- 4 **VOCAL**
This curve can be used to clarify vocal music.

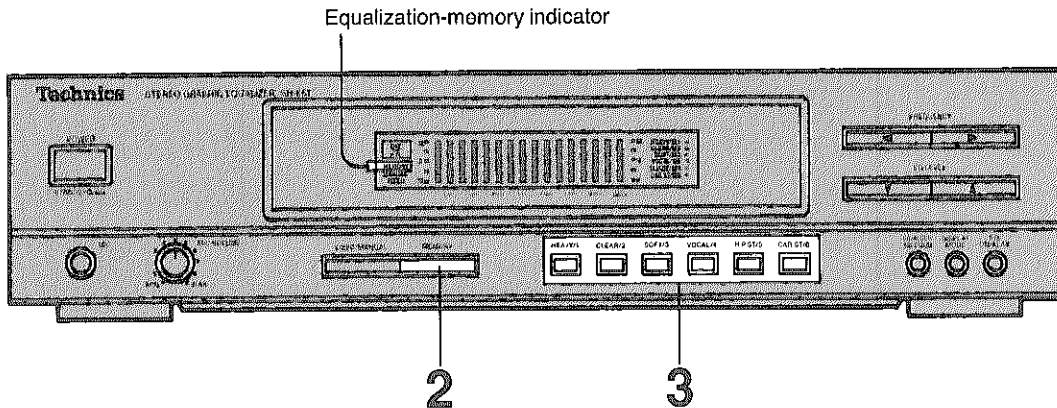


- 5 **H. P. STEREO**
This curve can be used when making tapes to listen to through headphones-stereo units.



- 6 **CAR STEREO**
This curve can be used when making tapes to listen to through a car stereo.





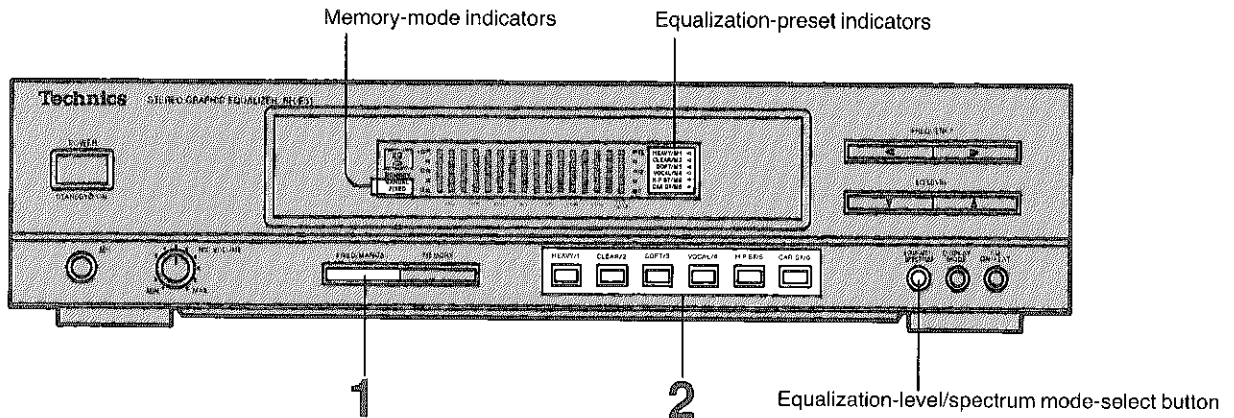
To program an equalization curve into the memory

As many as six curves can be programmed into and retained by the memory of this unit. It is convenient to program those curves that are frequently used.

- 1 Adjust to the desired equalization curve.**
(Adjust by following the steps in "To adjust to the desired tone quality" on page 7.)
- 2 Press the memory button.**
(The equalization-memory indicator will illuminate.)
•To stop the memory, press the memory button once again.
- 3 Press one of the preset-memory buttons (M1–M6), whichever is to be used to make the programming to the memory.**
(The equalization-memory indicator goes out.)

Note:
•If a new curve is programmed for a number for which a curve is already programmed in the memory, the previously programmed curve will be erased.

Operation (continued)



To retrieve equalization curves from the memory

1 Press the memory-mode select button to select **MANUAL**.

(The MANUAL memory-mode indicator lights.)

Select this mode when you want to retrieve a equalization curve that you have programmed to the memory.

2 Press one of the preset-memory buttons to select the **tone quality of your choice**.

(The equalization-preset indicator lights and the equalization curve display appears.)

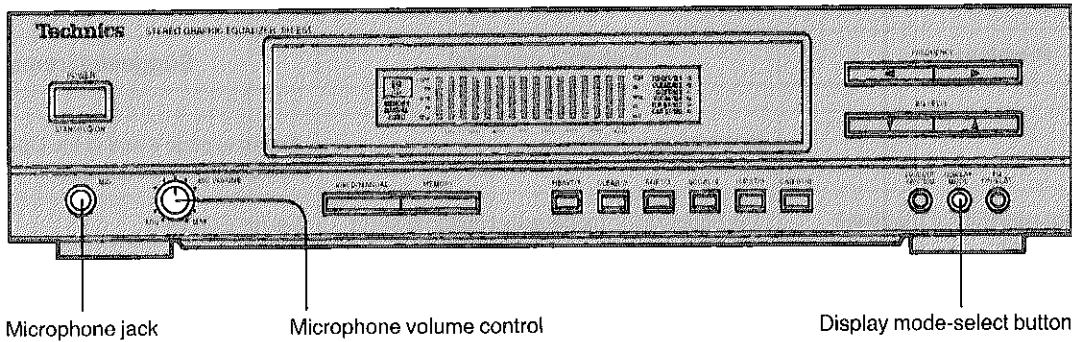
• To display the equalization curve, press the equalization-level/spectrum mode-select button in the spectrum display.

■ **"MOST RECENT" memory**

If, after the buttons and equalization levels of this unit has been set, the power is switched to "STANDBY" and then switched ON, the setting of each button and the equalization levels will be entered into the memory, and these settings will return when the power is switched ON.

Note:

Curves programmed into the memory will be retained for about two weeks if the AC power supply cord is unplugged. If curves are erased, they must be programmed again. Note, however, that curves originally programmed beforehand into the unit's memory as permanent curves (the "FIXED" curves) will not be erased.

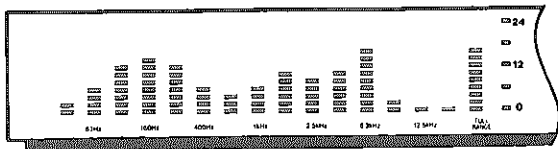


About spectrum display

Five spectrum display modes are available to provide a visual representation of the loudness of the sound issuing from the speakers in each of the frequency bands. Press the display mode-select button to switch between the display modes in the following sequence.

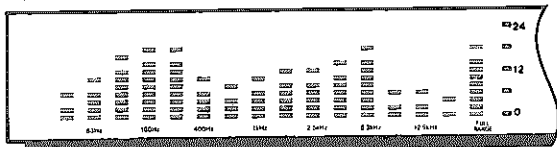
1 Bar-type display

This display can be used to show the strength of the sound being emitted from the speaker systems for each sound range (frequency range), and to show the strength of sound for all ranges (FULL RANGE) by a bar-type display.



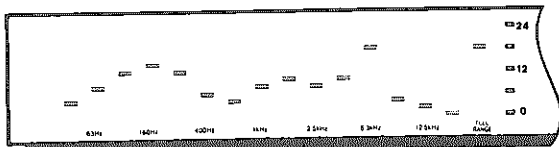
2 Peak-hold display

The peak sound value of each sound range is held on the display for about two seconds after it occurs.



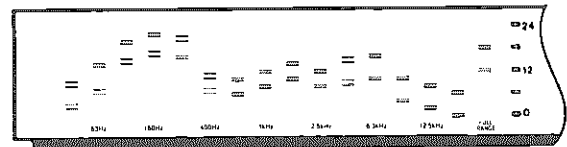
3 Dot display

Only the upper two parts of the bar display are shown, thus making the strength of the sound for each sound range even easier to see.



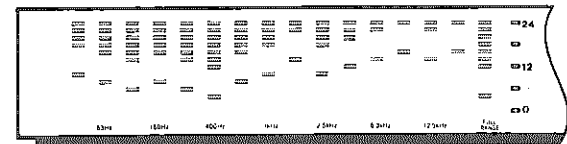
4 Hustler display

Emphasizes the peak values for each frequency band.



5 Aurora display

Provides an upside-down display of the signal strength and peak levels for each frequency band.



To use the microphone (microphone mixing)

- 1 Reduce the volume level of the amplifier.
- 2 Connect the microphone to the microphone jack.
- 3 Start the sound source and adjust the volume level of the amplifier.
- 4 Adjust the microphone volume level.
 - If a strange noise (squealing or howling noise) is emitted during mixing, either change the direction of the microphone or turn down the volume.

To perform mixing-recording

After completely the procedures for microphone mixing above, start a recording on the cassette deck.

• From tape to tape mixing-recording can not be performed.

For details, refer to the instruction manual of the cassette deck.

Troubleshooting Guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your Technics dealer for instructions.

Problem	Probable cause(s)	Suggested remedy
Not sound	Incorrect connection.	Refero to page 4 and to the Operating Instructions of the amplifier.
Correction is not possible at playback (including recording).	The equalization mode-select button is set to "FLAT".	Set to "EQ ON".

Maintenance

To clean this unit, use a soft, dry cloth.

If the surfaces are extremely dirty, use a soft cloth, dipped into a soap-and-water solution or a weak detergent solution.

Wring the cloth well before wiping the unit.

Wipe once again with a soft, dry cloth.

Never use alcohol, paint thinner, or benzene, nor a chemically treated cloth to clean this unit.

Such chemicals may damage the finish of your unit.

Technical Specifications

(DIN 45 500)

Frequency response:	5 Hz~45 kHz (-3 dB)
Maximum output voltage:	6.2 V (1 kHz, THD 0.03%)
Rated output voltage:	1 V
Maximum Input voltage:	6.2 V (1 kHz)
Rated input voltage:	1 V
Input impedance:	22 k Ω
Rated total harmonic distortion:	0.005% (20 Hz~20 kHz) at 1 V output 0.003% (1 kHz) at 1 V output
S/N:	93 dB/1 V 100 dB/1 V (IHF' A)
Gain:	0 \pm 1 dB
Equalization-level controls:	+12 dB~-12 dB (7 frequency ranges, in 2-dB steps)
Channel separation:	60 dB
Channel balance:	\pm 0.5 dB
Center frequencies:	63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 12.5 kHz
Mic input sensitivity:	0.8 mV/22 k Ω

Equalizer function:	EQ ON/FLAT Memory (FIXED) 1~6 ch (MANUAL) 1~6 ch Display mode (EQ/SPECTRUM, SPECTRUM 5 modes)
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GENERAL

Power supply:	AC 50 Hz/60 Hz, 230-240 V
Power consumption:	7.5 W (with power switch at STANDBY: 5.7 W)

Dimensions (W×H×D)

For United Kingdom: 360×85×285 mm
(14³/₁₆"×3¹¹/₃₂"×11⁷/₃₂")

Australia and New Zealand: 360×85×292 mm
(14³/₁₆"×3¹¹/₃₂"×11¹/₂")

Weight: 2.5 kg (5.5 lb.)

Notes:

- Specifications are subject to change without notice. Weight and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

Matsushita Electric Industrial Co., Ltd.
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