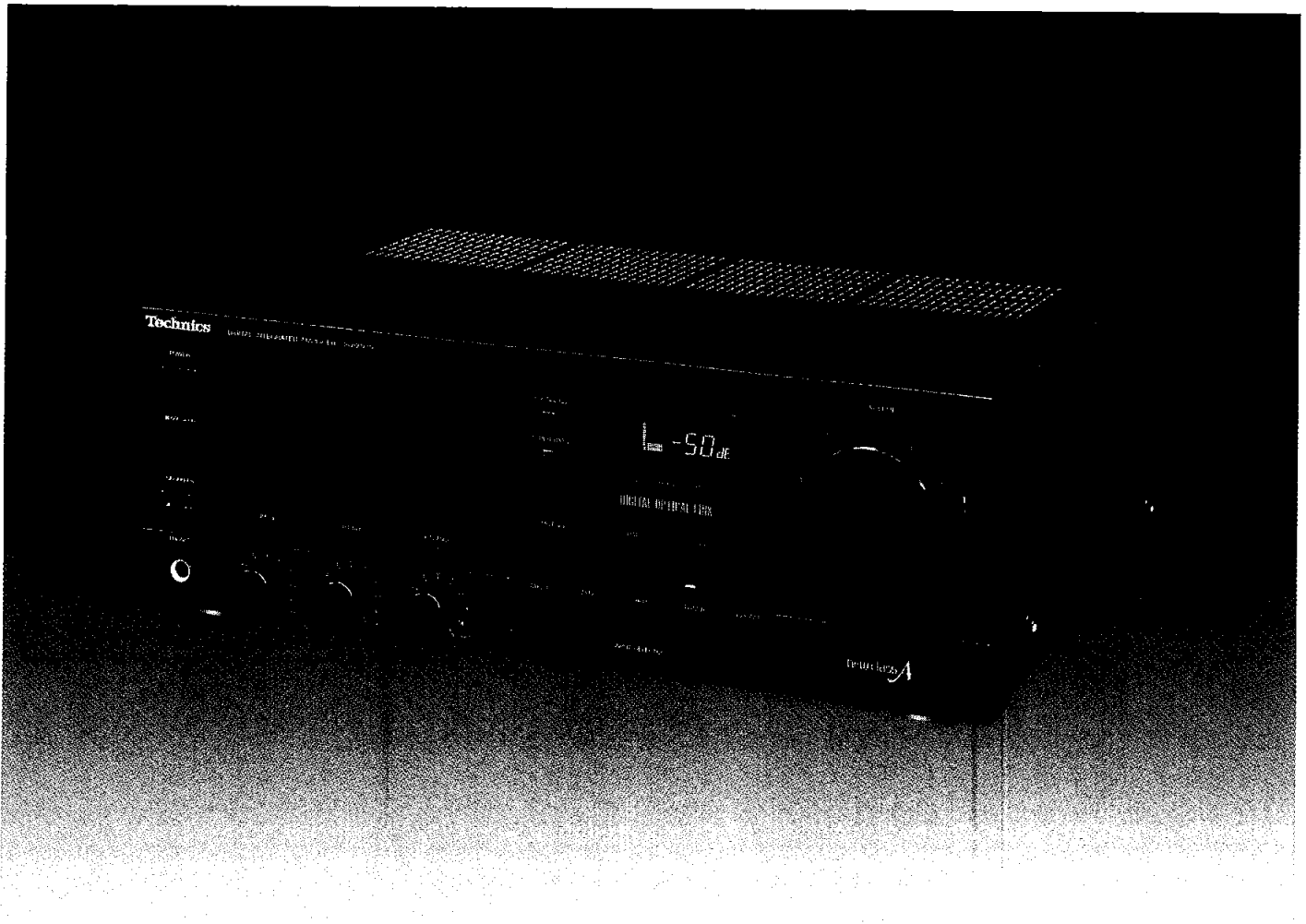


Technics

DIGITAL INTEGRATED AMPLIFIER

SU-X955

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

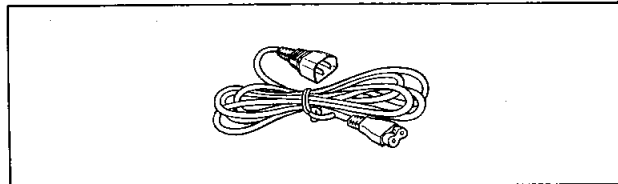
from this new addition to your home. Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

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Accessory

- AC power supply cord (Refer to page 5.)..... 1



For United Kingdom

("EB" area code model only)

The "EB" indication is shown on the name plate.

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.

This apparatus was produced to BS 800: 1983.

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 appliances with a large power consumption are 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. Be careful that curtains and similar materials do not obstruct the ventilation holes.

■ 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.

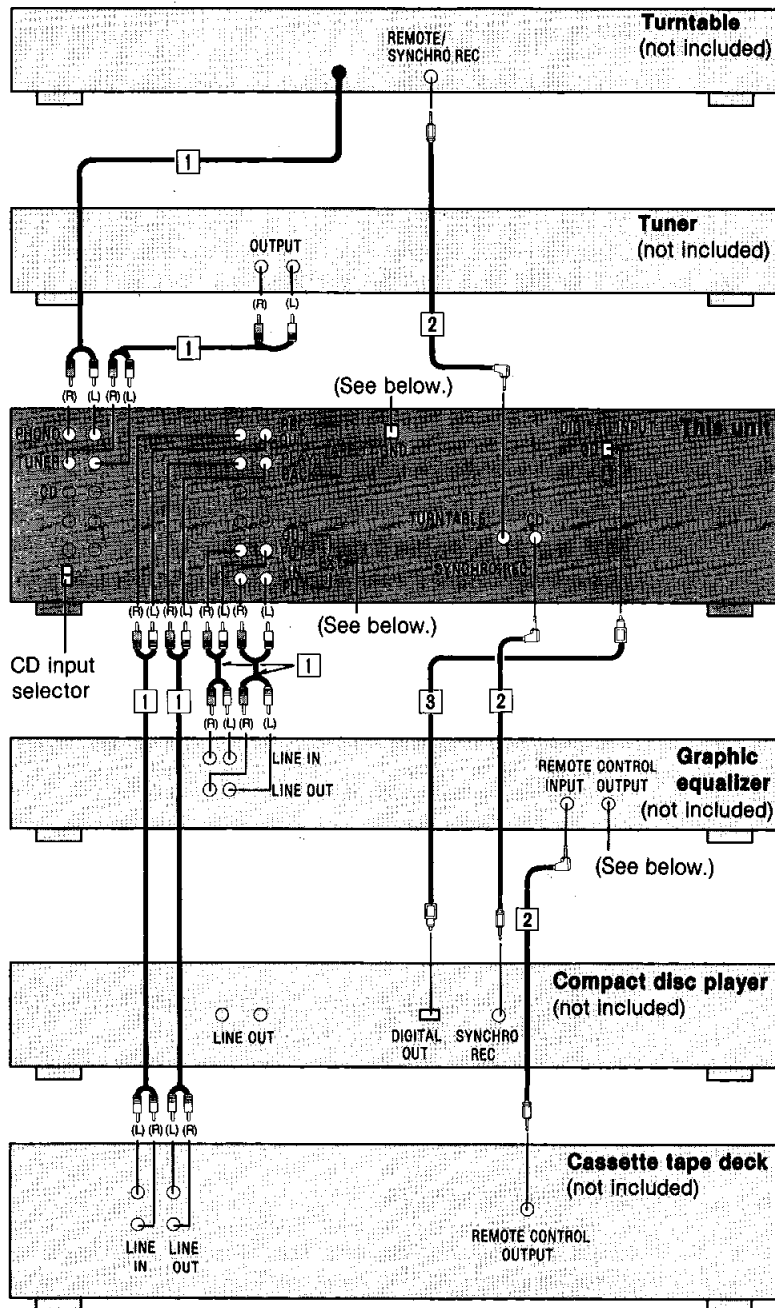
■ Disconnect the power supply cord if the unit will not be used for a long time

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

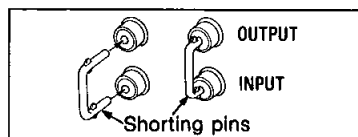


■ "GND" terminal of this unit

This terminal is for use with a turntable which has a ground wire.

■ "EXT" terminals of this unit

When these terminals are not in use, be sure to insert the shorting pins (included).



■ "REMOTE CONTROL OUTPUT" terminal of the graphic equalizer

This terminal is used to connect the compact disc player with the remote-control terminal.

Connection diagrams shown are for connections to a Technics hi-fi component system. Make connections in the numbered sequential order.

- 1 Connect the stereo connection cables** (included with the turntable, tuner, graphic equalizer, and cassette tape deck).
- 2 Connect the L-type cables** (included with the turntable, compact disc player, and graphic equalizer).
- 3 Connect the optical-fiber cable** (included with the compact disc player).

■ Compact disc player connections

If your compact disc player does not have the "DIGITAL OUTPUT" terminal, use stereo connection cables (not included) to make the connections between the "CD" terminals of this unit and the "LINE OUT" terminals of the compact disc player. If this type of connection is made, this unit's CD input selector should be set to "ANALOG".

■ CD input selector of this unit

This selector is used for selection of the format (analog or digital) of the input signals from the compact disc player.

ANALOG: Set to this position if stereo connection cables are used.

DIGITAL: Set to this position if an optical-fiber cable is used.

Notes:

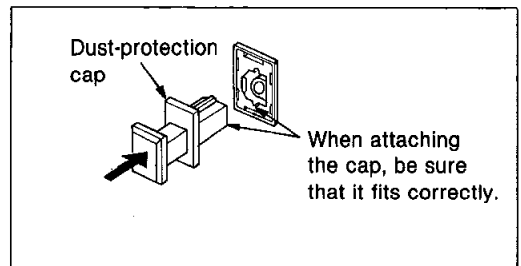
1. Be sure the power switch of this unit is switched OFF before changing the setting of this selector. (Interference noise may be emitted if the power switch is ON.)
2. The setting of this selector must be made correctly; if not, no sound will be emitted when the "CD" input selector of the front panel of this unit is selected.

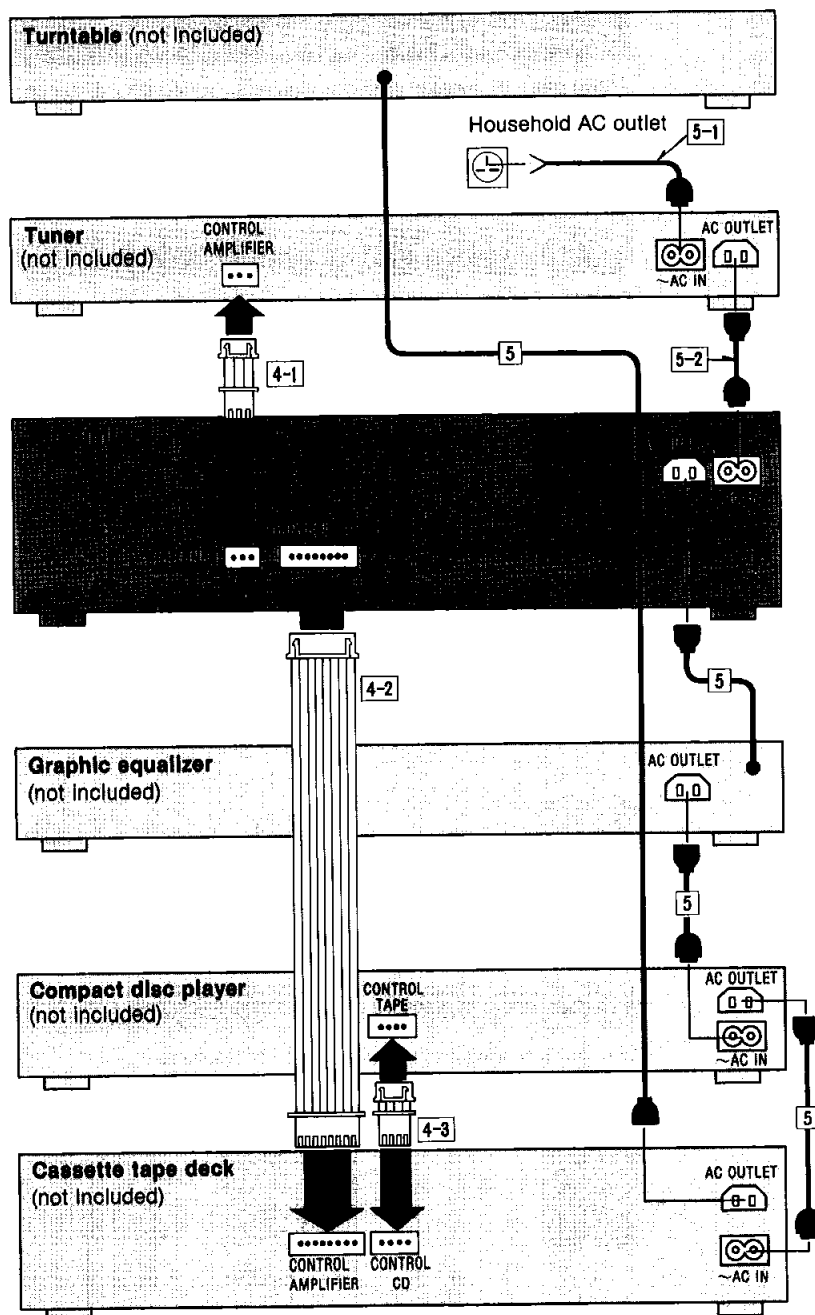
■ "DIGITAL INPUT" terminals of this unit

These terminals are protected by the dust-protection caps to avoid damage by the dust, etc.

Remove the caps only when the "DIGITAL INPUT" terminals are to be used.

When these terminals are not being used, attach the caps as shown in the illustration below.





4 Connect the flat cables.

4-1 Connect the 3-core flat cable (included with the tuner).

4-2 Connect the 8-core flat cable (included with the cassette tape deck).

4-3 Connect the 4-core flat cable (included with the cassette tape deck).

5 Connect the AC power supply cords.

5-1

- ① Connect this cord only after all other cables and cords have been connected.
- ② Fit a suitable plug to an AC power supply cord.

Household AC outlet

5-2

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" on page 2.)

Note:

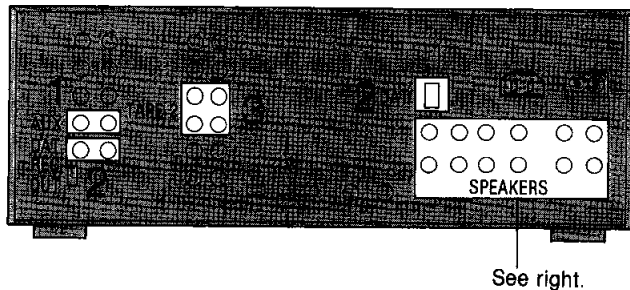
If the graphic equalizer is not used in combination with these components, connect the AC power supply cord of the compact disc player to the AC outlet of the amplifier. If the compact disc player is not used in combination with these components, connect the AC power supply cord of the cassette tape deck to the AC outlet of the graphic equalizer.

■ About the AC outlets of the each components

Do not connect video-related equipment (such as a TV, etc.) to the AC outlets of these components. (These outlets are especially for audio equipment.) Also do not exceed the indicated power ratings when connecting to these outlets.

- "SWITCHED" outlets (For tuner, this unit, cassette tape deck)
Power is controlled by the power switch of each unit.
- "UNSWITCHED" outlets (For compact disc player, graphic equalizer)
Power is always available, regardless of power switch setting.

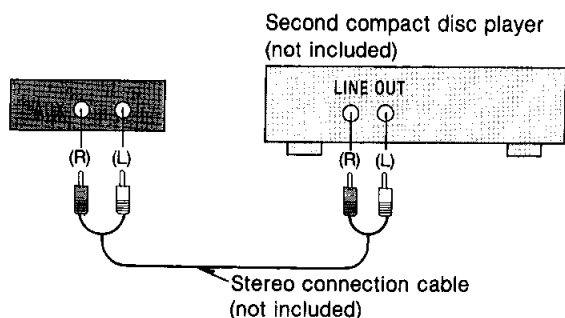
Connections (continued)



Connection to other equipment

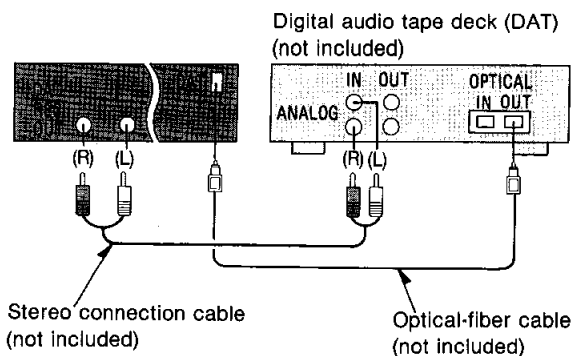
1

Connect a second compact disc player, etc.



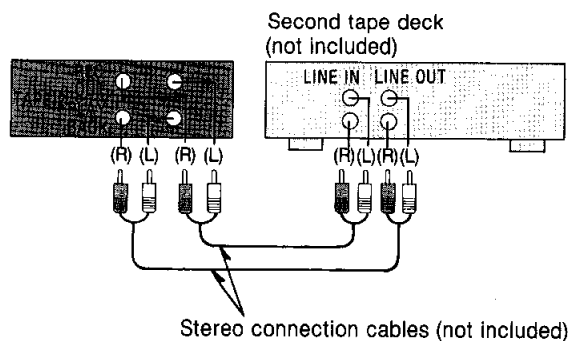
2

Connect a digital audio tape deck (DAT).
Recording can be made to the digital audio tape deck.



3

Connect a video cassette recorder (for audio only) or a second audio tape deck.



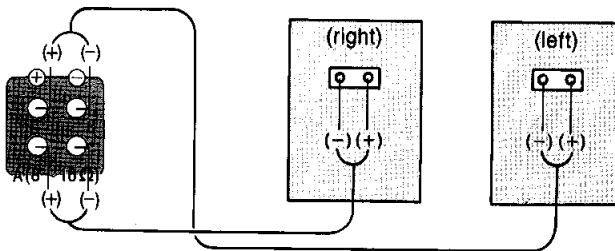
Connection to speaker systems

Three pairs of speaker systems (main, surround-sound, second) can be connected to this unit.

Speaker systems that can be connected (to any of the speaker connection terminals of this unit) are speaker systems with an impedance of 8 to 16 ohms.

MAIN SPEAKER SYSTEM (A)

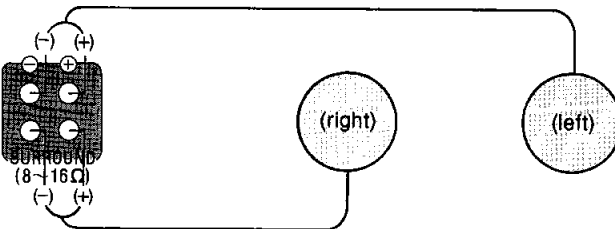
Connect the speaker systems to the "A" terminals.



SURROUND SPEAKER SYSTEM (B)

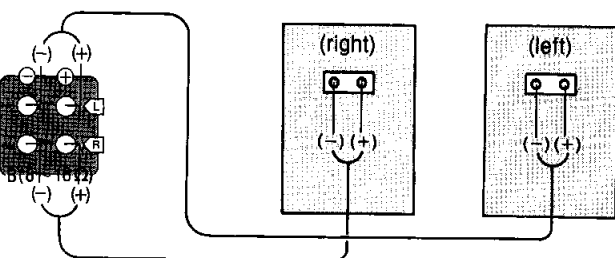
Connect the speaker systems to the "SURROUND" terminals.

- Be sure to connect both speaker systems. If only one side is connected, no sound will be heard.



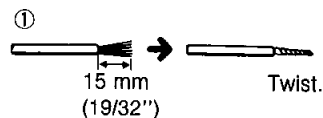
SECOND SPEAKER SYSTEM (B)

Connect the speaker systems to the "B" terminals.



To connect cords to terminals

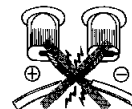
- Strip off the outer covering, and twist the center conductor.
- Turn completely to the left.
- Insert the wire and turn completely to the right. Pull the wire to assure a proper connection.



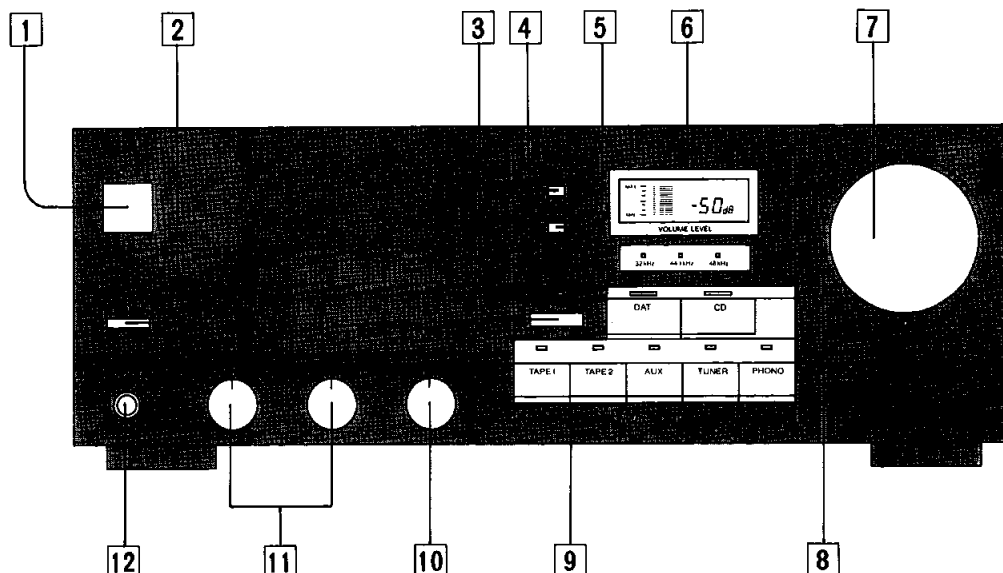
Note: Be sure to only connect positive (+) cords to positive (+) terminals, and negative (-) cords to negative (-) terminals.

Note:

To prevent damage to circuitry, never short-circuit the plus (+) and minus (-) speaker terminals.



Front Panel Controls and Functions



1 Power switch (POWER)

7 Volume control (VOLUME)

This control is used to adjust the volume level.

2 Speaker selector (SPEAKERS)

This selector is used to select the speaker systems to be used.

A (A → B):

Sound can be heard from the speakers connected to the "A" and "SURROUND" terminals.

B (B → A):

Sound can be heard from the speaker systems connected to the "B" terminals.

In this position, sound cannot be heard from the speaker systems connected to the "SURROUND" terminals.

3 Audio muting switch/indicator (MUTING)

This switch is used to temporarily reduce the volume level (approx. 1/10).

The indicator will illuminate when the switch is pressed to ON.

4 Surround-sound switch (SURROUND)

This switch is used to switch the surround sound effect ON and OFF. (The switch itself will illuminate when the switch is switched ON.)

5 Super bass switch (SUPER BASS)

This switch is used to reinforce the ultra-low frequency sound range. The switch itself will illuminate when the switch is switched ON.

6 Volume-level indicator (VOLUME LEVEL)

The volume level is indicated in decibels (dB).

The dB indication numerically shows the attenuation characteristic of the amplifier; the indication ranges from "— dB" (minimum) to "0 dB" (maximum).

The volume level becomes greater as the indication proceeds from —76 to —74 to —72 dB.

8 Sampling frequency indicators

The appropriate indicator will illuminate whenever a digital signal with one of the sampling frequencies listed below is detected at the "DIGITAL INPUT" terminals on the rear panel of this unit.

Note that some digital components (compact disc players, etc.) emit digital signals whenever their power switches are ON.

32 kHz: For digital signals with the 32-kHz mode sampling frequency

44.1 kHz: CD and others

48 kHz: For digital signals with the 48-kHz mode sampling frequency

9 Input selectors/Indicators (INPUT SELECTOR)

These selectors are used to select the sound source to be heard, such as a disc, radio broadcasts, etc. The corresponding indicator illuminates during operation to indicate the selected sound source.

10 Balance control (BALANCE)

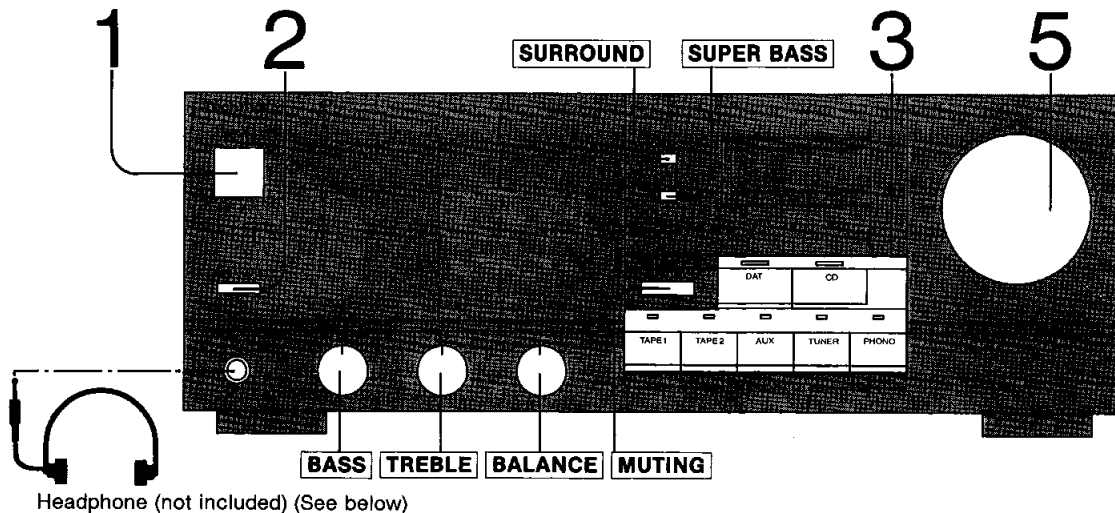
This control is used to adjust the left/right volume balance.

11 Tone controls (BASS/TREBLE)

The bass control is used to adjust the low-frequency sound range, and the treble control is used to adjust the high-frequency sound range.

12 Headphones jack (PHONES)

Listening to the Sound



Standard operating procedures

1 POWER

Switch ON the power switch.

Note:

Switch ON the power of the tuner when the AC power supply cord of this unit is connected to the AC outlet of the tuner.

2 SPEAKERS

Select the speaker system [main (A)/surround-sound or second (B)] to be used.

3 INPUT SELECTOR

Select the sound source.

DAT: Press to listen to digital audio tapes.

CD: Press to listen to compact discs.

TAPE 1: Press to listen to tapes.

TAPE 2: Press to listen to sound from equipment connected to the "TAPE 2" terminals.

AUX: Press to listen to sound from equipment connected to the "AUX" terminals.

TUNER: Press to listen to radio broadcasts.

PHONO: Press to listen to phono discs.

4 Begin operation of the system components to be used.

Refer to the operating instructions of each component.

5 VOLUME

Adjust the volume level.

- Reduce the volume level before connecting headphones.
- Sound from the speakers will not be heard when the headphones are connected to the headphones jack.
- Avoid listening for a long time at a volume level so high that it irritates the ears.

While listening to music

SURROUND

Press this button to activate the surround-sound effect. (The switch itself will illuminate.)

Note:

Note that the surround-sound effect is not recorded on the digital audio tape deck. The surround-sound effect is only effective for phono discs, compact discs, tapes that are recorded in stereo, and for FM and other broadcasts that are broadcast in stereo. It has no effect for monaural AM broadcasts, or for any other monaural source.

When listening to a sound source recorded by the surround-sound method, press this button so that the illumination stops.

The effect by using surround-sound speaker systems



An effect similar to the dynamic sound of a concert hall

SUPER BASS

Press this button if the ultra-low frequencies seem strong.

(The illumination of the switch will extinguish.)

MUTING

Press this button to temporarily reduce the volume level.

(The indicator will illuminate.)

This is convenient to use if a visitor comes or the telephone rings. Press once again to return to the previous volume level.

BALANCE

Adjust the balance for the left/right volume.

TREBLE

Adjust the high-frequency sound to the desired tone quality.

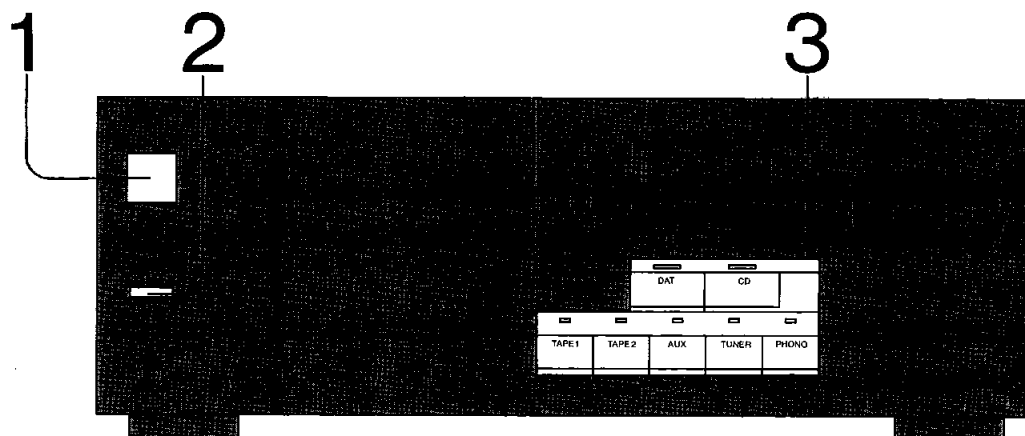
BASS

Adjust the low-frequency sound to the desired tone quality.

After listening is finished

Use the volume control to reduce the volume level and switch OFF the power of each unit.

Recording



To record from compact discs, etc.

1 **POWER**

Switch ON the power switch.

Note:

Switch ON the power of the tuner when the AC power supply cord of this unit is connected to the AC outlet of the tuner.

2 **SPEAKER**

Select the speaker system [main (A)/surround-sound or second (B)] to be used.

3 **INPUT SELECTOR**

Select the program source to be recorded.

4 **Begin the operation of the sound source to be recorded.**

Refer to the operating instructions of each component.

5 **Adjust the recording level by using the controls on the tape deck or digital audio tape deck (DAT). Then begin recording.**

Refer to the operating instructions of the tape deck or DAT.

Note:

Do not switch to another sound source during recording, because to do so will cause the recorded sound to be interrupted.

About the Direct-Operation Function

The direct-operation function is a convenient function for changing from one performance to another by simply beginning the performance to be heard next at that component, without the necessity of pressing the corresponding input selector of this unit.

This function can be used when the various Technics components are connected as described on pages 4 and 5.

Edit-recording

Tape-to-tape recordings can be made if two regular tape decks, or one regular tape deck and a digital audio tape (DAT) deck, are connected to the rear panel of this unit.

■ To record from tape deck 1 to tape deck 2 (or a digital audio tape deck)

1. Follow the steps at the left; at step 3, select "TAPE 1".
2. Start the tape playback at tape deck 1 and, at the same time, begin the recording at tape deck 2 (or a digital audio tape deck).

■ To record from tape deck 2 (or a digital audio tape deck) to tape deck 1

1. Follow the steps at the left; at step 3, select "TAPE 2" (or "DAT").
2. Start the tape playback at tape deck 2 (or digital audio tape deck) and, at the same time, begin the recording at tape deck 1.

Note:

The term "tape deck 1" used above refers to the tape deck connected to the "TAPE 1" terminals on the rear panel of this unit, and "tape deck 2" refer to the tape deck connected to the "TAPE 2" terminals.

Synchro-recording

"Synchro-recording" is a convenient feature that can be used to start a tape recording of the sound from a phono disc or compact disc by simply starting the play of that disc; moreover, the recording mode automatically changes to the pause mode when the disc play ends.

This function can be used when the Technics turntable or compact disc player are connected as described on pages 4 and 5.

The sound source can be selected by using the following keys on the components.

■ Listening to phono discs

Press the start key of the turntable.

■ Listening to radio broadcasts

Press the desired preset-tuning key of the tuner.

■ Listening to tapes

Press the playback key of the cassette tape deck.

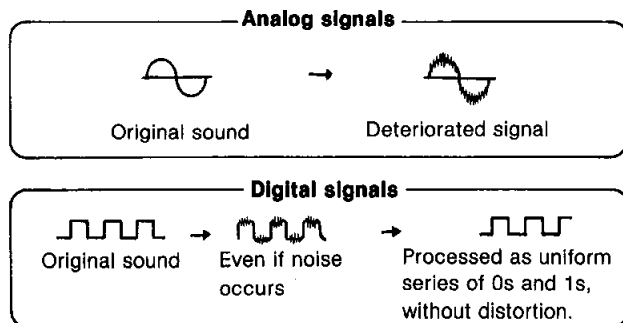
■ Listening to compact discs

Press the play key of the compact disc player.

Digitalization of Audio Signals

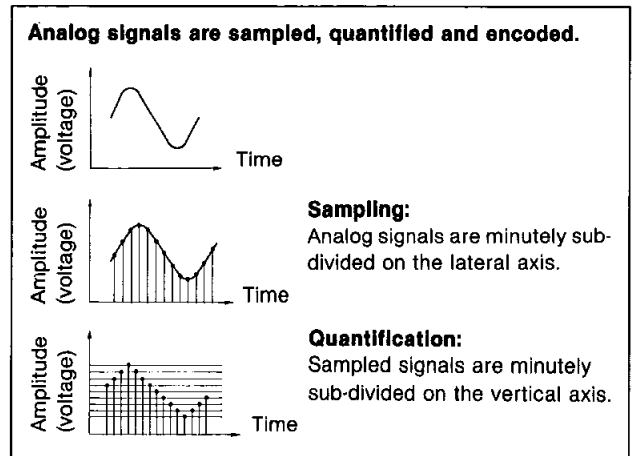
Why digitize?

- Audio signals are analog signals with a continuous form.
- When these audio signals are subjected to repeated electronic processing (recording, playback, etc.), they become noisy and distortion occurs, thus resulting in deterioration of the sound quality.
- If these signals are digitized before processing, they have the following advantages that prevent deterioration of the sound quality:
 - ① Resistance to noise
 - ② Extremely low distortion
 - ③ Flat, even frequency response

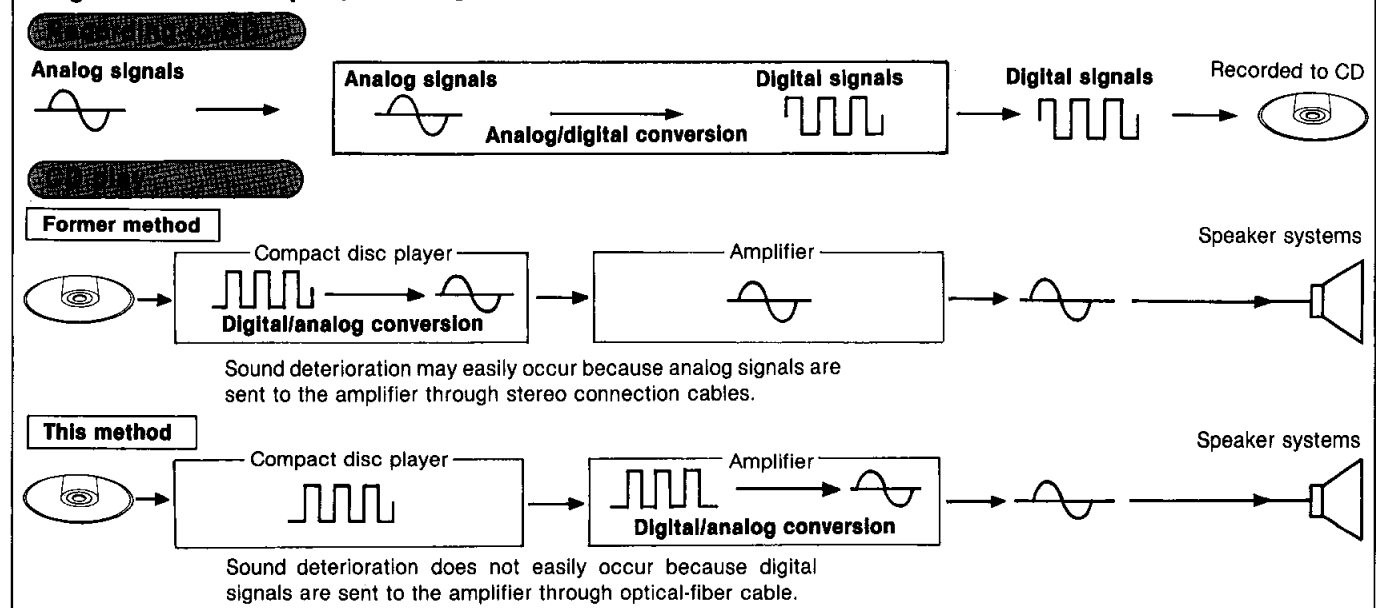


How signals are digitized

If it is known to what degree of minuteness the human ear can distinguish sounds, it is then possible, by using that data as the standard reference, to digitize them by dividing analog signals into minute pieces, after which they can be transmitted with a high degree of precision, and thereafter recorded and played back in the digitized format.



Digitalization example (recording to CD and play of CD)



The sampling frequency expresses the degree of minuteness to which signals can be cut, relative to a certain specified time interval, during sampling.

For compact disc sound:

Analog signals are cut 44,100 times (i.e., 44.1 kHz) during one second.

This 44.1 kHz is, therefore, the sampling frequency for compact disc sound.

Audio signals (analog signals) are taken out (sampled) at certain fixed time intervals. The points at which this sampling frequency occurs are digitally encoded and converted to digital signals.

Each sampling frequency point is returned (converted) to voltage, thus converting digital signals to the analog signals that we can hear.

Technical Specifications (DIN 45 500)

■ AMPLIFIER SECTION

DIN power output	
1 kHz THD: 1 %	2 × 60 W (8 Ω)
Total harmonic distortion	
rated power at 1 kHz	1 % (8 Ω)
Harmonic distortion	
half power at 1 kHz	0.009 % (8Ω)
Residual hum and noise	0.2 mV
Damping factor	30 (8 Ω)
Input sensitivity and impedance	
PHONO	3 mV/47 kΩ
TUNER, AUX, TAPE 1, TAPE 2	150 mV/22 kΩ
CD	200 mV/22 kΩ
Maximum input voltage (1 kHz, RMS)	
PHONO	100 mV
S/N (rated power 8 Ω)	
PHONO	75 dB (IHF, A, 79 dB)
TUNER, CD, AUX, TAPE 1, TAPE 2	82 dB (IHF, A: 83 dB)
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, CD, AUX, TAPE 1, TAPE 2	15 Hz~55 kHz (−3 dB)
CD, DAT (digital section)	15 Hz~20 kHz (−0.5 dB)
Tone controls	
BASS	50 Hz, +10 dB~−10 dB
TREBLE	20 kHz, +10 dB~−10 dB
Muting	−20 dB
Super bass	70 Hz, +10 dB

Output voltage	150 mV
TAPE 1, TAPE 2, REC OUT	±1.0 dB
Channel balance, AUX 250 Hz~6,300 Hz	60 dB
Channel separation, AUX 1 kHz	520 mV/330 Ω
Headphones output level and impedance	
Load impedance	8 Ω~16 Ω
A or B	8 Ω~16 Ω
SURROUND	

■ GENERAL

Power consumption	370 W
Power supply	AC 50 Hz/60 Hz, 240 V
Dimensions (W × H × D)	360 × 128 × 300 mm (14-3/16" × 5-1/32" × 11-13/16")
Weight	6.8 kg (15 lb.)

Notes:

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

Maintenance

To clean this unit, use a soft, dry cloth.
For very dirty surfaces, dip a soft cloth in a weak soap-and-water solution or a weak detergent solution and wring well. After cleaning, wipe with a soft, dry cloth.

Never use alcohol, paint thinner, benzine, or a chemically treated cloth to clean this unit.
Such chemicals may damage the unit's finish.

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
Problems noted at all times		
No sound is heard when the power is switched ON.	The power cord plug is not completely inserted.	• Confirm that the power cord plug is connected completely.
	Connections are incomplete or incorrect to the speaker systems, etc.	• Check to be sure that all connection wires are correctly connected.
	The incorrect input selector has been pressed.	• Check to be sure that the correct selector is pressed.
	The speaker selector is set incorrectly.	• Set it to the correct position.
When listening to stereo sound, the sound lacks depth (i.e. thin bass, tinny sound).	One of the speakers is connected out of phase [(+)→(-), (-)→(+)].	• Reconnect the speakers maintaining proper polarity [i.e., (+)→(+), (-)→(-)].
When listening to stereo sound, the left and right sounds are reversed.	The left and right speaker connections, source connections, or graphic equalizer connections are reversed.	• Check all connections and correct them if necessary.
A low-pitched noise ("hum" or "buzz") is heard.	The power cord or a fluorescent light, etc., is near the connection wires.	• Try separating this unit as far as possible from the electric appliance.
Sound is not heard from one of the speaker systems.	The speaker wires are disconnected.	• Check and correct the connections of the speaker wires.
	The balance control is set too far to one side.	• Set so that sounds are heard at the center, between the speaker systems.
Sound stops during a performance, or no sound is heard when the power is switched ON.	The protection circuitry has functioned because the positive and negative speaker connection wires are "shorted" or speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.	• Switch OFF the power, and, after determining and correcting the cause, switch ON the power once again. • Use a speaker system of the proper impedance rating.

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

