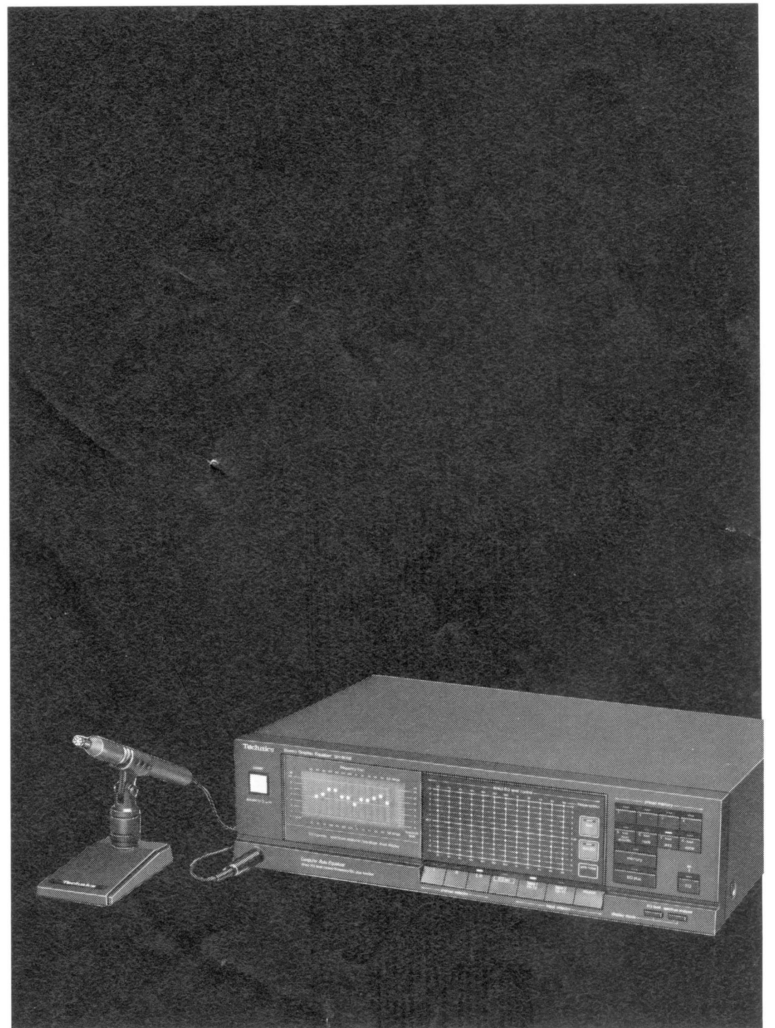


Technics

Stereo Graphic Equalizer

SH-8066

OPERATING INSTRUCTIONS



Before operating this unit, please read these instructions completely.

Dear Stereo Fan

Technics. The science of sound. Our name represents over 100 high quality audio products, in every price range.

From our revolutionary direct-drive turntables to our highly acclaimed linear-phase speakers, Technics quality and value have become almost legendary among audio enthusiasts.

Our truly complete selection of turntables (including belt-drive, direct-drive, and quartz-locked models with varying degrees of automation) now includes an exciting line of linear tracking turntables with zero tracking error. Another innovation, direct-drive cassette decks, is available in both slim and micro formats. In fact, with Technics micro series, you can assemble an entire system of the highest quality

with truly compact dimensions. And our receivers, which combine new class-A amplification with quartz-synthesizer tuning, have created tremendous excitement among reviewers and customers alike.

Amplifiers, tuners, headphones, microphones, cartridges, open reel decks, sound processors—we are proud of all our high quality equipment, and we are constantly seeking to improve our products in terms of performance and handling ease. In addition, our confidence in the reliability of our merchandise (demonstrated by our warranties) and the reasons for our enormous and rapid growth become obvious.

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PRODUCT SERVICE

■ Warning concerning removal of covers

This unit should be serviced by qualified technicians only. No service information is provided for customers.

Should your "Technics" product ever require servicing, refer to the Directory of Authorized Service Centers or your franchised "Technics" dealer for detailed instructions.

■ Location of serial number

You will find the serial number located at the back of the unit.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The model number of this product may be found on the back of the unit; and the serial number on the label affixed to the back of the unit.

You should note the model and serial numbers of this unit in the space provided, and retain this booklet as a permanent record of your purchase to aid in identification in the event of theft.

MODEL NUMBER: SH-8066

SERIAL NUMBER: _____

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

SUGGESTIONS FOR SAFETY

Before using this unit, be sure to read applicable items of the operating instructions and these safety suggestions carefully; and afterwards keep them handy for future reference. Take special care to follow the warnings indicated on the unit itself as well as in the operating instructions.

1. Avoid places where there is water or humidity.

Do not use this unit near a bathtub, washbasin, swimming pool, or the like. Damp basements should also be avoided.

2. Don't allow water or any foreign object to get inside this unit.

Don't place small metal objects or anything containing liquid on or near the unit.

3. Avoid placement of the unit where it will be exposed to the direct rays of the sun, or where ventilation is inadequate.

Don't place this unit in a bookcase or between cabinets, or where curtains or furniture may obstruct the ventilation holes.

4. Place this unit away from heat-emitting appliances.

Never place this unit near a radiator, heat register, stove, or any other heat-emitting equipment (including amplifiers).

5. Placement

Place the unit on a stable, vibration-free, level shelf or stand.

6. Use of a cart or stand

When deciding on a cart or stand, be sure to follow the recommendations for this unit in the operating instructions.

7. Wall or ceiling installation

If the unit is to be mounted on a wall or ceiling, be sure to do so only as recommended in the operating instructions.

8. Check the voltage rating of this unit before connecting the unit to a power supply.

Be sure to connect the unit only to the type of power supply indicated in the operating instructions, or as indicated on the unit itself.

9. Concerning the power outlet(s) of this unit

If this unit has a built-in electric power receptacle, be sure to connect only equipment with a power rating not exceeding that indicated by the receptacle of this unit. (Only connect audio equipment to this outlet.)

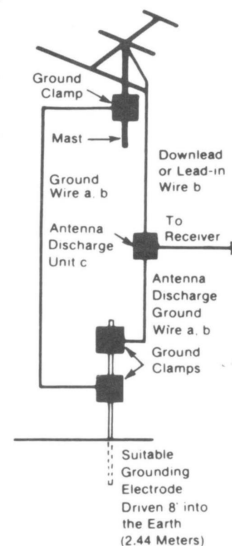
10. Care of the power cord and plug

Take care that the cord is not bent sharply (especially near its connection to the unit or near the plug), that nothing is placed on it, and that it is not pinched or crushed. Never take hold of the plug or cord if your hand is wet, and always be sure to grasp the plug body when connecting or disconnecting it.

11. Outdoor antenna grounding

If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70—1981, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See the figure at right.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



a) Use No. 10 AWG copper or No. 8 AWG aluminum or No. 17 AWG copper-clad steel or bronze wire, or larger as ground wires for both mast and antenna discharge ground wire.

b) Secure lead-in wire from antenna to antenna discharge unit and mast ground wire to house with stand-off insulators, spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.

c) Mount antenna discharge unit as closely as possible to where lead-in enters house.

12. Power lines

When installing an outdoor antenna, install it as far as possible from power lines.

13. If the unit will not be used for a long period of time:

Be sure to disconnect the power cord.

14. Never attempt repairs yourself:

- If the power cord or plug is damaged.
- If a foreign object or liquid falls into the unit.
- If the unit is exposed to rain.
- If the unit does not function normally, or if operation shows an unusual change.
- If the unit has been dropped and the cabinet or chassis are damaged...etc.

Unplug the power cord and consult with a qualified technician (or the dealer from whom the unit was purchased or the nearest service center).

15. Repairs

Except for adjustments explained in the operating instructions, do not attempt any repairs yourself. Be sure to request service from a qualified technician (or your dealer or nearest service center).

MICROPHONE PREPARATIONS

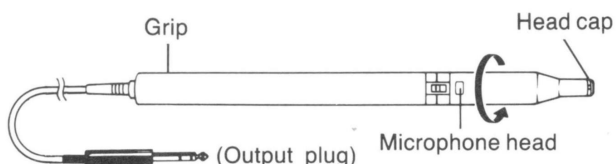
The microphone included with this unit is a special microphone to be used for automatic sound-field corrections and for measurements of the sound-field frequency response. (See page 10.)

Operation

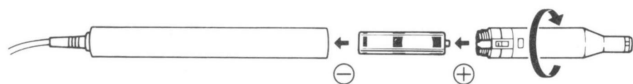
1. Battery insertion

(Battery for microphone: Panasonic UM-3 (AA size) (option) or equivalent)

- (1) Remove the microphone head.
(Do not turn the head cap.)



- (2) Insert the battery and screw the head on again.



Be sure the battery (+) and (-) polarity is correct.

Notes about battery

- If the unit is not used for a long time, remove the battery to avoid battery leakage.
- When the battery become weak, replace them with new ones.
- Do not attempt to recharge the battery or take them apart. Do not expose them to high temperatures or short-circuit them.

2. Connections to this unit

Connect the output plug to the microphone jack ("mic") of this unit (SH-8066).

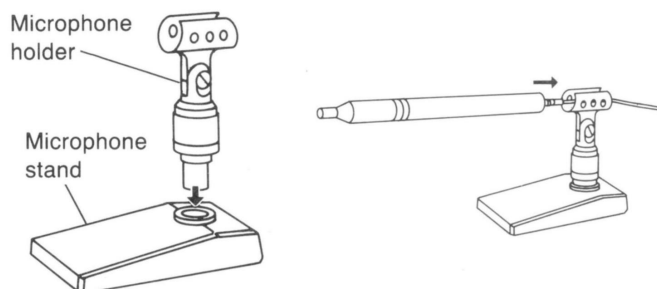
3. Use of power switch

To turn ON the power, slide the power switch in the direction of "arrow". Set the switch to OFF after measurement.



4. Use of microphone stand

Insert the microphone holder into the microphone stand, and then insert the microphone into the microphone holder in the direction indicated by the arrow.



Notes:

- Handle the microphone gently. Do not disassemble.
- Do not expose the microphone to rain and dust.
- To clean the microphone, use a dry cloth. Do not use solvents such as benzene, alcohol, chemical cloth, etc. Never use an insecticide, as it causes the microphone case to be deformed or discolored.
- Do not use or store the microphone in locations with high temperature (more than 60°C) or high humidity (more than 80%). Never leave the microphone in a car with its door closed (particularly in summer) or near any source of heat.
- The microphone is exclusively used for measurement of sound field. Do not use it for vocal use as it causes a large shock noise when the power switch is set to ON and OFF.
- Do not turn or loosen the head cap on the tip of the microphone as it affects the performance of the microphone.

Specifications

MODEL (RP-3800E)

- Type: Electret condenser type
- Frequency response: 16 Hz~20,000 Hz $+3$ dB
20 Hz~16,000 Hz -2 dB
- Directivity: Omni-directional
- Sensitivity: -72 dB
(0 dB=1 V/ μ bar, 1,000 Hz)
- Output impedance: 600 Ω (1,000 Hz, unbalanced)
- Maximum input sound pressure: More than 110 dB SPL
(0 dB= 2×10^{-4} μ bar, 1,000 Hz)

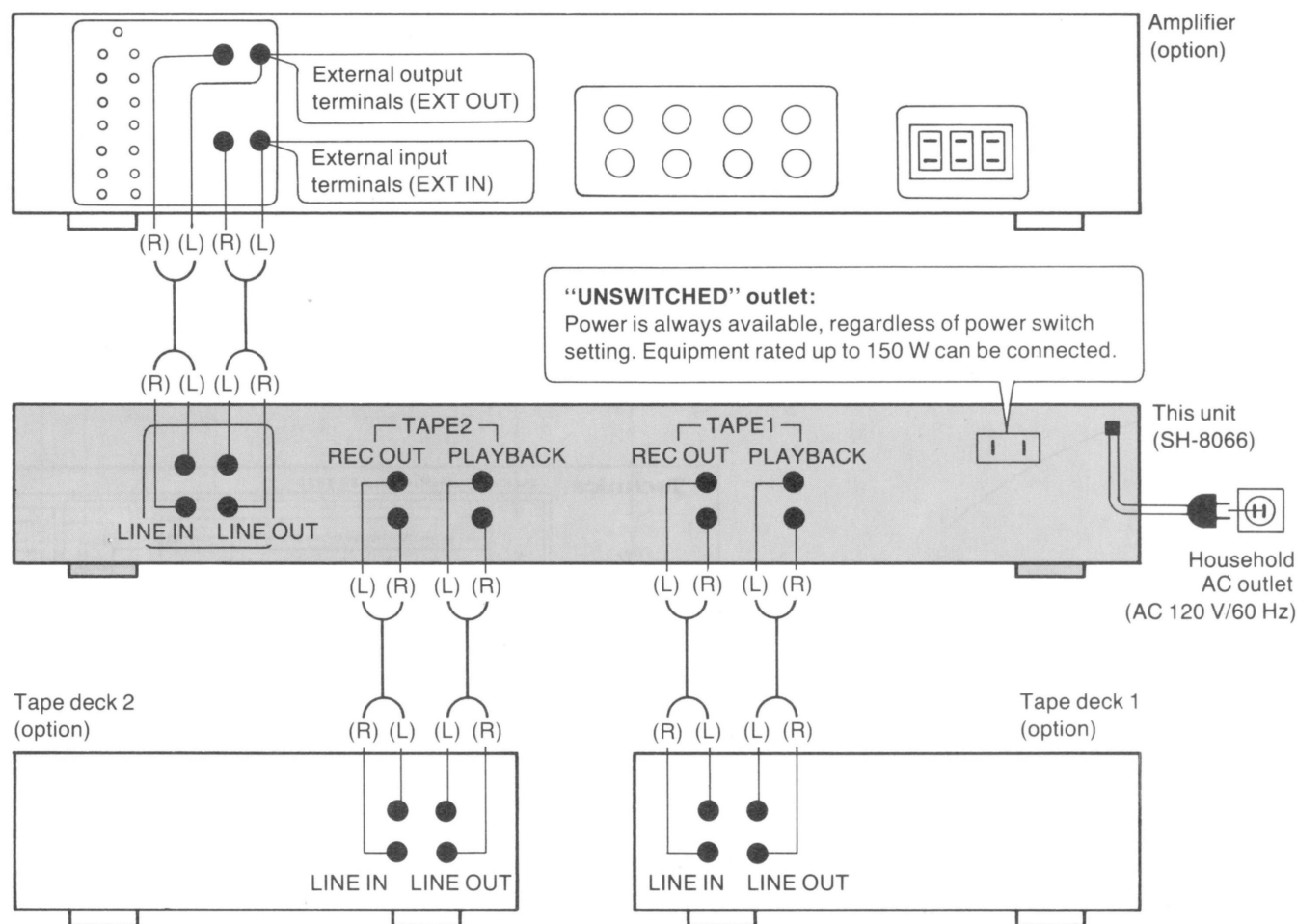
- Equivalent noise: Less than 34 dB SPL
- Power supply: 1.5 V (Battery UM-3 or R6 $\times$ 1)
- Battery life: Approx. 2,000 hours (continuous)
- Weight: Approx. 125 g (without battery)
- Output cord: 4 m of single-core shielded
4 mm O.D. wire with
phone-type plug
- Stand screw: PF 1/2"

STEREO SYSTEM COMPONENTS AND THEIR CONNECTIONS

Note:

When making the connections below in order to prepare the timer for a timer recording of a radio broadcast, be sure to make the settings so that the power of this unit will also be switched ON.

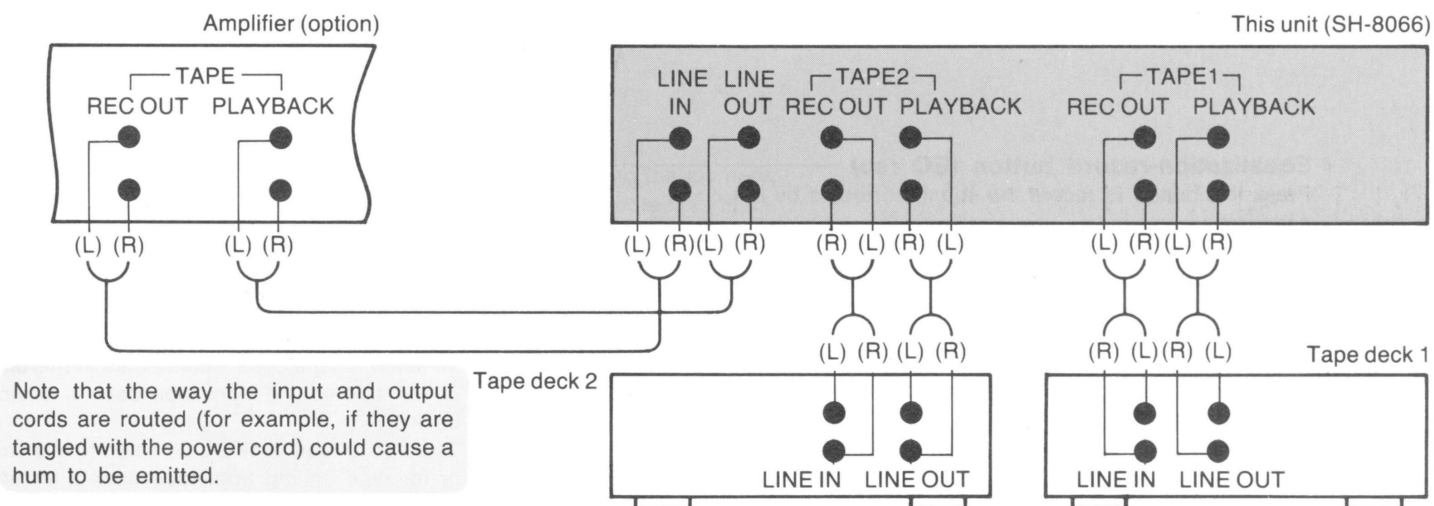
Connection to the external input/output (EXT IN/EXT OUT) terminals of an amplifier.



CAUTION: (For Canada only)

To prevent electric shock match wide blade of plug to wide slot, fully insert.

Connection to the tape terminals of an amplifier.



FRONT PANEL CONTROLS AND THEIR FUNCTIONS

• Power "stand by" switch

This switch turns on and off the secondary circuit power only. The unit is in the "stand-by" condition when this switch is set to the "stand-by" (⏻) 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:

- With the power switch in the OFF position, there is still a slight power consumption (about 3 watts). This is in order to assure the retention of the "most recent" memory and the preset-memory functions.

• 12-channel spectrum analyzer/equalization level display (12 Channel spectrum analyzer/equalizer level display)

This display shows the spectrum or equalization level. For the spectrum a bar-type of display is used; for the equalization level, a dot-type of display is used. (See page 8.)

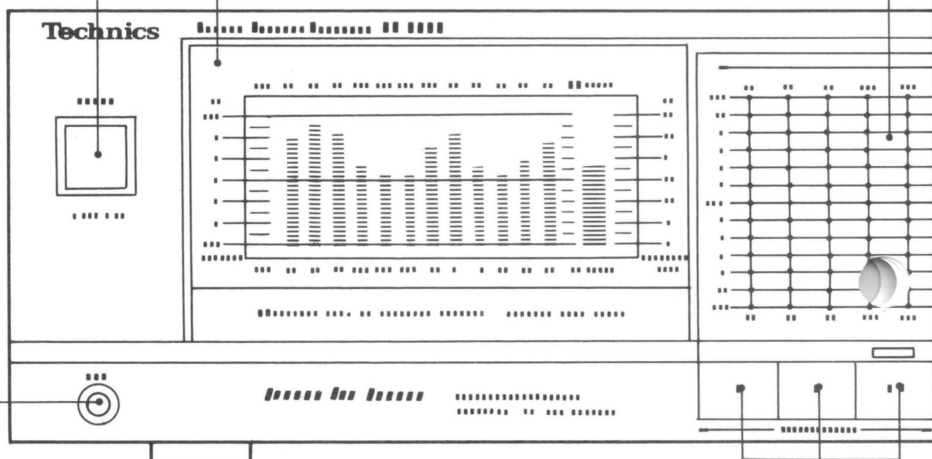
• Direct-equalization-level controls (direct EQ level control)

These controls are used for adjustment of the equalization level.

The adjustment can be made (in 2-dB steps) to ± 12 dB. (See page 9.)

Note:

Do not use a sharp edged surface to trace the curve.



• Microphone jack (mic)

Connect the microphone (included) to this jack for automatic sound-field correction and measurement of sound-field frequency characteristics. (See page 10.)

(Note)

This microphone jack cannot be used for mixing.

• Channel selectors (channel selector)

These buttons are used to select the channel for display and equalization correction.

- L:** When this button is pressed, only the left channel is selected for equalization correction or spectrum display.
- R:** When this button is pressed, only the right channel is selected for equalization correction or spectrum display.
- L.R:** When this button is pressed, both the left and right channels are selected for simultaneous equalization correction (left channel bright, right channel dim) or spectrum display. For spectrum display, note that the value is that of the left and right channels combined.

• Equalization-record button (EQ rec)

Press this button to record the sound corrected by the equalizer.

When the button is pressed, the indicator will illuminate; when it is pressed once again, the function is switched OFF, and equalization-corrected sound cannot be recorded.

However, for tape editing from tape deck 1 to tape deck 2 (or vice versa), there will be no correction adjustment for previous recordings, such as disc sounds or radio broadcasts, on tape deck 1 (tape deck 2).

• Input selectors (input selector)

These buttons are used to select the desired sound source. When pressed, the corresponding indicator illuminates.

source: To listen to a phone disc or radio broadcast.

tape 1: To listen to tape deck 1 connected to this unit, or for tape editing from tape deck 1 to tape deck 2.

tape 2: To listen to tape deck 2 connected to this unit, or for tape editing from tape deck 2 to tape deck 1.

● **Automatic-equalization button (auto EQ)**

Press this button for automatic correction of the sound-field. When this button is pressed, the indicator will illuminate; when the function is completed, illumination will stop. If a microphone is not connected, this button will not function. (See page 10.)

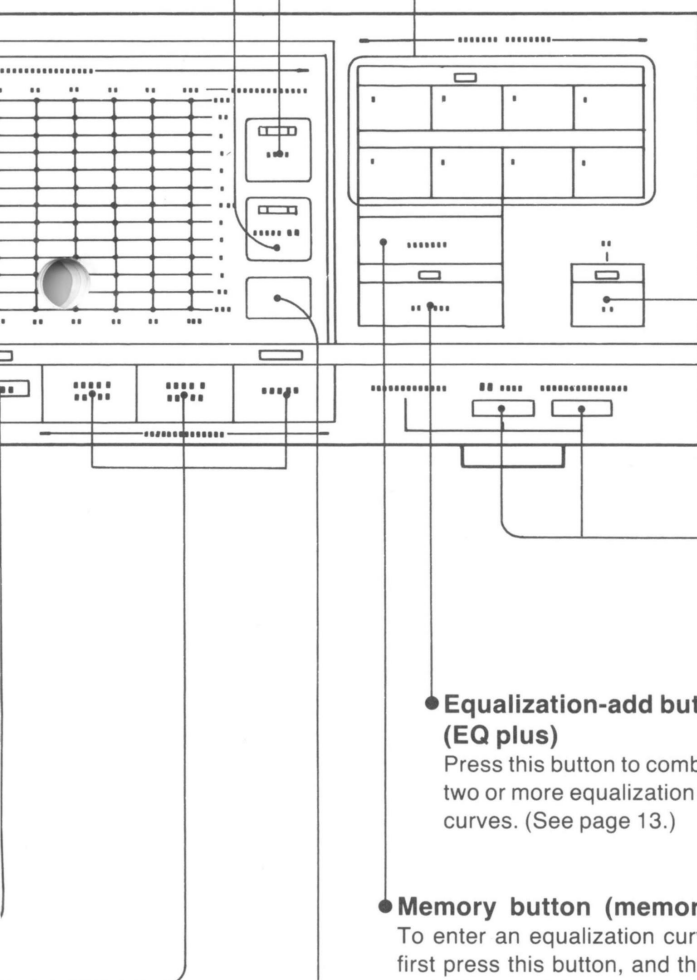
● **Lock button (lock)**

This button is used to lock the direct-equalization level-control function. When this button is pressed, the indicator will illuminate; when it is pressed once again, the lock is released.

● **Preset-memory buttons (preset memory)**

These buttons are used to preset the equalization curves into the memory. After curves have been preset into the memory, it is then possible to quickly and easily select the desired curve by simply pressing the corresponding button.

There are eight memory areas: three are for fixed-equalization-level memory, and five are for use by the user. (See page 12.)



● **Equalization button (EQ)**

This button is used to switch the equalization correction function ON and OFF.

When this button is pressed, the indicator will illuminate; when it is pressed once again, the function is switched OFF, and the equalization function is not applied.

● **Display mode buttons (display mode)**

These buttons are used to select either the display of the spectrum or of the equalization level.

EQ level: When this button is pressed, the equalization level is shown on the display.

spectrum analyzer: When this button is pressed, the spectrum is shown on the display.

● **Equalization-add button (EQ plus)**

Press this button to combine two or more equalization curves. (See page 13.)

● **Memory button (memory)**

To enter an equalization curve into the memory, first press this button, and then, while the indicator is flashing (about 4 seconds), press one of the preset-memory buttons to complete the memorization of the equalization curve. (See page 12.)

● **Pink-noise button (pink noise)**

This button can be used to switch ON and OFF the "pink" noise used when measuring the sound-field frequency response or correcting the sound-field. If a microphone is not connected, this button will not function. (See page 10.)

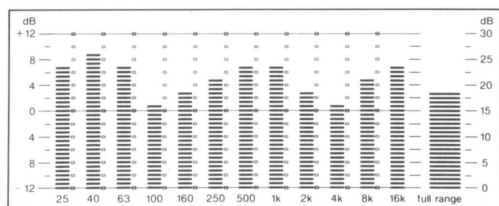
Pink noise

- Pink noise is used for measurement and correction of the sound field frequency response because it is mostly within the audible range, its energy distribution is uniform, and it has a wide frequency band.
- Because pink noise has large instantaneous level fluctuations, the display may fluctuate.

DISPLAY

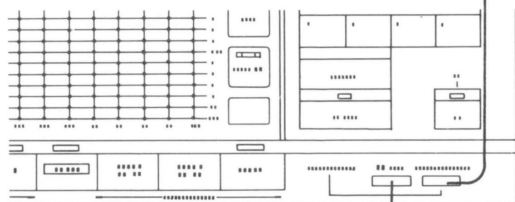
The display can be used to display the spectrum or the equalization level.

■ For spectrum display (L), (R) or (L.R)



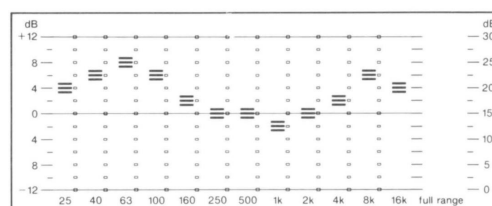
※ The "full range" area on the right side displays the combined level of all of the frequency bands.

※ If there is no input signal to this unit. The 1st row (0 dB) of all frequency bands is displayed.



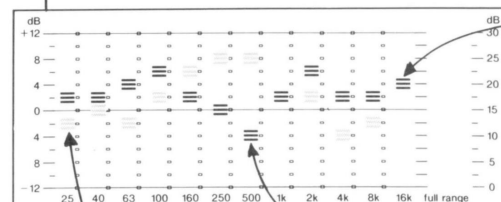
spectrum analyzer

■ For equalization-level display (L) or (R)



EQ level

■ For equalization-level display (L.R)



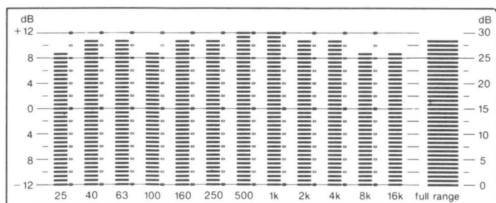
Left and right channels displayed brightly at the same position.

Right channel (dim) Left channel (bright)

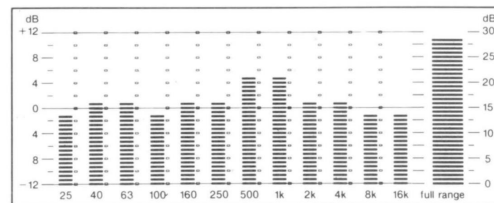
AUTOMATIC LEVEL FUNCTION

This unit incorporates a function for automatic adjustment of over-indication or under-indication of the spectrum (caused by high or low input signal levels), so that the displayed spectrum is always at the central part of the display for easy visibility.

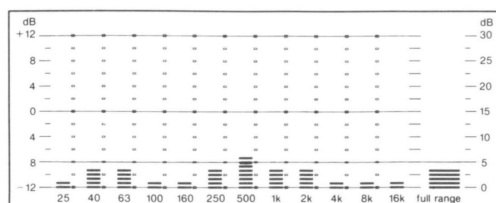
■ When input level is high



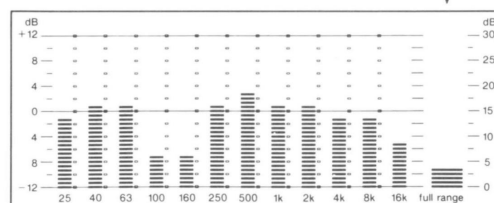
When the average value of the spectrum exceeds this level, the overall spectrum is suppressed by 10 dB.



■ When input level is low



When the average value of the spectrum is less than this level, the overall spectrum is raised by 10 dB.



※ The actual input level is shown by the "full range" display at the far right.

OPERATION

MANUAL CONTROL OF THE EQUALIZATION LEVEL

1. Select the channel(s) to be adjusted.

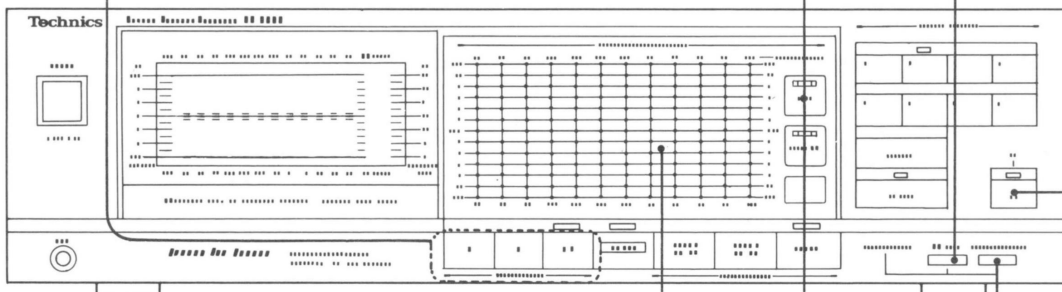
- L: To adjust the left channel
- R: To adjust the right channel
- L.R: To adjust the left and right channels

2. "off"

The stroke of this button has been increased in order to prevent mis-operation, so they must be pressed firmly.

3. "EQ level"

4. "on"



5. For adjustment of the equalization level.

Adjustment to ± 12 dB (in 2-dB steps) is possible by pressing the point of intersection of the level and the frequency where adjustment is desired or by tracing with a finger.

If a finger is used, move it slowly, allow for proper operation.

Press the "spectrum analyzer" button to aurally adjust while watching the spectrum display.

Convenient Functions

• (Lock button)

"on" Equalization curves can be protected.

When this button is pressed to ("on"), the direct-equalization-level controls will not function, thus protecting an equalization curve(s) which has been set. The pressed position will be illuminated on the display, and the desired frequency and level value can be easily found.

"off" Frequencies can be easily detected and changed.

When the lock button is pressed to "off" while the direct-equalization-level control is being pressed, the level of a frequency can be easily changed.

OPERATION

BEFORE MEMORIZATION OF EQUALIZATION CURVES

This unit has eight memory areas; five of these are available to the user, and can be changed; the other three are preset (fixed) music curves and cannot be changed.

■ Memory areas for the user

- As many as five pairs (left/right channels) of equalization curves can be entered into memory areas 1 through 5.
- When an automatic sound-field correction is made, the equalization curve is automatically entered in memory area 5.

■ Fixed-equalization-level memory areas

Equalization curves which are appropriate to the following three types of music have already been preset to memory areas 6 through 8, thus making it possible to enjoy music listening at a touch of a button. (Other equalization curves cannot be entered into these memory areas.)

Memory area 6 (rock)

The level for 63 Hz and 100 Hz is increased in order to emphasize the power of the bass fiddle and bass drum; in addition, the level for the range from 4 kHz through 16 kHz has been increased in order to obtain a characteristic in which there is a tauter high range and low-range build-up.

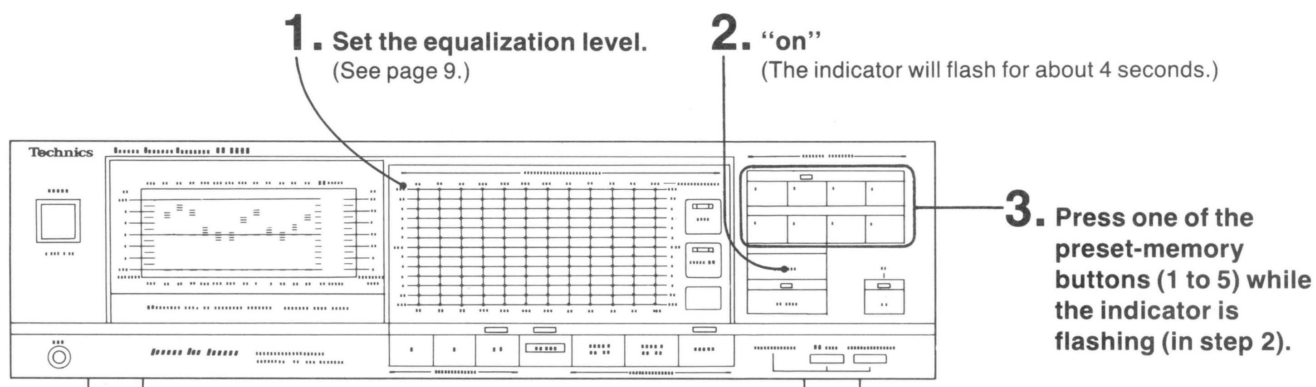
Memory area 7 (jazz)

The level for 63 Hz and 100 Hz is increased, and moreover the level for 4 kHz and 8 kHz is moderately increased, in order to provide a modulated, soft sound.

Memory area 8 (vocal)

The 2-kHz range is increased by 4 dB and the 4-kHz range is increased by 2 dB; in addition, the 500-Hz range is reduced by -4 dB, thus providing a clear characteristic with excellent vocal emphasis.

MEMORIZATION OF EQUALIZATION CURVES



- ※ If two or more entries are made into one memory area, only the last one will be memorized.
- ※ The memory-add "EQ plus" button will not function, even if it is pressed, while the indicator of the memory button is flashing.

MEMORY RETRIEVAL-OUT

Press the preset-memory button for the equalization curve you want to retrieve from the memory.

The indicator for that button will illuminate, and the display will instantly change to the retrieved equalization curve. When a retrieval is made from the memory, if the equalization button is OFF, the indicator for the preset-memory button will illuminate, and the equalization curve will appear on the display, but the equalization effect will not be applied.

TO CANCEL A MEMORY RETRIEVAL-OUT

Press either a direct-equalization control or a preset-memory button.

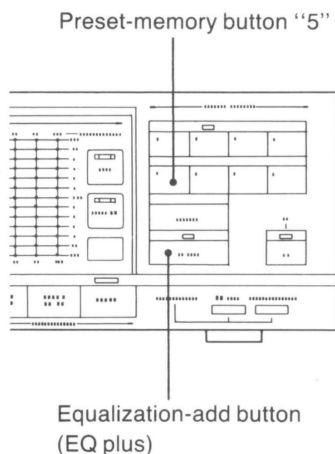
The indicator for the preset-memory button used to make the retrieval will stop illumination.

EQUALIZATION ADD (COMBINATION OF FREQUENCY RESPONSES)

It is possible to combine (addition of frequency responses) equalization curves which have already been entered into the memory areas, or to combine an equalization curve which has already been entered into a memory area with a manually set equalization curve (see page 9).

■ Combination of a sound-field correction curve (already memorized) and a memorized equalization curve.

After flattening the frequency response by automatic sound-field correction (see page 10), if this is then combined with an equalization curve entered into the preset memory, you can then enjoy music which has been tailored so as to best fit the conditions of the listening room.



1. Press preset-memory button 5.

2. Press the equalization-add "EQ plus" button.

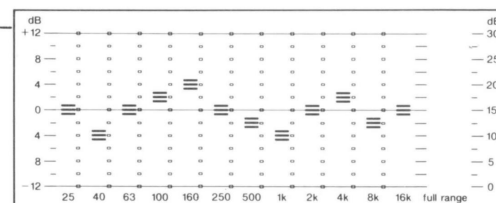
(The indicator will flash for about 4 seconds.)

3. Press the preset-memory button for the curve to be added.

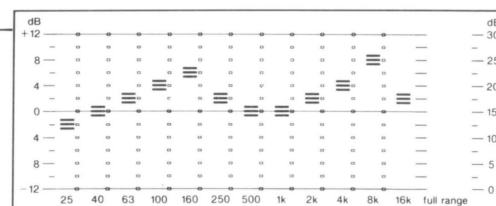
(Press the preset-memory button while the equalization-add "EQ plus" button is flashing.)

The indicators for the two added preset-memory buttons will illuminate, and the equalization curve after the addition will appear on the display.

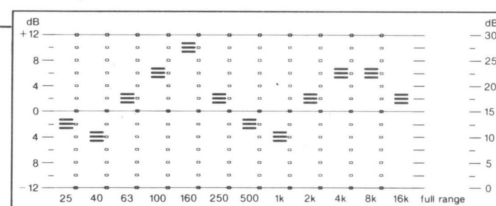
(Automatic sound-field corrected equalization curve)



(Equalization curve for added preset memory)
Note that this curve will not appear on the display.



(Equalization curve after addition)



※To memorize the combined curve.

Press the memory button, then the preset memory button to store the new curve.

■ Combination of preset memorized equalization curves

1. Press the preset-memory button for one of the equalization curves to be combined.
2. Press the equalization-add "EQ plus" button.
3. Press the preset-memory for the other equalization curve to be combined.

■ Combination of a manually set equalization curve and a preset memorized equalization curve

1. Set the equalization level manually (see page 9).
2. Press the equalization-add "EQ plus" button.
3. Press the preset-memory button for the equalization curve to be added.

※The combined equalization curve can also be entered into the preset memory (see page 12).

※The memory button will not function if it is pressed while the indicator of the equalization-add "EQ plus" button is flashing.

※If equalization curves are combined, the display range and the equalization level of the frequency of each is a maximum of ± 12 dB.

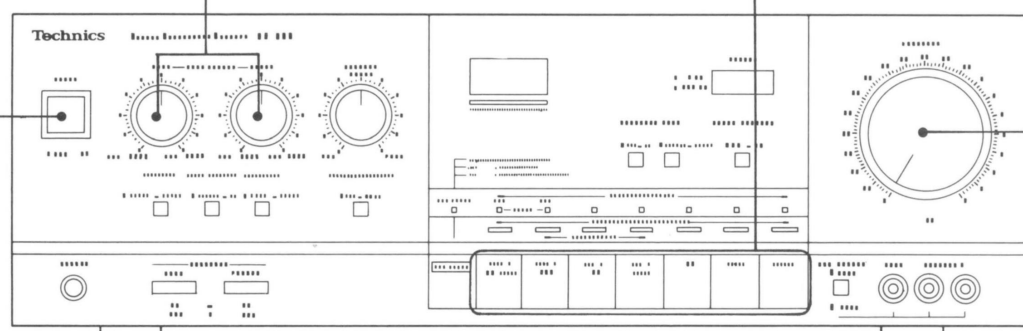
ACTUAL APPLICATION TO MUSICAL PERFORMANCE

- Connection of the input/output terminals (LINE IN/LINE OUT) of this unit to the external input/output terminals (EXT IN/EXT OUT) of an amplifier.

1. Reduce the amplifier's volume control setting to minimum and switch ON the power switch.

2. Tone controls: Center position.

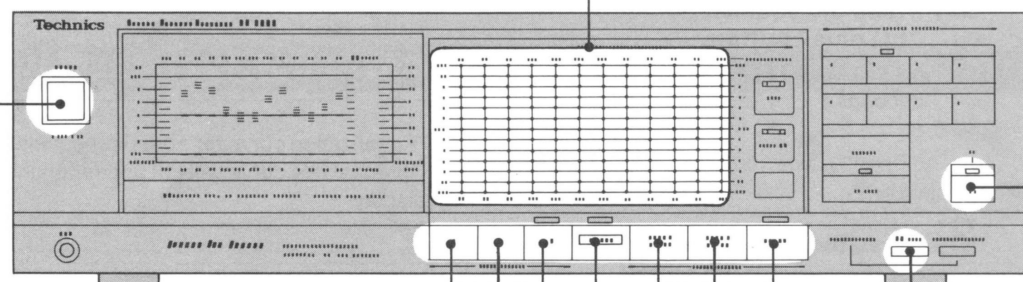
3. Input selectors: Select the sound source.



Amplifier
(option)

8. Begin the sound source (phono disc, radio broadcast, etc.) and then adjust the amplifier's volume level accordingly.

9. Adjust tone quality as desired.
(See page 9.)



This unit
(SH-8066)

7. "on"

4. Select the channel(s) to be corrected or displayed.
(See page 9.)

6. "EQ level"

※ Switch ON if a recording of the corrected sound is to be made.
(Note that this button cannot be switched ON if the equalization button is OFF.)

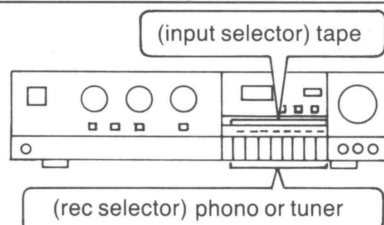
5. Select the sound source.
(See page 6.)

When the power switch is switched OFF

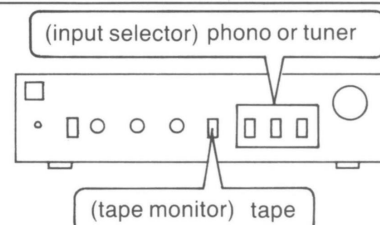
Regardless of the setting of the input selectors, the input and output terminals of this unit will be directly connected (electrically), and equipment connected to the amplifier (disc player, tuner, etc.) can be heard. Note that the power switch must be left ON if the "tape 1" or "tape 2" input selector is being used. If the power switch is OFF, tape sounds cannot be heard.

- Connection of the input/output terminals (LINE IN/LINE OUT) of this unit to the tape input/output terminals (PLAYBACK/REC OUT) of an amplifier (amplifier operation changes from that shown in the figure above to that described below).

- If the amplifier has a recording mode selector and an input selector.



- If the amplifier has a tape-monitor selector and an input selector



EXAMPLES OF APPLICATIONS UTILIZING THE SH-8066 FUNCTIONS

The sound level of the 12 frequency divisions in the 25 Hz~16 kHz frequency range can be easily and selectively corrected by means of the band level control of this unit.

1. Complete audio room correction—including the correction of both stereo equipment and room acoustics.
2. Personalized sound quality control.
3. Creating an original tape collection of tapes tailored to your car stereo, or tapes of live recordings, etc.
4. Reduction of noise, prevention of howling. These are merely a few of the possibilities that sound quality and room acoustic correction open up for the serious listener.

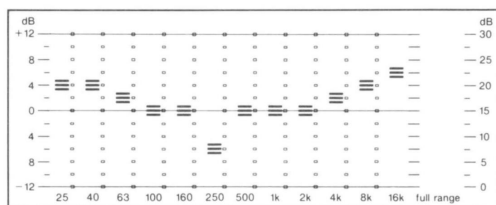
■ Correcting room acoustics

Each room has its own particular effects on frequency characteristics. These effects are determined by a number of conditions, such as rooms size, furnishings, etc.

The 12 separate divisions of the band level control on the SH-8066 make it possible to selectively correct only the frequency ranges necessary to suit the conditions of each listening room.

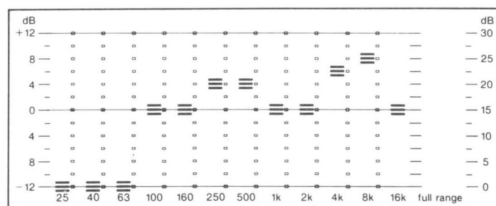
An example of room acoustics correction

In order to correct the peaks and dips in bass sounds caused by reflection, reduce the 250 Hz level 4~6 dB and then, raise the level of sounds below 63 Hz and above 4 kHz slightly.



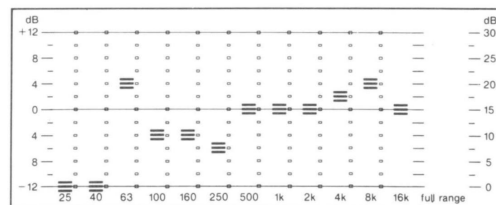
■ Cutting the noise from live recording tapes

Live tapes recorded outdoors generally contain popping noises caused by wind and various other noises from the surrounding area. In order to effectively eliminate wind noise, cut bass sounds below 63 Hz and raise the level of sounds in the 250 Hz~500 Hz range. Then control sounds made by birds, etc., with a 4 kHz and or 8 kHz adjustment.



■ Making tapes for car stereos

Tapes can be made exclusively for the listening conditions inside a vehicle. Merely raise the 63 Hz level 4 dB and completely cut the levels below 40 Hz that are so troublesome for car stereo reproduction. For medium and low frequencies, centering on the 250 Hz vicinity, lower the modulating effect by raising the 4 kHz~8 kHz vicinity by 2~4 dB.

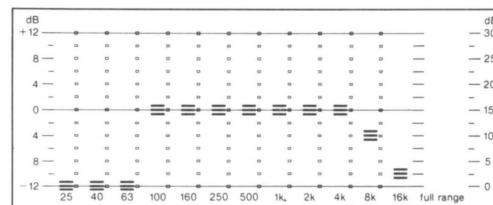


■ Cutting noise from discs

Noises from warped discs are low frequency noise components. Lowering the sound level of the 63 Hz vicinity can eliminate these.

To cut noise in old discs, set all direct-equalization level controls to the "flat" (center) position, and then move them individually to the -12 dB position to find the noise component.

Then, working from this clue, cut the noise so as not to deteriorate the tone quality.

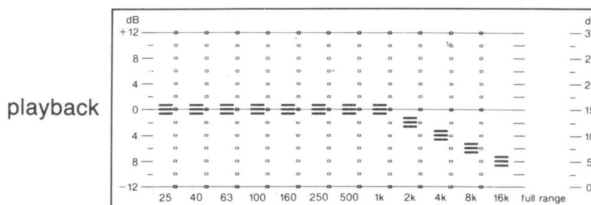
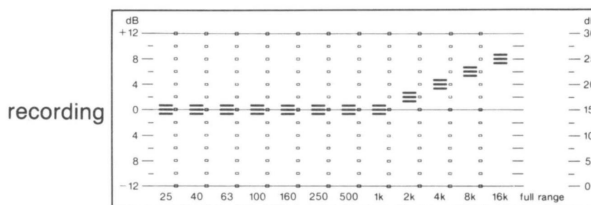


■ Reducing tape hiss

Tape hiss can be effectively reduced by slightly raising the level of high frequency (above 2 kHz) sounds during tape deck recording, and then lowering them during playback.

Note:

If sounds above 8 kHz are raised too much, distortion may result in the tape deck. Prevent this by watching the level meters of the tape deck and setting the recording levels appropriately.



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 Servicenters (enclosed with this unit) to locate a convenient servicenter, or consult your Technics dealer for instructions.

Problem	Probable cause(s)	Suggested remedy
No sound	• Incorrect connection.	• Refer to page 5.
	• Input selectors are set to incorrect position.	• Set them correctly (according to the desired sound source).
Correction is not possible at recording	• The equalization button is set to the off position.	• Set the equalization button to the on position.
	• The equalization-record button is switched OFF.	• Switch it ON.
Correction is not possible at playback	• The equalization button is set to the off position.	• Set the equalization button to the on position.
No display appears on the spectrum analyzer.	• The "EQ level" display-mode button is pressed.	• Press the "spectrum analyzer" display-mode button.
The spectrum display for the desired channel does not appear.	• The incorrect channel selector is pressed.	• Press the correct one.
The equalization level display does not appear.	• The "spectrum analyzer" display-mode button is pressed.	• Press the "EQ level" display-mode button.
The equalization level display for the desired channel does not appear.	• The incorrect channel selector is pressed.	• Press the correct one.
No pink noise is heard.	• The microphone is not connected.	• Connect it.

TECHNICAL SPECIFICATIONS

(IHF '78)

Frequency response (center position)	: 10 Hz~50 kHz, -1 dB
Maximum output voltage	: 8 V (1 kHz, THD 0.03%)
Rated output voltage	: 1 V
Rated input voltage	: 1 V
Rated total harmonic distortion	: 0.003% (20 Hz~20 kHz) 1V output
Input sensitivity	: 150 mV
Signal-to-noise ratio	: above 113 dB/2 V, 107 dB/1 V (IHF,A)
Maximum input voltage	: 8 V (1 kHz)
Input impedance	: 22 kΩ
Gain	: 0±1 dB
Band level controls	: +12 dB~-12 dB (2 dB step)
Center frequency	: 25 Hz, 40 Hz, 63 Hz, 100 Hz, 160 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz
Compatible microphone sensitivity	: above -74 dBV/μbar (1 kHz)

GENERAL

Power supply	: AC 120 V 60 Hz
Power consumption	: 17 W
(With power switch OFF)	: 3 W
Dimensions (H×W×D)	: 119×430×272 mm (4 ¹ / ₁₆ "×16 ¹ / ₁₆ "×10 ²³ / ₃₂ "
Weight	: 3.8 kg (8.4 lb)

MAINTENANCE OF EXTERNAL SURFACES

To clean, use a soft dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap and water 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 benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may mar the finish of your unit.

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