Technics

Digital Control Amplifier

SU-A60

OPERATING INSTRUCTIONS

Notes:

- Specifications differ according to the area code.
- The "EK" area code, for example, indicates United Kingdom specifications.
- The "EK" 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.

Contents

For United Kingdom ("EK" area code model only)

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

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 unit 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.

Technical Specifications (DIN 45 500)

■ PRE AMP. SECTION

Input sensitivity and impedance
- **PHONO MM** 2.5 mV/47kΩ
- **MC** 170 μV/220Ω
- **TUNER, CD, AUX, TAPE 1, TAPE 2/DAT** 150 mV/18kΩ
- **DIRECT** 1 V/47kΩ

PHONO maximum input voltage (1 kHz, RMS)
- **MM** 170 mV
- **MC** 13 mV

S/N
- **PHONO MM** 79 dB (88 dB, IHF, A)
- **MC** 70 dB (72 dB, 250 μV, IHF, A)
- **TUNER, CD, AUX, TAPE 1, TAPE 2/DAT** 100 dB (IHF, A: 106 dB)
- **DIRECT** 106 dB (IHF, A: 115 dB)

Frequency response
- **PHONO** RIAA standard curve ±0.2 dB (20 Hz~20 kHz)
- **TUNER, CD, AUX, TAPE 1, TAPE 2/DAT** 0.8 Hz~150 kHz (−3 dB), +0, −0.1 dB (20 Hz~20 kHz)
- **DIRECT** 0.8 Hz~150 kHz (−3 dB)

Tone controls
- **BASS** 50 Hz, +10 dB~−10 dB
- **TREBLE** 20 kHz, +10 dB~−10 dB

Subsonic filter 19 Hz, −6 dB/oct.

Loudness control (volume at −30 dB) 50 Hz, +9 dB

Muting −20 dB

Output voltage and impedance
- **OUTPUT** rated 1V/4Ω, max. 10V
- **TAPE, 1, 2/DAT REC OUT** 150 mV

Channel balance, AUX 250 Hz~6,300 Hz ±1 dB

Channel separation, AUX 1 kHz 55 dB

Total harmonic distortion (20 Hz~20 kHz)
- **PHONO MM** 0.002%
- **PHONO MC** 0.003%
- **TUNER, CD, AUX, TAPE 1, 2/DAT** 0.002%
- **DIRECT** 0,0009%

■ DIGITAL SECTION

Harmonic distortion 0.0015%

Total harmonic distortion 0.0025%

S/N 111 dB

Dynamic range 99 dB

Frequency response 2 Hz~20 kHz, +0.3 dB, −0.3 dB

■ GENERAL

Power consumption 20W

Power supply
- **For continental Europe** AC 50 Hz/60 Hz, 220V
- **For United Kingdom, Australia and others** AC 50 Hz/60 Hz, 110V/127V/220V/240V

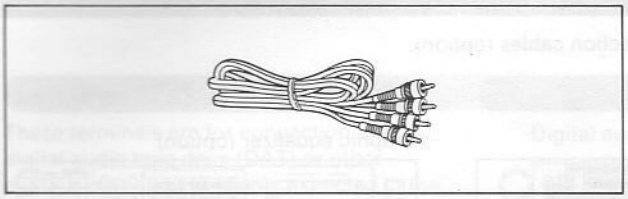
Dimensions (W×H×D) 430 × 103 × 290 mm (16-15/16" × 4-1/16" × 11-6/16")

Weight 4.9 kg (10.78 lb.)

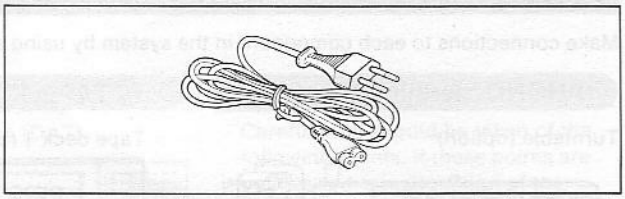
Notes:
1. Specifications are subject to change without notice.
   Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Accessories

• Stereo connection cable (Refer to page 4.) 1



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



For some areas, the power cord is directly attached to the unit. Configuration of AC power supply cord differs according to area.

Suggestions for Safety

■ Use a standard electrical AC wall outlet

1. **Use from an AC power source of high voltage, such as for air conditioners, is very dangerous.**
   Be extremely careful not to make a connection to the electrical outlet for a large air conditioner or central-heating unit which uses high voltage, because there is the possibility of fire.
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.

■ Connection and removal of the power cord plug

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Don't pull the power cord.**
   Always grasp the plug; never pull the cord itself.

■ 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 accidently touched.

■ For families with children

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.

■ Turn off after use

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 unexpected trouble.

■ 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.

■ Place the unit where it will be well ventilated, and away from direct sunlight

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

■ Keep the unit away from heaters, etc.

Heat can damage the external surfaces as well as internal circuits and components.

■ 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 may damage the finish.

■ 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.

Before Use

Be sure to disconnect the mains cord before adjusting the voltage selector.
Use a minus (−) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.

(If the power supply in your area is 117 V or 120 V, set to the "127 V" position.)
Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

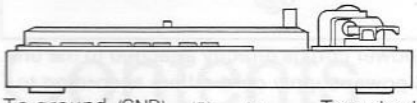
Connections

Connections to analog terminals

Make connections to each component in the system by using stereo connection cables (option).

"PHONO" terminals

Turntable (option)

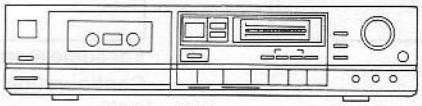


To ground terminal — (GND) (R) (L) — To output terminals

Ground wire (option)

"TAPE 1" terminals

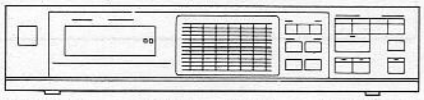
Tape deck 1 (option)



To input ("LINE IN") terminals — (R)(L) (R)(L) — To output ("LINE OUT") terminals

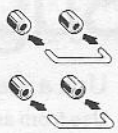
"GRAPHIC EQ/EXT" terminals

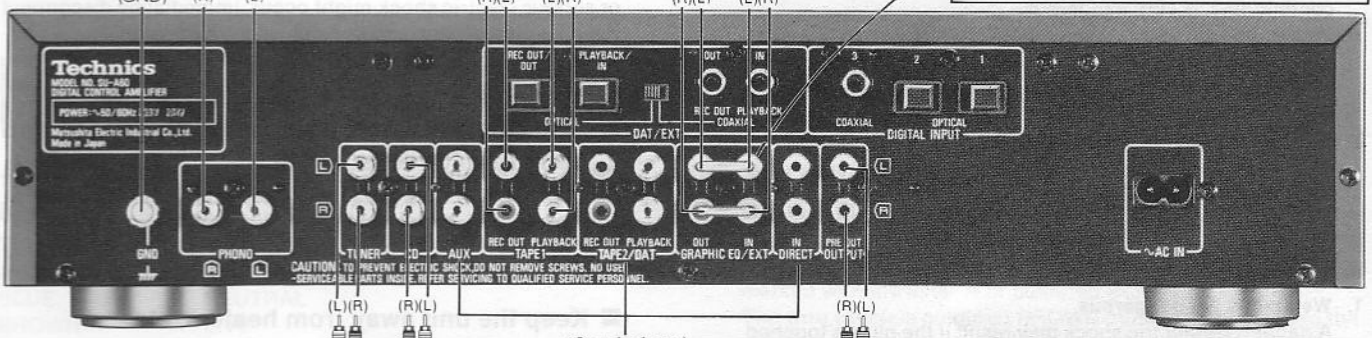
Graphic equalizer (option)



To input ("LINE IN") terminals — (R)(L) (R)(L) — To output ("LINE OUT") terminals

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





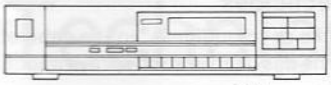
(GND) (R) (L) (R)(L) (L)(R) (R)(L) (L)(R) (L)(R) (R)(L) (R)(L)

(See below.)

Stereo connection cable (included)

"TUNER" terminals

Tuner (option)

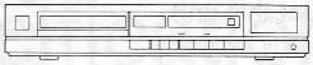


(R)(L)

To output terminals

"CD" terminals

Compact disc player (option)

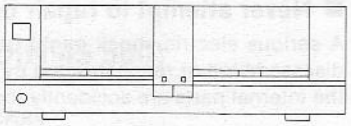


(L) (R)

To output terminals

"OUTPUT" terminals

Power amplifier (option)

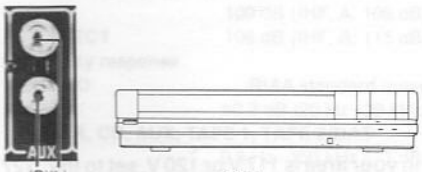


(L) (R)

To input terminals

"AUX" terminals

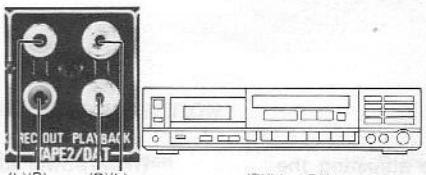
Video disc player (audio only connectable) (option), etc.



(R)(L) (R)(L) — To output terminals

"TAPE 2/DAT" terminals

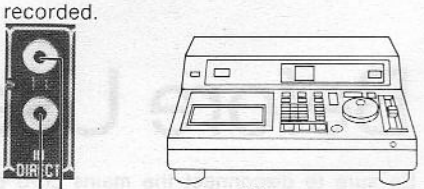
Second tape deck (option) or digital audio tape deck (DAT) (option)
To connect a DAT, refer to page 5.



(L)(R) (R)(L) — To output terminals — (R)(L) (R)(L) — To input terminals

"DIRECT" terminals

Connect equipment of superior sound quality [such as a compact disc player (option), etc.] (Refer to the right on page 8). The sounds from a component connected to this terminals cannot be recorded.



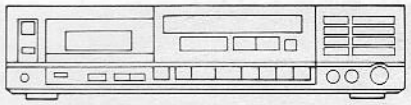
(R)(L) — To output terminals

Connections to digital terminals

"DAT/EXT" terminals

These terminals are for connection of a digital audio tape deck (DAT) or other digital external components expected in the future.
This unit is provided with both optical and coaxial terminals; use the optical/coaxial selector to select one or the other.
When recording from an analog-type component to a digital audio tape deck (DAT), make connections to the analog terminals ("ANALOG") of the digital audio tape deck (DAT) and to the "TAPE 2/DAT" terminals of this unit.

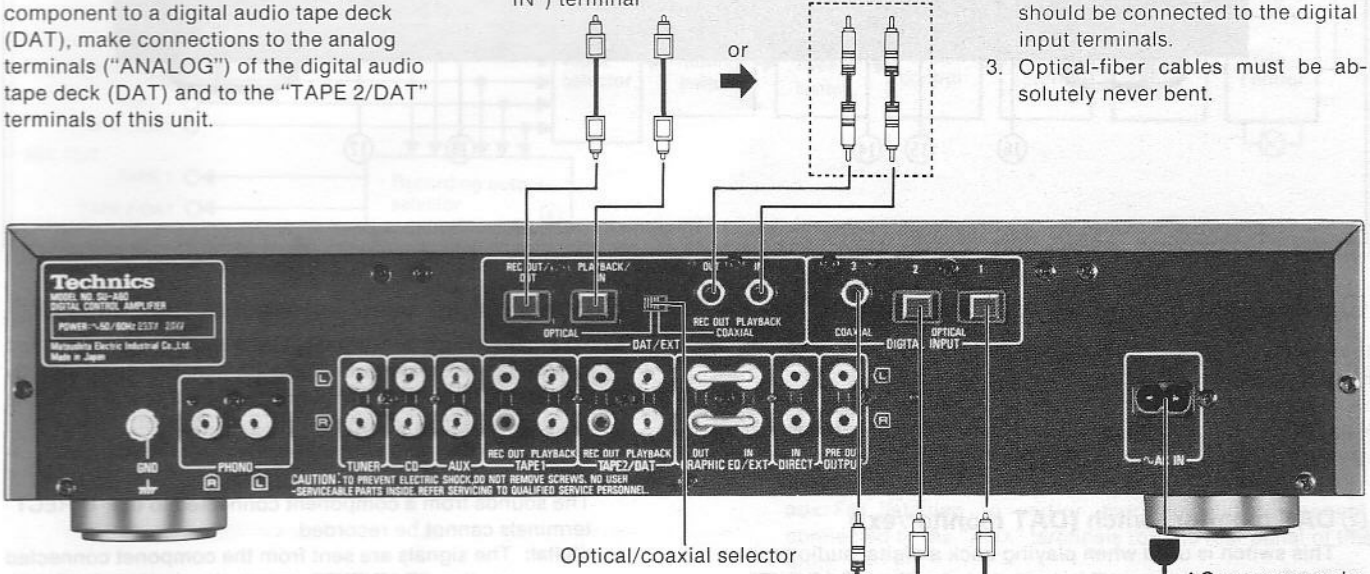
Digital audio tape deck (DAT)



To input ("OPTICAL IN") terminal

To output ("OPTICAL OUT") terminal

or



Optical/coaxial selector

AC power supply cord (included)

Household AC outlet

Note

Careful note should be taken of the following points. If these points are not heeded, a malfunction of the unit's operation could occur.

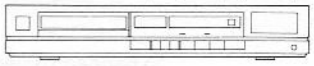
1. Coaxial cables must be absolutely never connected to the analog terminals.
2. Only digital-type components should be connected to the digital input terminals.
3. Optical-fiber cables must be absolutely never bent.

- For some areas, the power cord is directly attached to the unit.
- Fit a suitable plug to the AC power supply cord.
- Configuration of AC power supply cord differs according to area.

"DIGITAL INPUT" terminals

3 digital-type components can be connected to these terminals.
These terminals can be used for the connection of a compact disc player equipped with a "DIGITAL" terminal or a digital audio tape deck (DAT) used for playback only, etc.

Compact disc player (option)



To output ("COAXIAL OUT") terminal

or

To output ("OPTICAL OUT") terminal

or

To output ("OPTICAL OUT") terminal

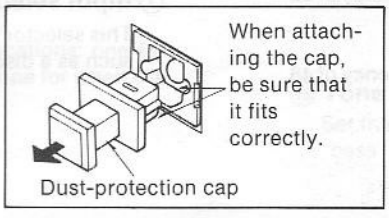
About the "OPTICAL" terminals

These terminals are the optical-connector terminal; because electric signals are converted to optical signals for transmission, there is no adverse effect upon the signals as a result of externally generated electrical noise, thus making possible the transmission of digital audio signals of extremely high quality.

- Connection cables to be used: Optical-fiber cables (option)

■ Use of the "OPTICAL" terminals

A dust-protection caps are used to cover and protect the "OPTICAL" terminals.
Remove this cap only when the "OPTICAL" terminals are to be used.



Note:

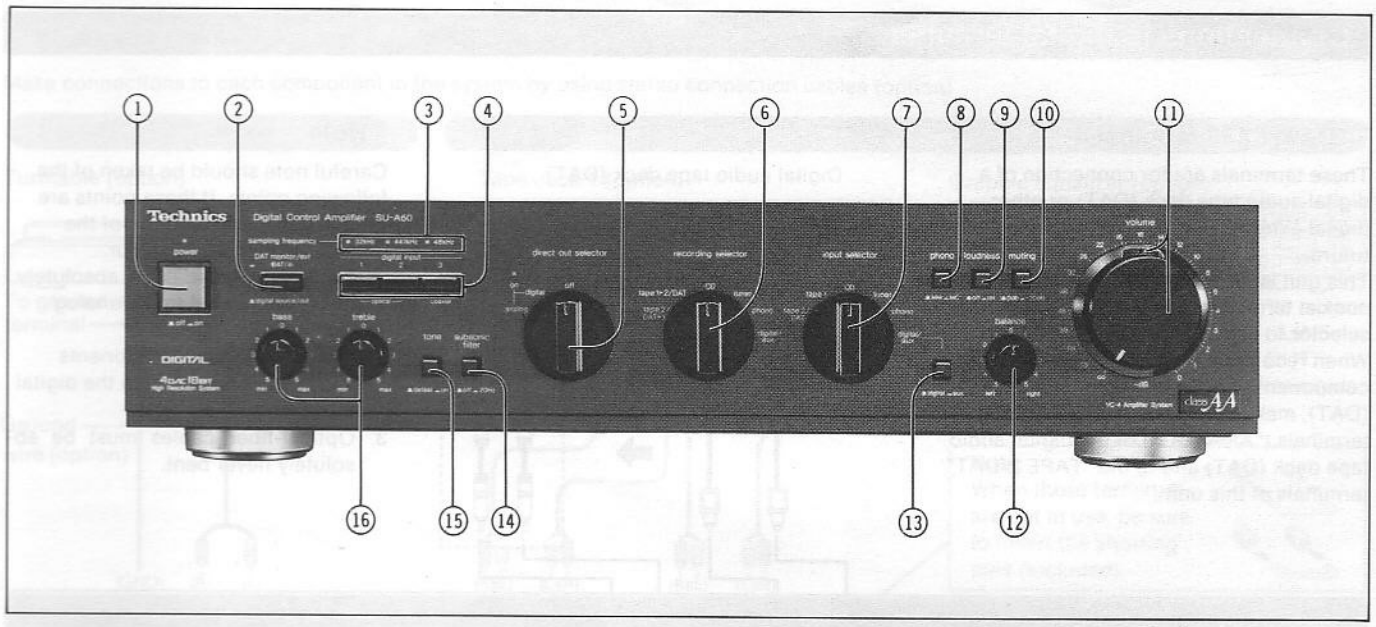
Be sure to use the dust-protection caps to again cover the "OPTICAL" terminals when these are not being used.
These covers serve to prevent the entry of dust, etc. into the terminals, because such foreign material can cause incorrect operation.

About the "COAXIAL" terminals

These terminals are the 75-ohm coaxial terminals; using the toroidal pulse transformers, that function to provide electrical oscillation between components, thereby preventing signal deterioration resulting from noise generated within the ground loop, etc.

- Connection cables to be used: Coaxial cables (option)

Front Panel Controls and Functions



① Power switch (power)

② DAT monitor switch (DAT monitor/ext)

This switch is used when playing back a digital audio tape (DAT), etc component connected to the "DAT/EXT" terminals (on the rear panel of this unit).

③ Sampling frequency indicators (sampling frequency)

These indicators function to illuminate to indicate the detection of the sampling frequency of the digital signals input to the "DIGITAL INPUT" or "DAT/EXT" terminals on the rear panel of this unit. (Illumination occurs when digital signals are received.)

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

44.1 kHz: CD and others

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

④ Digital input selector (digital input)

This selector is used when a component connected one of the "DIGITAL INPUT" terminals (on the rear panel of this unit) is to be used as the sound source.

(Refer to page 5.)

⑤ Direct output selector (direct out selector)

When this selector is switched ON, a superior level of sound quality can be obtained, because the signals are sent directly to the sound volume, without passing through the tone circuit, etc. of this unit.

analog: The signals are sent from the component connected to the "DIRECT" terminals.

The sounds from a component connected to the "DIRECT" terminals cannot be recorded.

digital: The signals are sent from the componet connected to the "DAT/EXT" terminals and/or "DIGITAL INPUT" terminals.

off: The signals pass through the tone control circuitry, etc.

⑥ Recording output selector (recording selector)

This selector is used to select the signal to be recorded by the connected tape deck.

⑦ Input selector (input selector)

This selector is used to select the sound source to be heard, such as a disc, radio broadcast, etc.

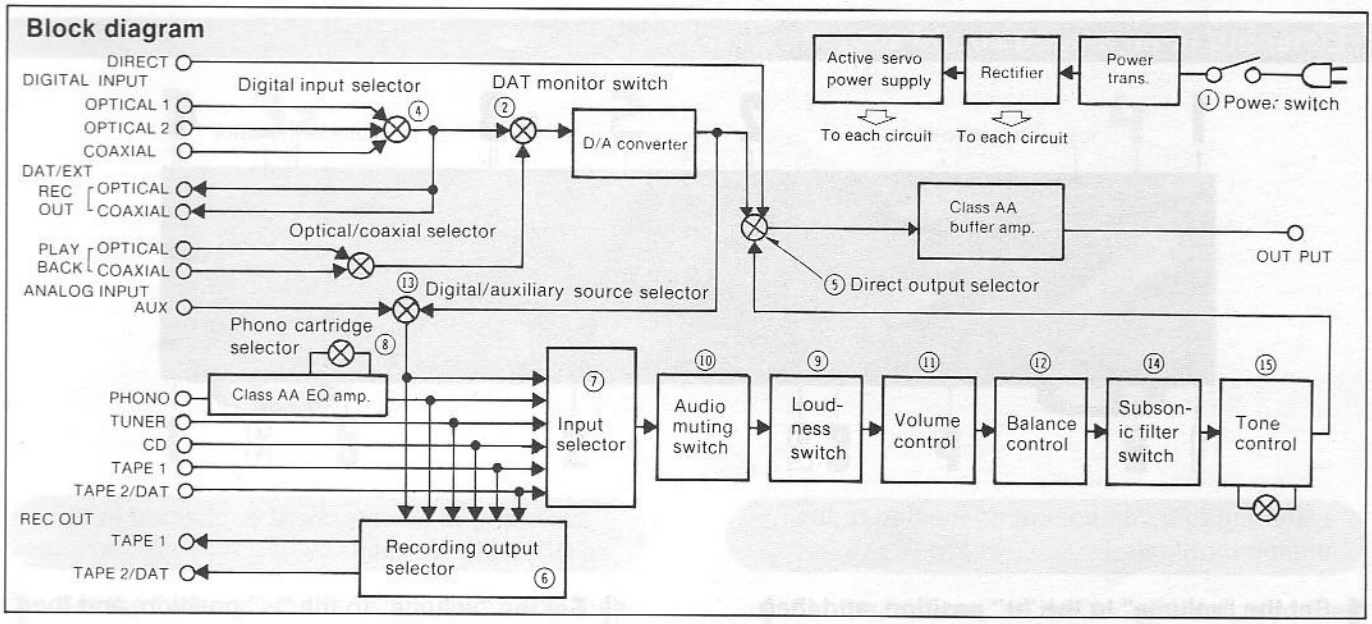
⑧ Phono cartridge selector (phono)

This selector should be set to the position which corresponds to the type of cartridge used on the turntable.

MM (⊿→ ▮): Set to this position when using a moving-magnet type cartridge or high-output moving-coil cartridge (1 mV or more).

MC (▮→ ⊿): Set to this position when using a moving-coil type cartridge.

Block diagram



⑨ Loudness switch (loudness)

Set to the "on" position when listening to music at low volume. Auditory perception of sound in the low frequency range falls off at low volume, but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

⑩ Audio muting switch (muting)

Set to the "–20 dB" position when a disc is being changed or to temporarily reduce the volume level (approx. 1/10).

⑪ Volume control/indicator (volume)

There are two types of volume scale indications: one for when the "direct out selector" is "off", and one for when it is "on".

(Refer to page 8.)

⑫ Balance control (balance)

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

⑬ Digital/auxiliary source selector (digital/aux)

This selector is used when the "digital/aux" position is selected by the input selector or the recording output selector.

digital: For listening to and/or recording the component connected to the "DAT/EXT" terminals or "DIGITAL INPUT" terminals (on the rear panel of this unit).

aux: For listening to and/or recording tje component connected to the "AUX" terminals (on the rear panal of this unit).

⑭ Subsonic filter switch (subsonic filter)

Set this switch to the "20 Hz" position if you want to eliminate ultra-low-frequency noise such as motor "rumble" and unusual vibration of the woofer cone caused by a warped disc, etc.

⑮ Tone control switch (tone)

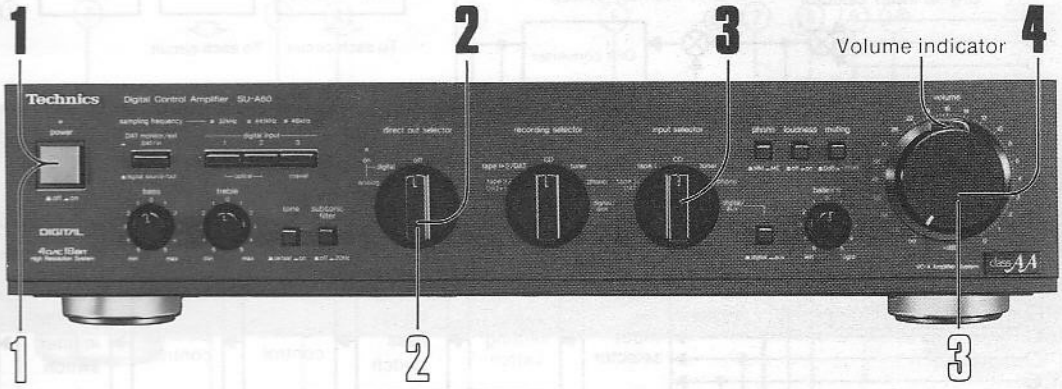
Set this switch to the "on" position if you want to adjust the "bass" or "treble" tone quality.

⑯ Tone controls (bass/treble)

The bass control is for the low-frequency sound range, and the treble control is for the high-frequency sound range.

Operation

Listening to an analog sound source



Listening to a component connected to the analog terminals

1 Set the "volume" to the "∞" position, and then switch ON the "power".

2 Set the "direct out selector" to the "off".

3 Select the sound source to be heard by using the "input selector".

tape 2/DAT: Set to this position to listen to equipment connected to the "TAPE 2/DAT" terminals.
tape 1: Set to this position to listen to the tapes.
CD: Set to this position to listen to compact discs.
tuner: Set to this position to listen to radio broadcasts.
phono: Set to this position to listen to phono discs.
digital/aux: Set to this position to listen to equipment connected to the "AUX" terminals.
And also, set the digital/auxiliary source selector to the "aux".

4 Adjust the "volume" to the desired level.

(Refer to the A scale shown below.)
To adjust the tone quality, (See below.)
In this instance, the "loudness", "muting", "balance" and "subsonic filter" can be used. (Refer to page 7.)

Listening to a component connected to the "DIRECT" terminals

1 Set the "volume" to the "∞" position, and then switch ON the "power".

2 Set the "direct out selector" to the "analog".

3 Adjust the "volume" to the desired level.

(Refer to the B scale shown below.)
In this instance, the tone quality, etc. cannot be adjusted.

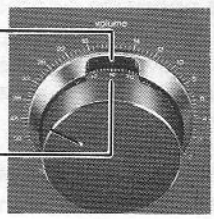
■ To adjust the volume level

The scale used differs according to the method of sound reproduction.

A

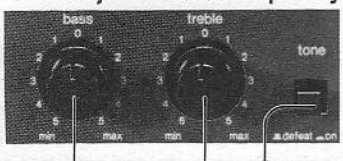
The scale used when the "direct out selector" is "off"

B (The indicator will illuminate.)



The scale used when the "direct out selector" is "on"

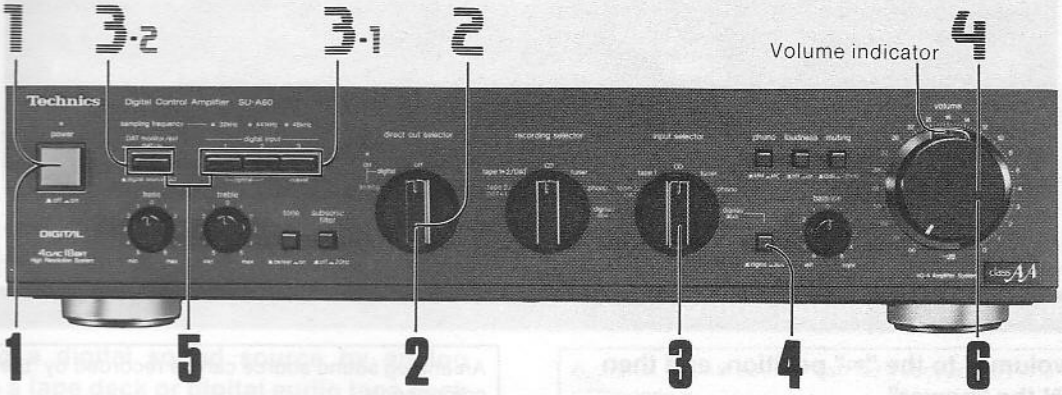
■ To adjust the tone quality



① **"on"**

② **Adjust tone quality as desired.** (Refer to page 7.)

Listening to a digital sound source



Listening as is, without passing through the tone control circuit, etc.

1 **Set the "volume" to the "∞" position, and then switch ON the "power".**

2 **Set the "direct out selector" to the "digital".**

3-1 **When listening to components connected to the "DIGITAL INPUT" terminals:**
Select the sound source by using the "digital input".

optical 1: Make this setting when the component to be used is connected to the "OPTICAL 1" terminal.
optical 2: Make this setting when the component to be used is connected to the "OPTICAL 2" terminal.
coaxial : Make this setting when the component to be used is connected to the "COAXIAL" terminal.
Note:
When listening to these sources, set the "DAT monitor/ext" to the "digital source/out".

3-2 **When listening to digital audio tape (DAT), etc. connected to the "DAT/EXT" terminals:**
Set the "DAT monitor/ext" to the "DAT/in".

4 **Adjust the "volume" to the desired level.**
(Refer to the B scale on page 8.)
In this instance, the tone quality, etc. cannot be adjusted.

Listening to sounds with passing through the tone control circuit, etc.

1 **Set the "volume" to the "∞" position, and then switch ON the "power".**

2 **Set the "direct out selector" to the "off".**

3 **Set the "input selector" to the "digital/aux".**

4 **Set the "digital/aux" to the "digital".**

5 **Select the sound source by using the "digital input" or "DAT monitor/ext".**
(Refer to step 3 at the left.)

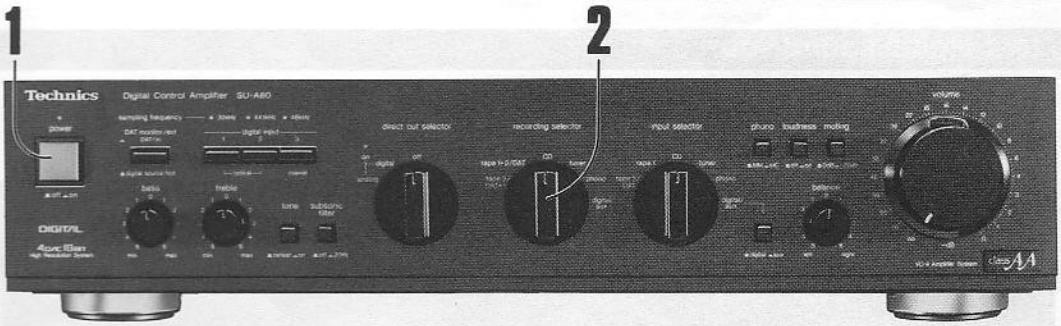
6 **Adjust the "volume" to the desired level.**
(Refer to the A scale on page 8.)
In this instance, the "loudness", "muting", "balance" and "subsonic filter" can be used. (Refer to page 7.)

After use

After listening is finished, set the "volume" to the "∞" position; the power switches of all equipment should then be switched OFF.

Recording

Note:
When a graphic equalizer is connected to the "GRAPHIC EQ/EXT" terminals on the rear panel of this unit, the graphic equalizer effected will not be recorded.



Recording an analog sound source

1 Set the "volume" to the "∞" position, and then switch ON the "power".

2 Select the sound source to be recorded by using the "recording selector".

CD: Set to this button to record from compact discs.
tuner: Set to this position to record from radio broadcasts.
phono: Set to this position to record from phono discs.
digital/aux: Set to this position to record from equipment connected to the "AUX" terminals.
And also, set the digital/auxiliary source selector to the "aux".

3 Begin the program source to be recorded.

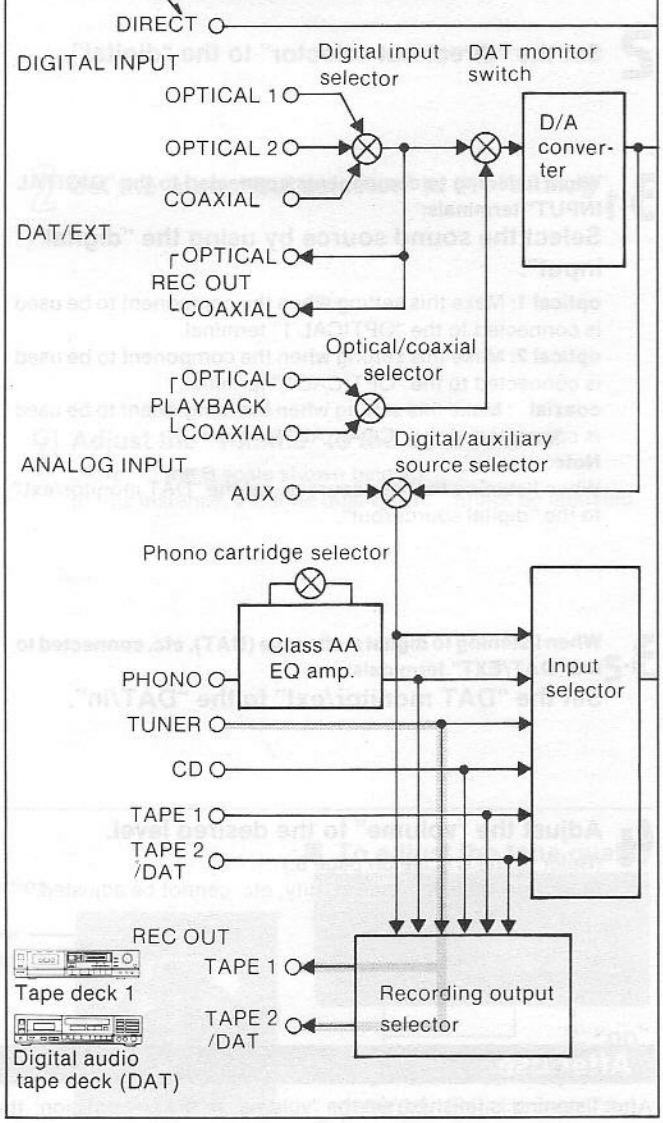
4 Adjust the recording level, by using the controls on the tape deck or digital audio tape deck (DAT). Then begin recording.

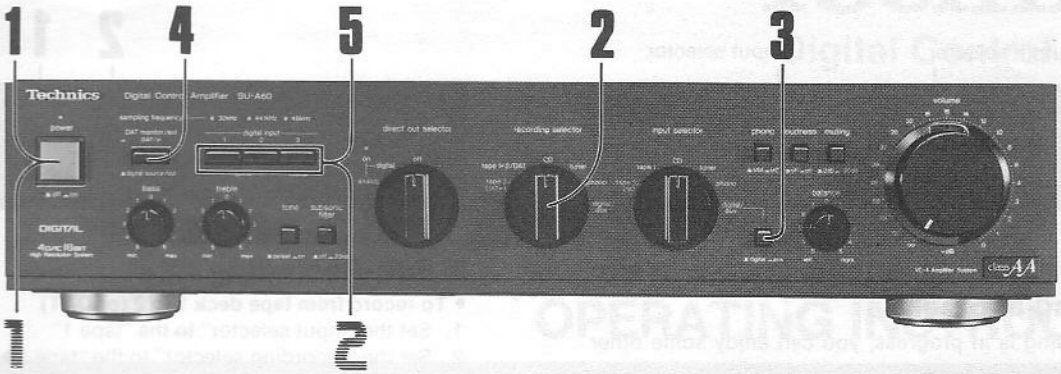
(For information concerning the component used for the recording, refer to its operating instructions.)

An analog sound source can be recorded by the following components:

- The tape deck connected to the "TAPE 1" terminals
- The tape deck or digital audio tape deck (DAT) connected to the "TAPE 2/DAT" terminals

The sounds from a component connected to the "DIRECT" terminals cannot be recorded.





Recording a digital sound source

■ To record a digital sound source by analog signals to a tape deck or digital audio tape deck (DAT)

1 **Set the "volume" to the "∞" position, and then switch ON the "power".**

2 **Set the "recording selector" to the "digital/aux".**

3 **Set the "digital/aux" to the "digital".**

4 **Select the sound source for the recording by using the "DAT monitor/ext".**

DAT in (▮→ ▰): Set to this position to record the digital audio tape deck (DAT), etc. connected to the "DAT/EXT" terminals.

digital source/out (▰→ ▮): Set to this position to record equipment connected to the "DIGITAL INPUT" terminals.

5 **When the "digital source/out" is selected on step 4, select the sound source by the "digital input".**

6 **Begin the program source to be recorded.**

7 **Begin recording.**

Follow your tape deck's operating instructions.

Note: During recording, do not press the DAT monitor switch. This cause the recorded signal is interrupted.

■ To record a digital sound source by digital signals to a digital audio tape deck (DAT)

1 **Set the "volume" to the "∞" position, and then switch ON the "power".**

2 **Select the sound source for the recording by using the "digital input".**

3 **Begin the program source to be recorded.**

4 **Begin recording.**

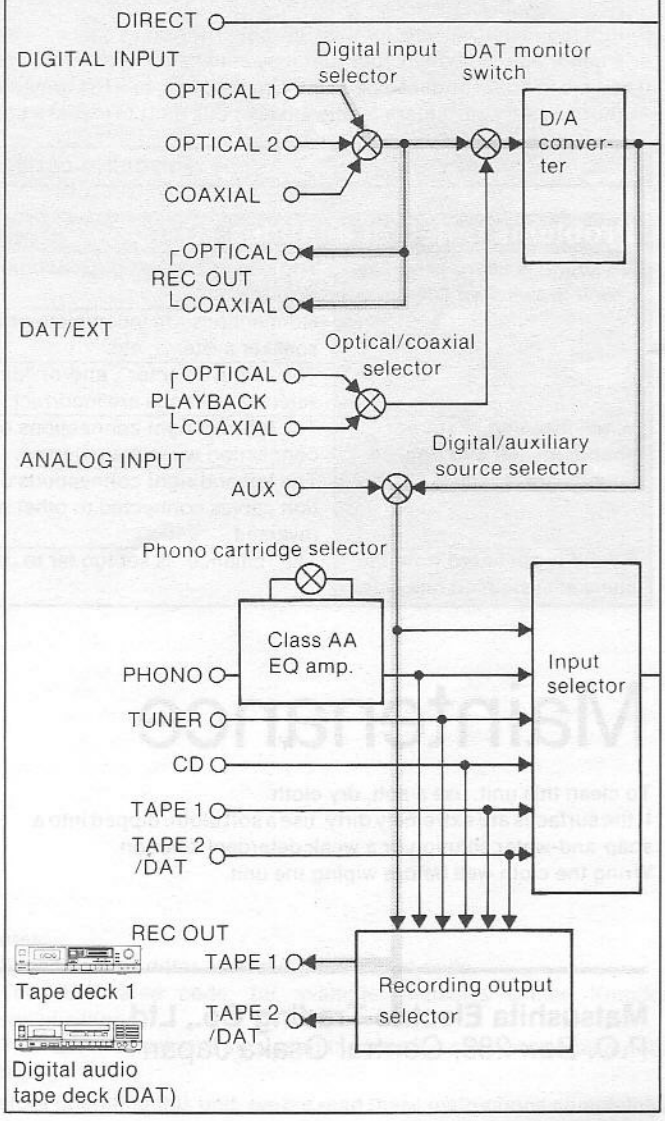
(For information concerning the component used for the recording, refer to its operating instructions.)

Note:

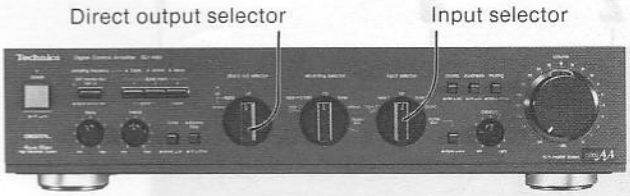
1. Digital recordings cannot be made from a compact disc to a digital audio tape deck (DAT) by the copyright laws.
2. During recording, do not change the "digital input" setting. (The sound of the newly selected source may be recorded.)

A digital sound source can be recorded by the following components:

- The digital audio tape deck (DAT) connected to the "DAT/EXT" terminals
  (The sound source will be recorded by digital signals.)
- The tape deck connected to the "TAPE 1" terminals
- The tape deck or digital audio tape deck (DAT) connected to the "TAPE 2/DAT" terminals
  (The sound source will be recorded by analog signals.)

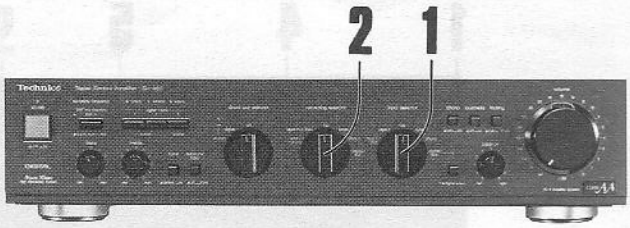


Recording (continued)



■ Listening to one sound source while recording another

While a recording is in progress, you can enjoy some other source.
Select the sound source to be heard by using the "input selector" or setting the "direct out selector" to the "analog".



■ Edit-Recording

• To record from tape deck 1 to 2 (or DAT)

1. Set the "input selector" to the "tape 1".
2. Set the "recording selector" to the "tape 1▶2/DAT".
3. Begin the tape deck 1 for playback and the tape deck 2 (or DAT) for recording.

• To record from tape deck 2 (or DAT) to 1

1. Set the "input selector" to the "tape 2/DAT".
2. Set the "recording selector" to the "tape 2/DAT▶1".
3. Begin the tape deck 2 (or DAT) for playback and the tape deck 1 for recording.

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 "input selector", and/or "direct out selector" settings are incorrect.	• Check to be sure that the selection of the desired sound source is made correctly.
When listening to stereo sound, the left and right sounds are reversed.	The left and right connections of the speaker connection wires are reversed.	• Check the speaker connection wires and connect them correctly if necessary.
	The left and right connections of the connection cables connected to other equipment are reversed.	• Check to be sure the connection cables to other equipment and connect them correctly if necessary.
Sound is not heard from the speaker system on one side.	The "balance" is set too far to one side.	• Set so that sounds are heard at the center, between the speaker systems.

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, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

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