SONY

STEREO CONTROL AMPLIFIER

TA-E77ES
TA-E77ESD

OPERATING INSTRUCTIONS   page 2

Before operating the unit, please read this manual thoroughly
and retain it for future reference.

MODE D'EMPLOI   page 24

Avant la mise en service de cet appareil, prière de lire attentivement
ce mode d'emploi que l'on conservera pour toute référence ultérieure.

BEDIENUNGSANLEITUNG   Seite 46

Vor der Inbetriebnahme lesen Sie diese Anleitung sorgfältig durch
und bewahren Sie sie zum späteren Nachschlagen auf.

TA-E77ES

TA-E77ESD

For the customers in the United States
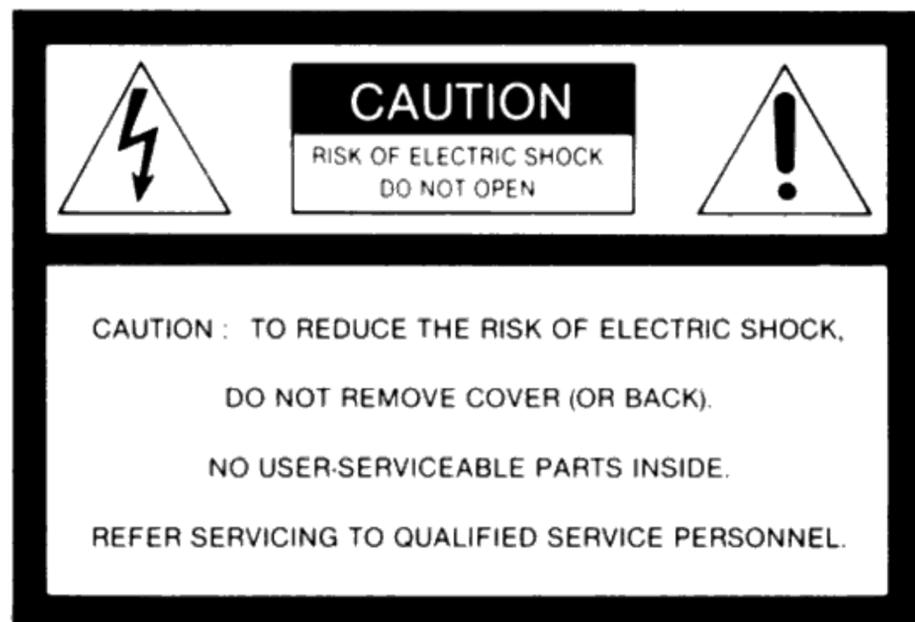
OWNER'S RECORD

The model and serial numbers are located at the rear. Record the serial numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. _____

Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

⚡ **CAUTION**
RISK OF ELECTRIC SHOCK
DO NOT OPEN ❗

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡ This symbol 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.

❗ This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

    Reorient the receiving antenna
    Relocate the equipment with respect to the receiver
    Move the equipment away from the receiver
    Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful :
"How to Identify and Resolve Radio-TV Interference Problems".
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

For the customers in the United Kingdom

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.

For the customers in Canada

CAUTION:

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Table of contents

This manual covers the following two models: TA-E77ES and TA-E77ESD.
The principal differences between the two models are as follows.

	TA-E77ES	TA-E77ESD
DIGITAL-1, 2 input and output jacks, DIGITAL input selectors	Not provided	Provided
DAT analong recording output jacks, DAT input selector	Not provided	Provided
Sampling freq. indicators	Not provided	Provided
Connectors for component video signal of the luminance and the chrominance	Not provided	Provided
Remote commander	RM-177 (Other countries)	RM-E7 (USA and Canada) RM-177D (European countries)

The illustrations used in this manual are those of the TA-E77ESD.

Overview of TA-E77ES/E77ESD

Higher sound quality

Sony performed numerous experiments and trials to determine the best chassis structure for an amplifier capable of top quality sound reproduction with superb dynamics, response and presence. The results provided the basis for the TA-E77ES/E77ESD's chassis design. The chassis, named "Gibraltar", is solid as a rock to avoid internal vibrations caused by power transformers, power transistors, and other amplifier components and stress from the outside caused by floor vibration from speakers, home appliances, and other sources. Additionally, the chassis is made of non-magnetic and non-conducting materials and this eliminates magnetic hysterisis distortion caused by transformers, capacitors, transistors, etc.

Abundant functions

- Audio input selectors control 7 audio and 3 video signals.
- Input source selection can be remotely controlled by the supplied remote commander.
- TA-E77ESD provides digital input and output jacks. These deliver excellent sound reproduction with digital audio equipment.

For the model in USA and Canada only, a programmable commander is supplied. This can remotely control almost any Sony audio and video equipment. Further, it can "read" and "store" the functions of another remote commander using an infrared ray transmitter, not only those made by Sony but those of other manufacturers as well. With this single commander, you can control your audio and video equipment regardless of their manufacturers.

Precautions

- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply. See Operating voltage.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the plug out by the cord.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Avoid installing or leaving the unit in a location:
  — near heat sources such as radiators, airducts or heaters
  — subject to direct sunlight
  — exposed to rain or moisture
  — where it is liable to come into contact with dust or dirt
 — that is unventilated, such as a bookcase

- Should any liquid or solid object fall into the component, unplug the stereo system and have the component checked by qualified personnel before operating it any further.

If you have any question or problem concerning your unit that is not covered in this manual, please consult your nearest Sony dealer.

For the customers in the USA
For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

Operating voltage

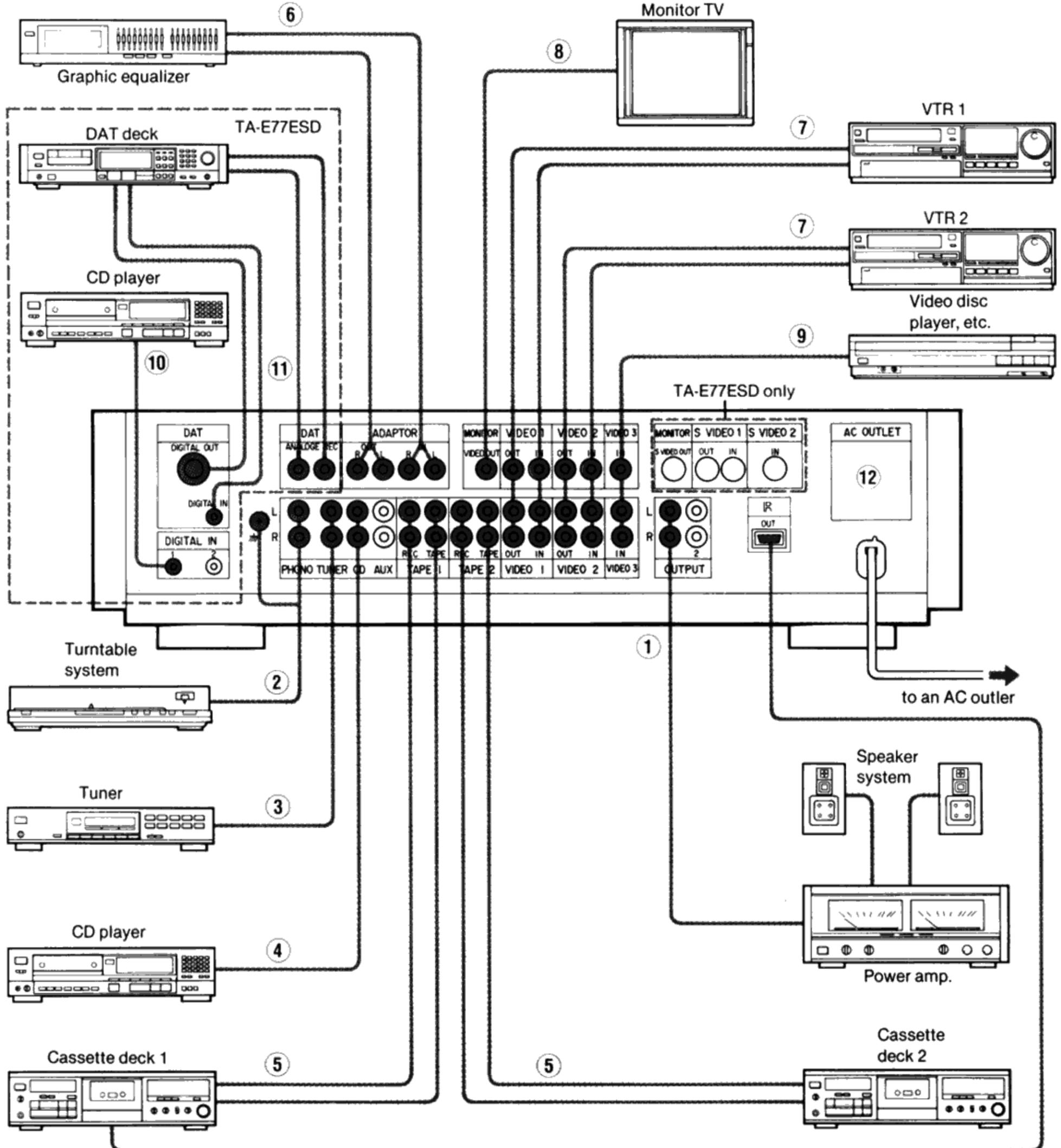| Model available in USA and Canada	Operates on 120 V AC, 60 Hz
Model available in W. Germany	Operates on 220 – 240 V, 50/60 Hz
Model available in Other countries	Operates on either 110 – 120 V or 220 – 240 V AC, 50/60 Hz The voltage selector is located on the rear panel. If the selector must be reset, disconnect the AC power cord and set the selector to the proper voltage of your local power supply. 110 V – 120 V ———————— 220 V – 240 V
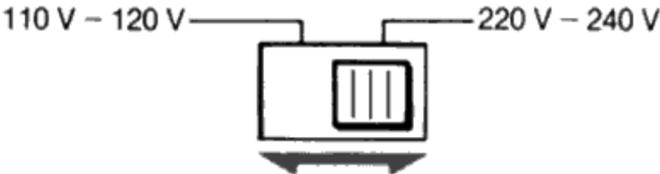
Connecting the system

Connection notes

- The power cord should be connected last of all, first making sure that the POWER switch is turned off.
- The cable connectors should be fully inserted into the jacks.
  A loose connection may cause hum and noise.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right-channel and white ones for left-channel.
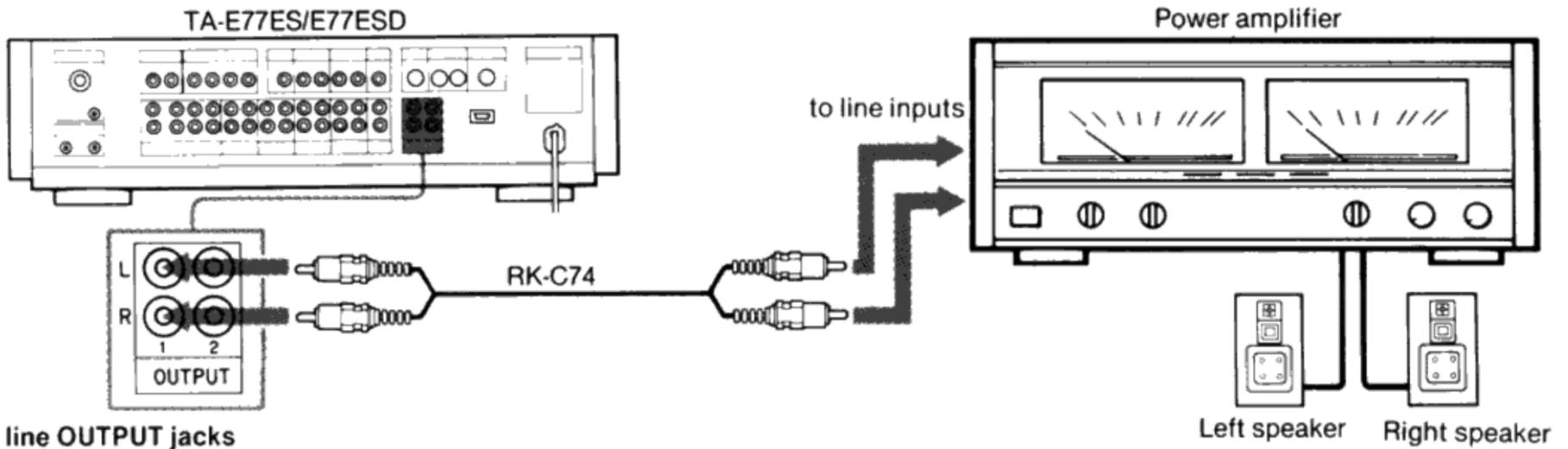
Overall connection diagram

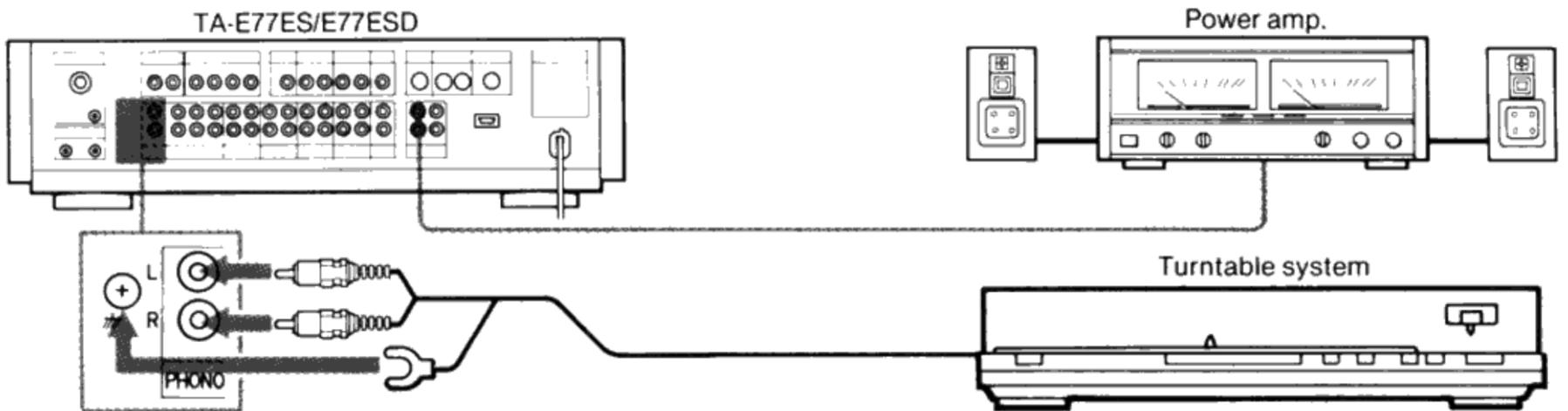The number described in ○ correspond to the individual connecting diagram.

① Connecting a power amplifier


Two line OUTPUT jacks
The audio signals selected and processed with this amplifier are simultaneously output through both the OUTPUT 1 and OUTPUT 2 jacks.

② Connecting a turntable system

If hum occurs
Connect the ground wire of the turntable system to this ground terminal. If hum still exists, it may be helpful to connect the ground terminal directly to the ground via a ground rod.

ground for signal
ground for cartridge body
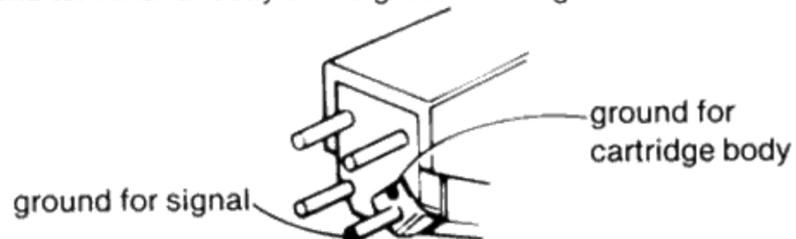
Note
In some particular MM cartridges, the ground for signal is connected to the ground for cartridge body.
If this type of cartridge should be installed to a metal cartridge shell, current will flow through the tonearm ground in a loop and will cause hum hoise. In this case, disconnect the turntable ground wire from the $\frac{1}{\pi\pi}$ terminal of the amplifier, or disconnect the ground for cartridge body from the ground for signal.

③ Connecting a tuner

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④ Connecting a CD player

TA-E77ES/E77ESD

Power amp.

RK-C74

CD

to line outputs
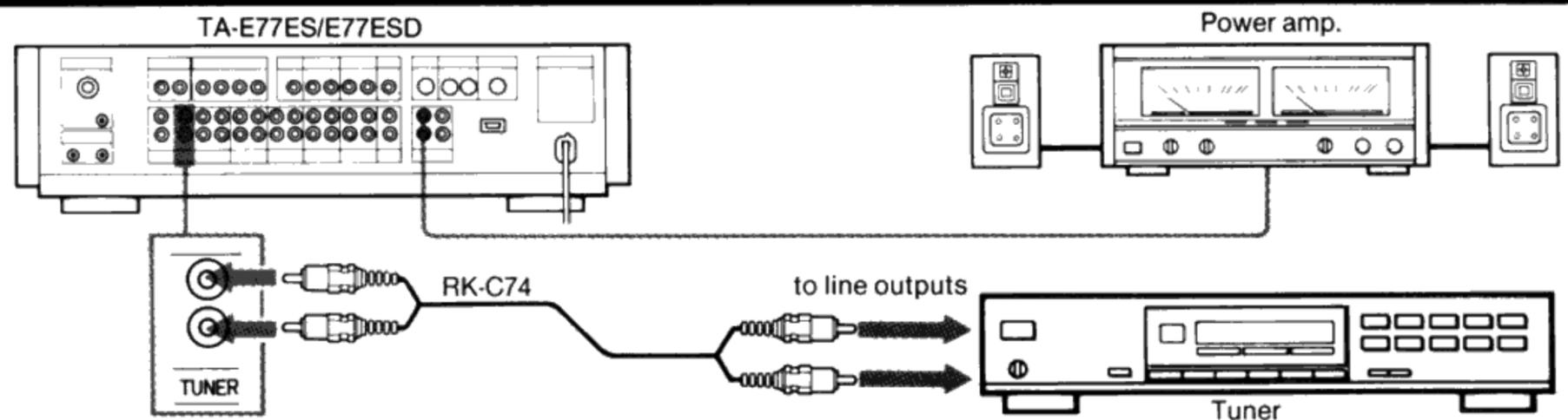
CD player
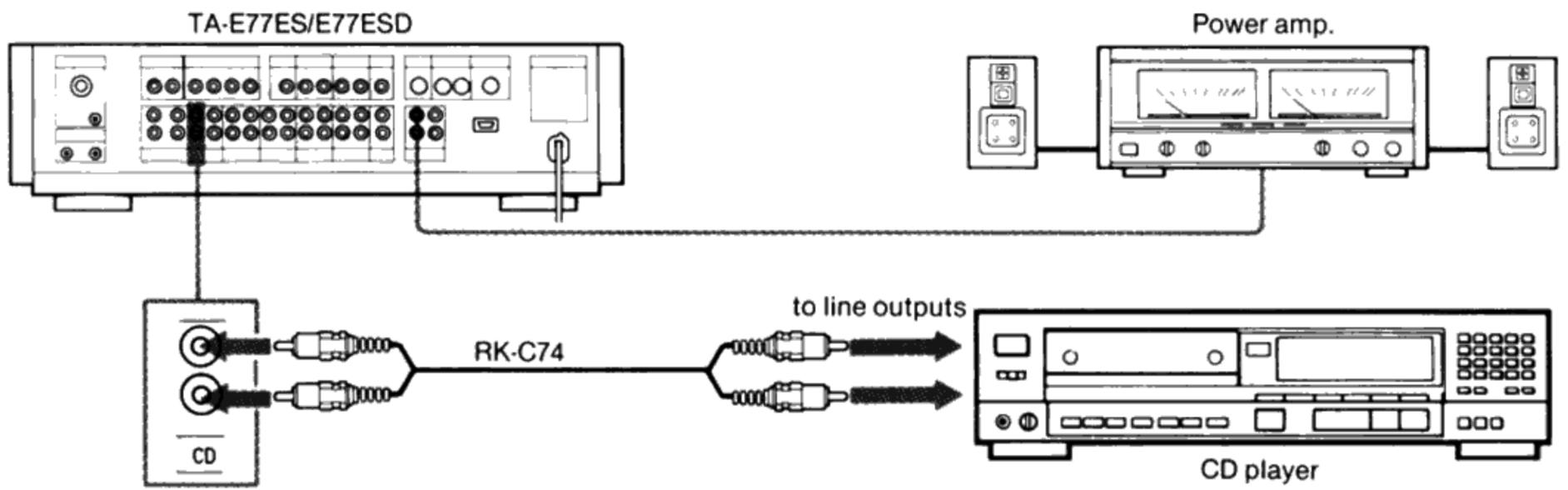
⑤ Connecting a cassette deck

TA-E77ES/E77ESD

Power amp.

Remote control cord
(supplied with the cassette deck)

to CONTROL S*

RK-C74

to line outputs

to line inputs
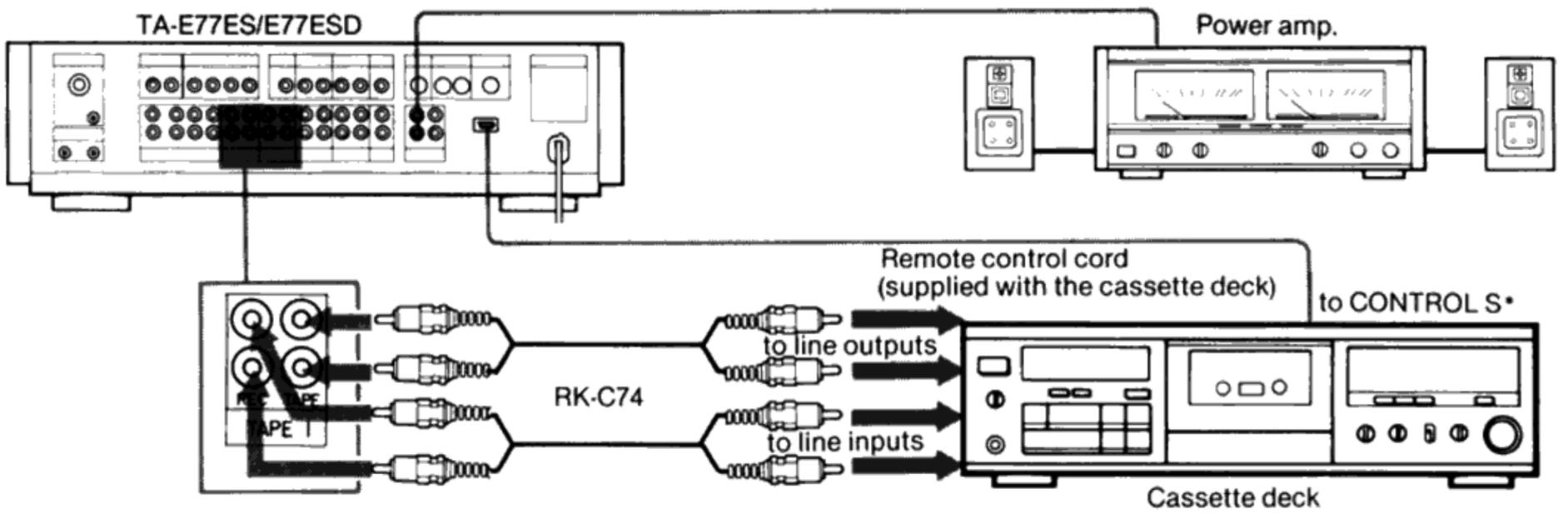
Cassette deck

If you have an additional program source
Use the AUX input jacks.

* This connection should be made when your cassette deck has a remote control connector.

⑥ Connecting a graphic equalizer

TA-E77ES/E77ESD

Power amp.

ADAPTOR
OUT   IN
R   L   R   L

to line outputs

RK-C74

to line inputs
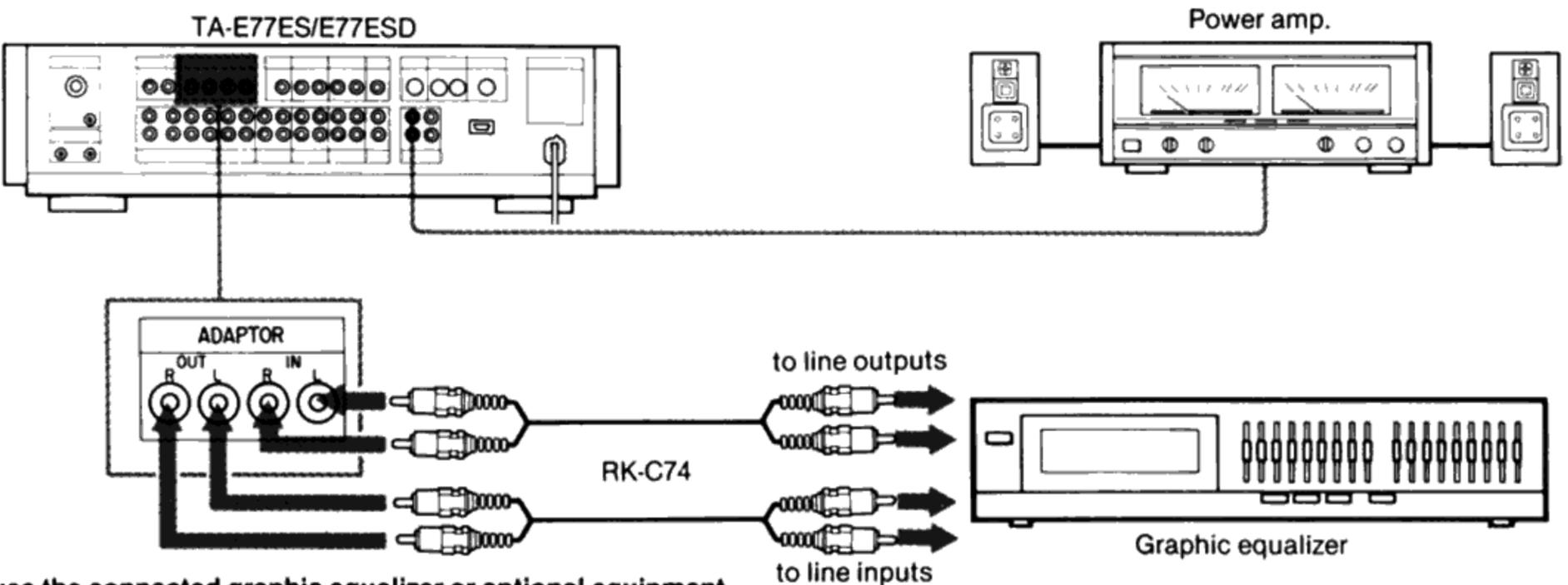
Graphic equalizer

To use the connected graphic equalizer or optional equipment
Be sure to turn on the ADAPTOR switch on the front panel.

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7 Connecting a VTR

TA-E77ES/E77ESD

Power amp.

to video input
VMC-1S
to video output
to audio outputs
RK-C74
to audio inputs

VTR
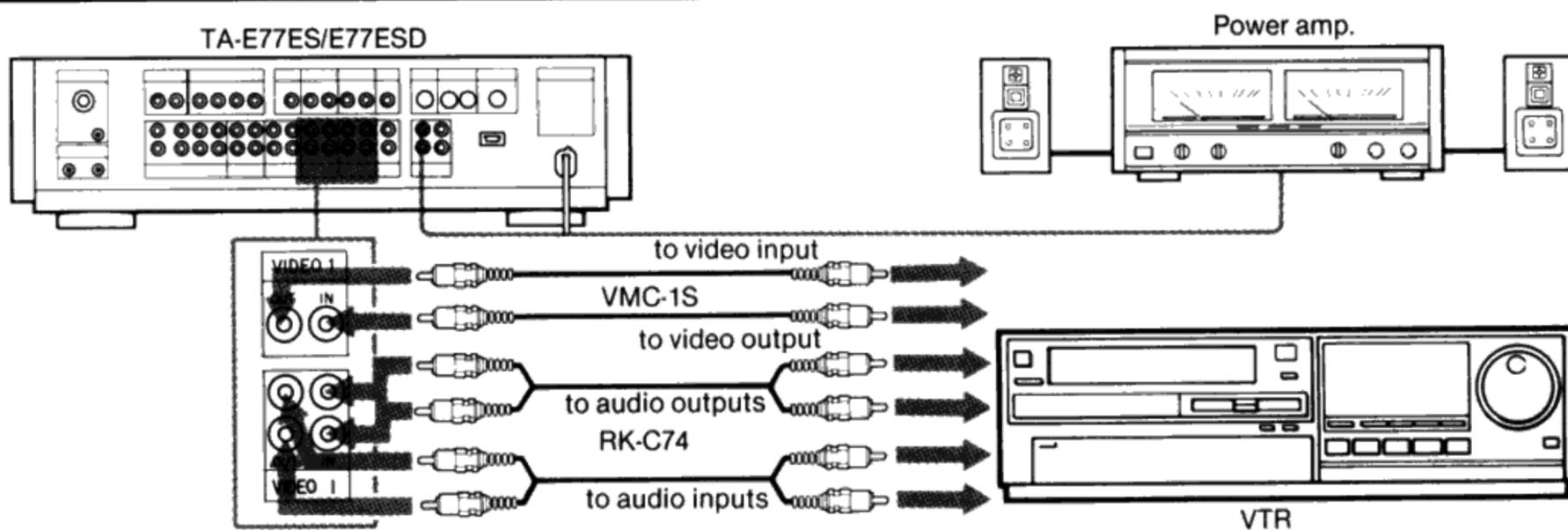
If your VTR or monitor has connectors for the component video signal of the luminance and the chrominance (TA-E77ESD only)
Connect your VTR to the S VIDEO connectors by referring to the instruction manual of your VTR.

8 Connecting a monitor TV

TA-E77ES/E77ESD

Power amp.

MONITOR
VIDEO OUT

VMC-1S

to video input

Monitor TV
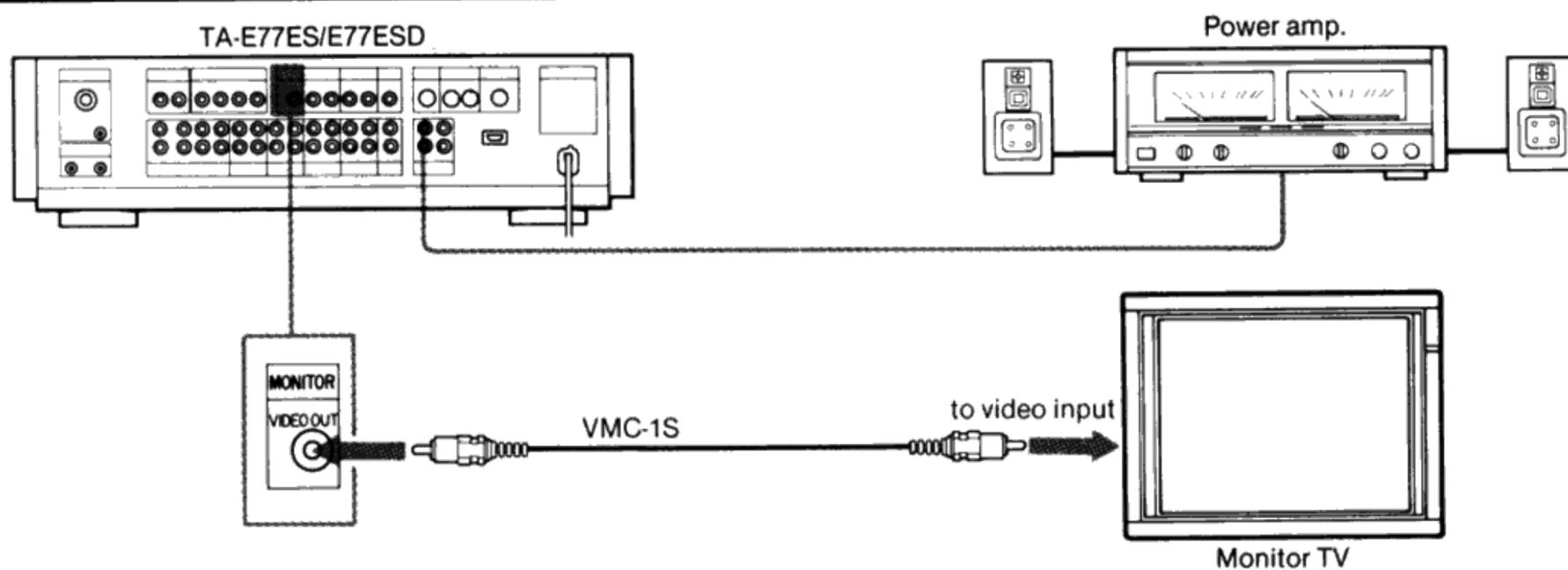
9 Connecting a video disc player, TV tuner, etc.

TA-E77ES/E77ESD

Power amp.

VIDEO 3
IN

VMC-1S

to video output

RK-C74

IN
VIDEO 3

to audio outputs

Video disc player, etc.

8
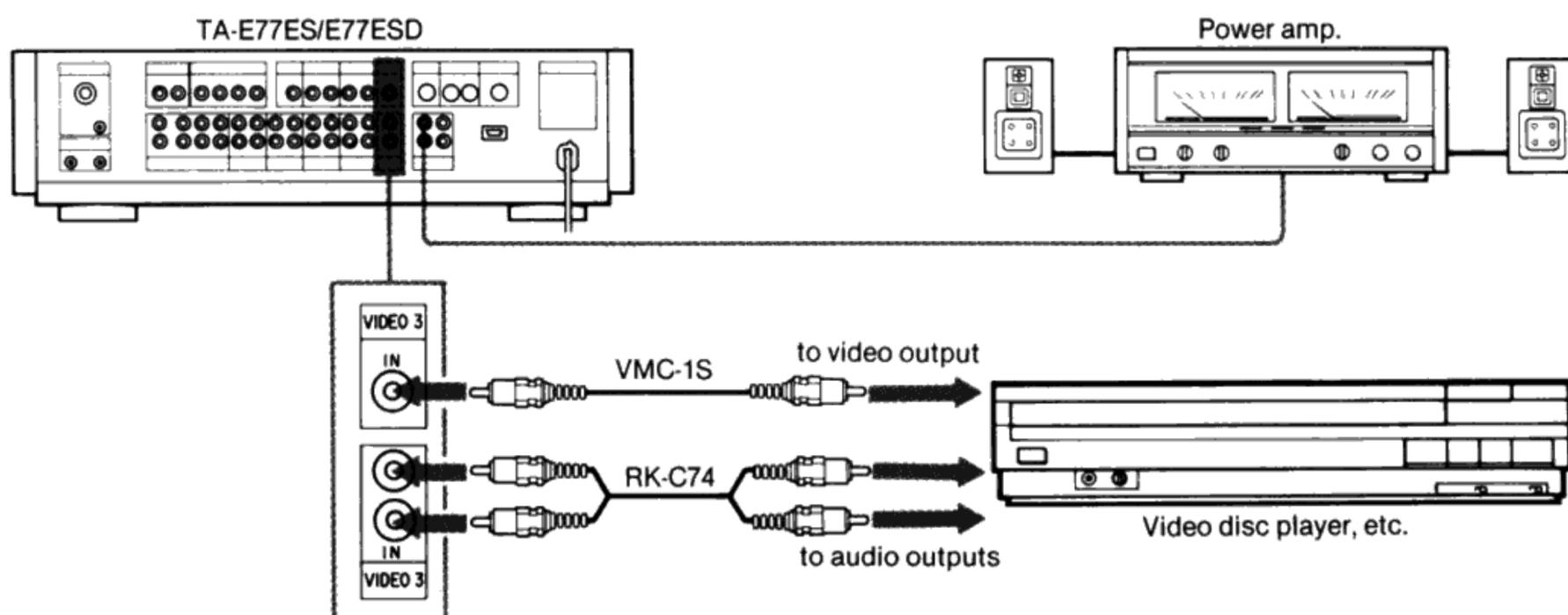
10 Connecting a CD player equipped with digital output (TA-E77ESD only)

TA-E77ESD

Power amp.

DIGITAL IN

RK-C305ES

to digital output

CD player, DAT, etc.
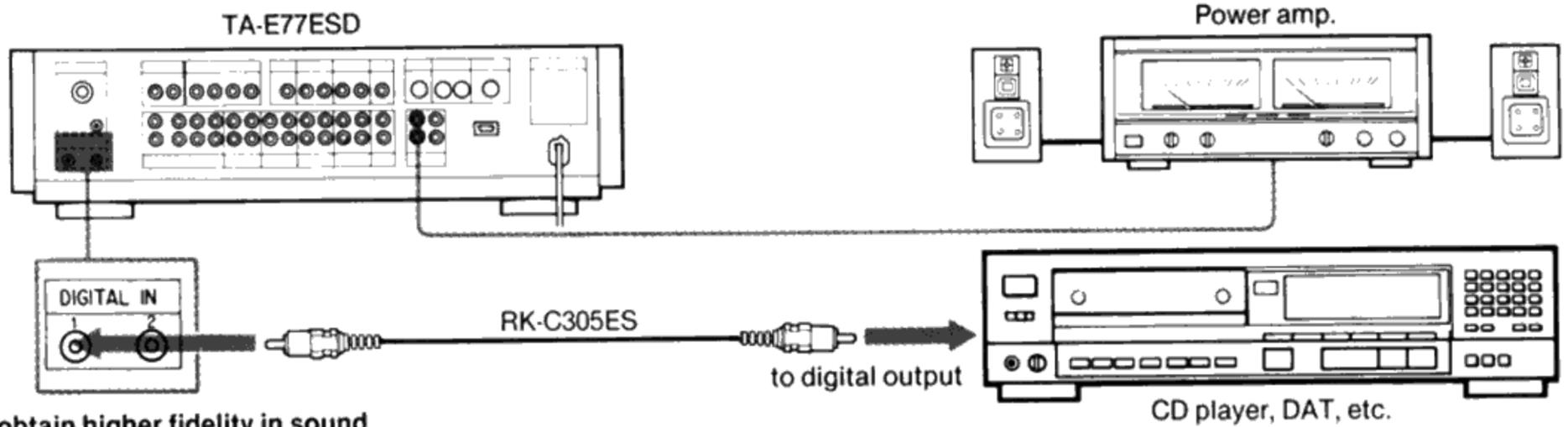
To obtain higher fidelity in sound
Use the digital output jack and disconnect the CD input connection.

11 Connecting a DAT (Digital Audio Tape) deck (TA-E77ESD only)

TA-E77ESD

Power amp.

DAT

DIGITAL OUT

DIGITAL IN

DAT ANALOGUE REC

For analogue connection

to line input

RK-C74

to digital input

RK-C305ES

to digital output
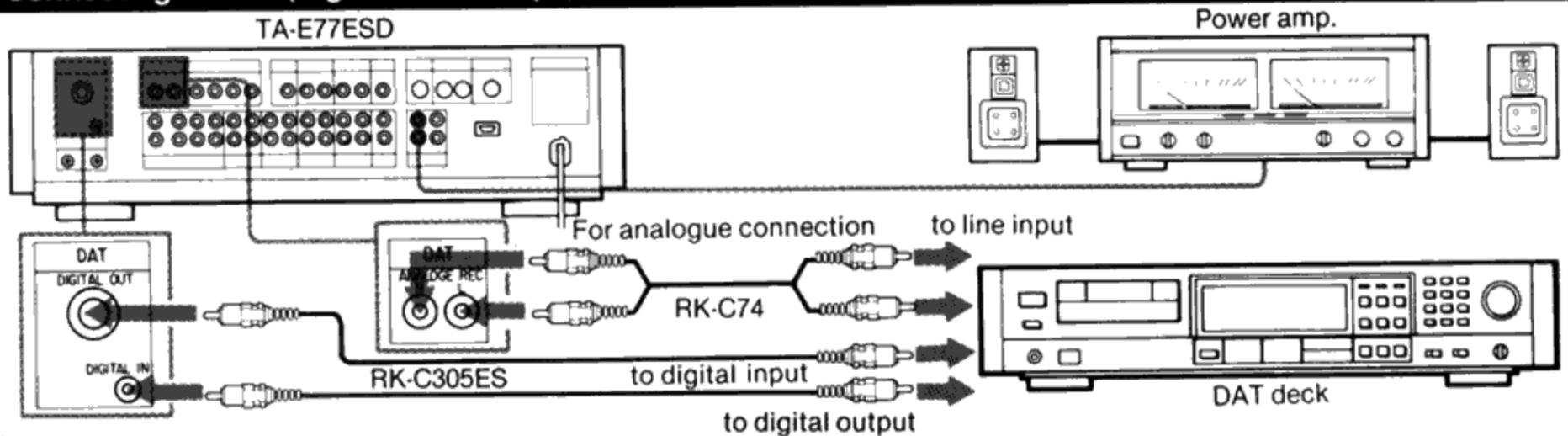
DAT deck

Note
Be sure to use the DAT ANALOGUE REC output jacks for connection of a DAT deck. If the REC OUT jacks of TAPE-1 or -2 are used and the DAT input selector is pressed, oscillation may occur.

12 Connecting AC power

TA-E77ES/E77ESD

Power amp.

*European model does not provide.

to a wall outlet

audio equipment
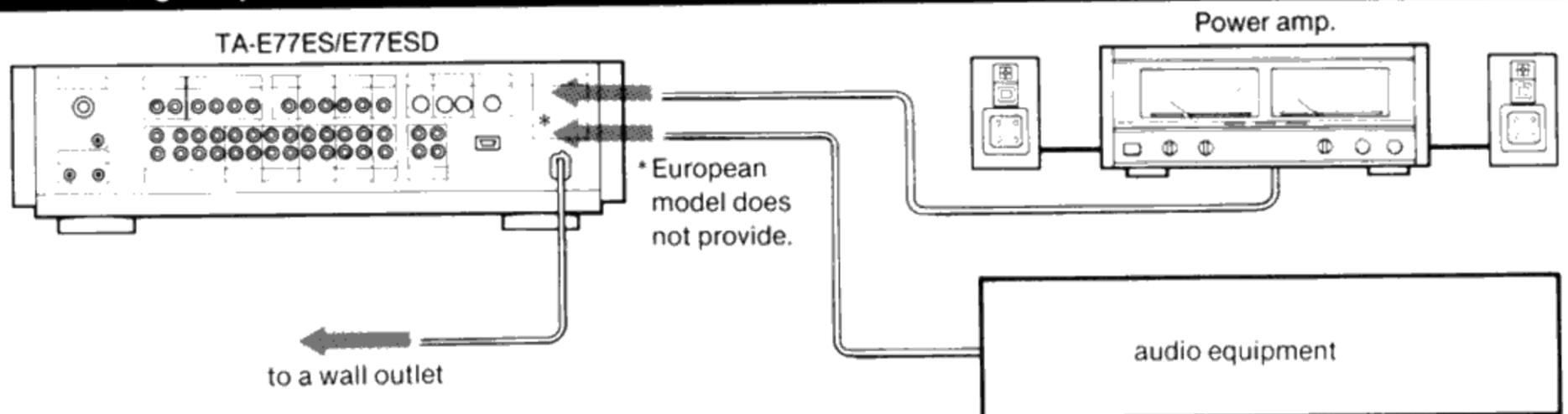
Notes on AC OUTLETs
AC outlets are used to power other audio components whose total power consumption is less than the wattage indicated below.

	USA and Canada	European countries	Other countries
Switched / Power consumption	1 / 400 watts max.	1 / 600 watts max.	1 / 400 watts max.
Unswitched / Power consumption	1 / 400 watts max.	—	1 / 400 watts max.

The SWITCHED outlet is controlled by the front panel POWER switch.
The UNSWITCHED outlet is not controlled by the POWER switch.

CAUTION
Do not connect any electrical home appliances such as an electric iron, fan, TV or other high-wattage equipment to these AC outlets.

For the customers of the model supplied with an AC plug adaptor.
If the plug of the power cord does not match with your wall outlet, use the supplied plug adaptor.

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Connecting a VTR, monitor TV, etc. equipped with the connectors for component video signal of the luminance and the chrominance

Power amp.

TA-E77ESD

| MONITOR | S VIDEO 1 | S VIDEO 2 |
| S VIDEO OUT | OUT   IN | IN |

Monitor TV

to S VIDEO IN

VTR

to S VIDEO IN

to S VIDEO OUT
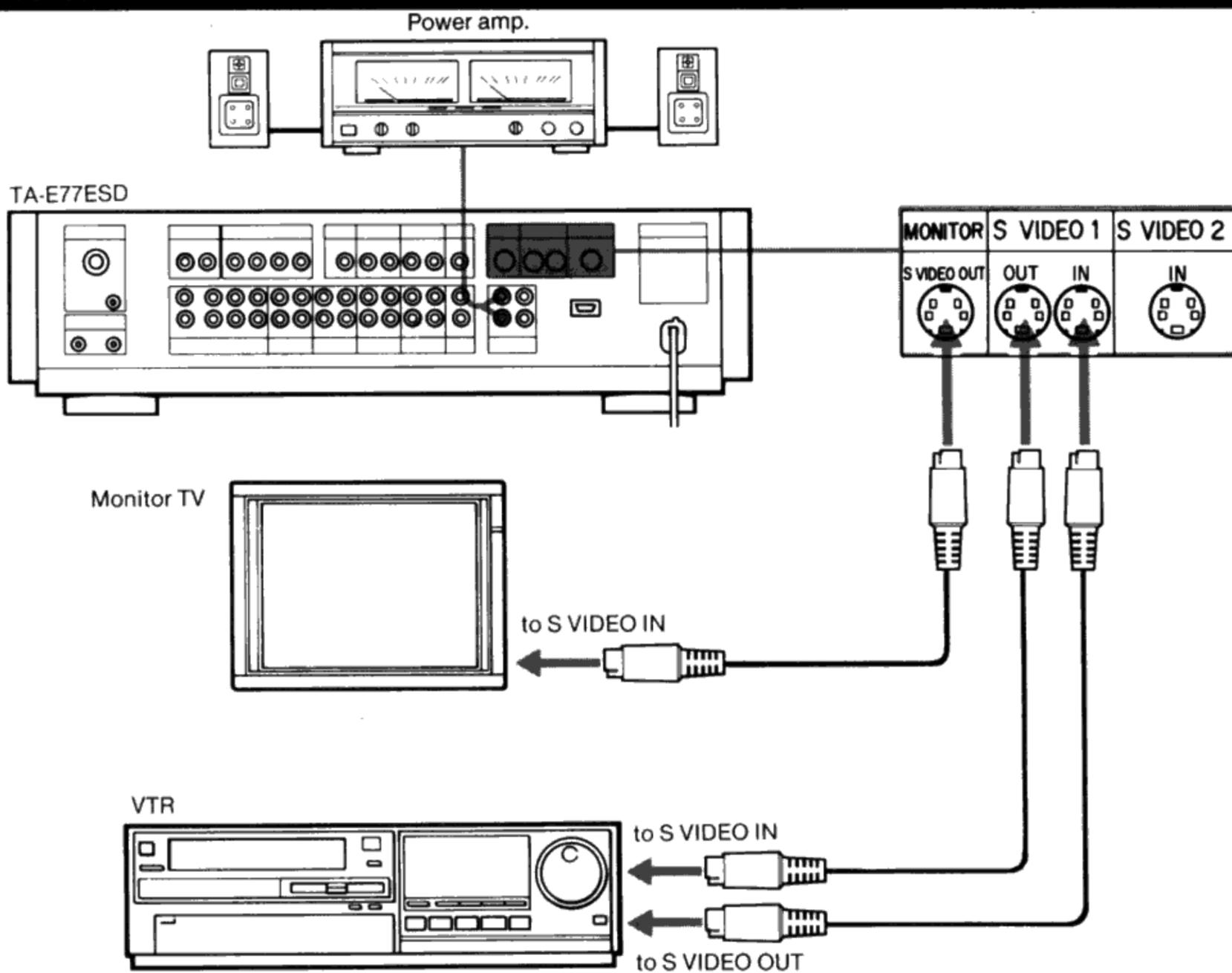
Use commercially available connecting cord appropriate for your equipment.

Connecting an active speaker system

TA-E77ES/E77ESD
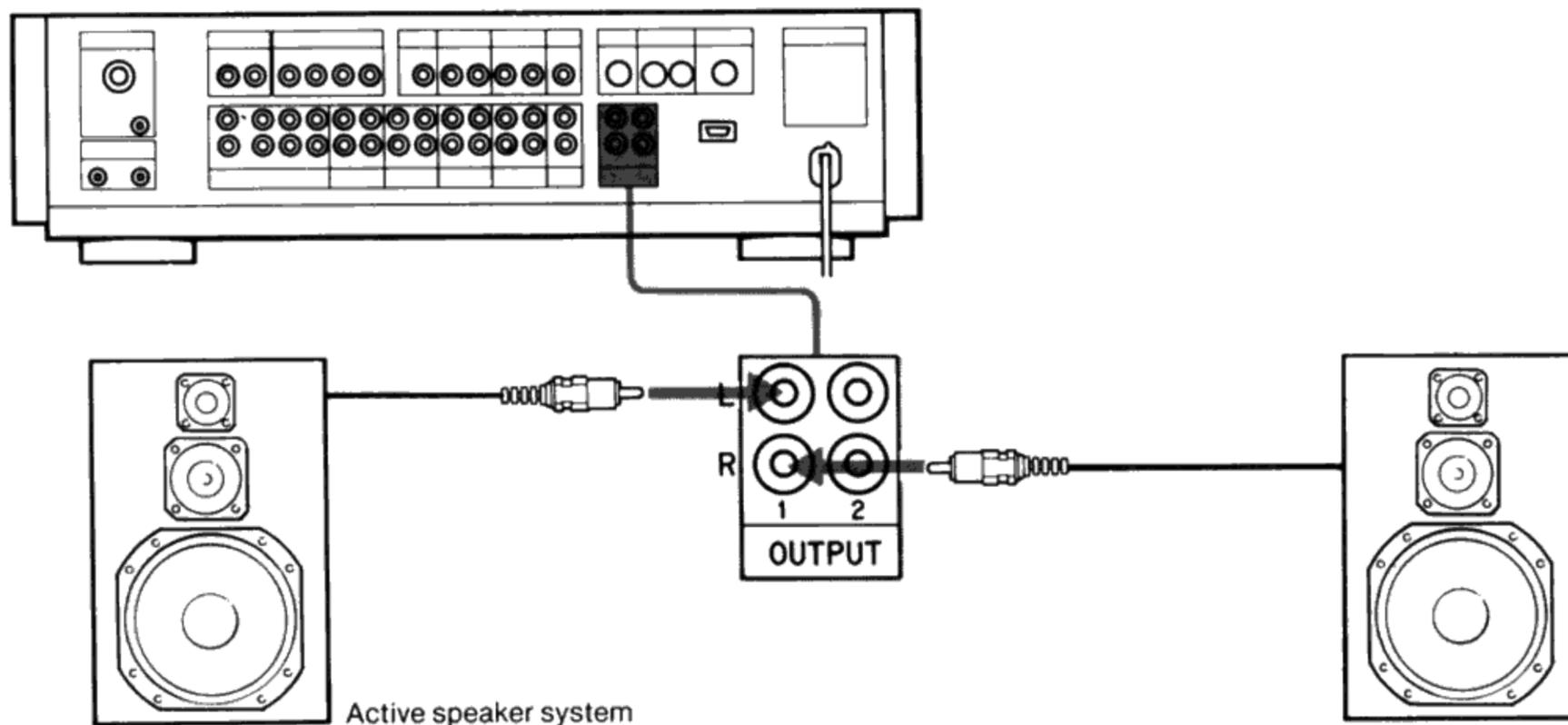
OUTPUT

Active speaker system

Use commercially available connecting cord appropriate for your equipment.

10

To enjoy superb sound quality with your TA-E77ES/E77ESD

To prevent howling

A howling phenomenon caused by acoustic feedback from speakers to the microphone or cartridge will cause speaker damage and adversely affect other connected equipment.
To eliminate howling
• Lower the sound level.
• Separate the turntable system away from the speaker system as far as possible.

• If a microphone is used, keep it away from the speaker system.
• Install the turntable system on a stable desk or rack. Use an audio insulator available on the market.

Place the audio equipment away from the TV

If the speaker system is placed too close to a TV, the TV image may be disturbed. On the other hand, if a TV is placed near the tuner or cassette deck, interference with the followings may occur:
• AM broadcast reception
• Recording
• Phonograph record playing with a MC cartridge

To prevent this kind of interference, keep your audio equipment away from the TV.
Also, be sure to place the audio equipment away from a refrigerator or fluorescent light as they may cause noises; and do not use a hair dryer or razor near them.

Arrange the connecting cord properly

Keep the audio connecting cord away from the AC power cord. The AC power cord or speaker cord should not be placed near the bar antenna or antenna lead.

These may cause noise or deterioration of sound quality. Slack in the cord within the audio rack may cause howling.
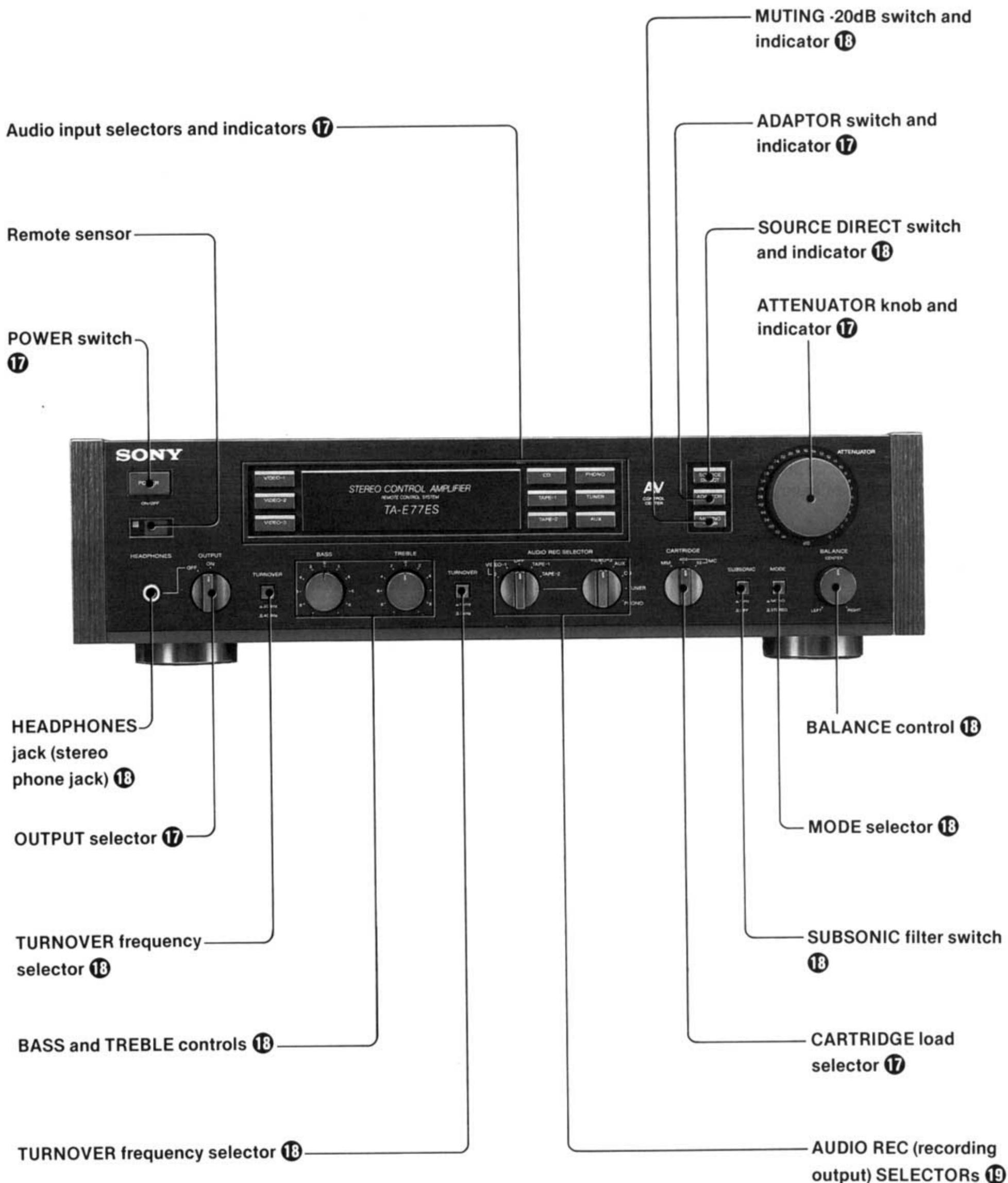
To obtain optimum sound quality in CD playing

If your CD player has two types of outputs—analog signal line outputs and a digital signal coaxial output, connect the player to this amplifier using only one or the other of them.

11

Parts identification

Refer to the pages indicated in ● for detail.

TA-E77ES

Audio input selectors and indicators **⑰**

MUTING -20dB switch and indicator **⑱**

ADAPTOR switch and indicator **⑰**

SOURCE DIRECT switch and indicator **⑱**

ATTENUATOR knob and indicator **⑰**

Remote sensor

POWER switch **⑰**

HEADPHONES jack (stereo phone jack) **⑱**

OUTPUT selector **⑰**

TURNOVER frequency selector **⑱**

BASS and TREBLE controls **⑱**

TURNOVER frequency selector **⑱**

BALANCE control **⑱**

MODE selector **⑱**

SUBSONIC filter switch **⑱**

CARTRIDGE load selector **⑰**

AUDIO REC (recording output) SELECTORs **⑲**

12

SAMPLING FREQ. (DIGITAL) indicators
Lights up according to the input digital signal.

Audio input selectors and indicators ⑰

Remote sensor

POWER switch
⑰

MUTING -20dB switch and
indicator ⑱

ADAPTOR switch and
indicator ⑰

SOURCE DIRECT switch
and indicator ⑱

ATTENUATOR knob and
indicator ⑰

HEADPHONES
jack (stereo
phone jack) ⑱

OUTPUT selector ⑰

TURNOVER frequency
selector ⑱

BASS and TREBLE controls ⑱

TURNOVER frequency selector ⑱

BALANCE control ⑱

MODE selector ⑱

SUBSONIC filter switch
⑱

CARTRIDGE load
selector ⑰

AUDIO REC (recording
output) SELECTORs ⑲

13

Programmable commander RM-E7
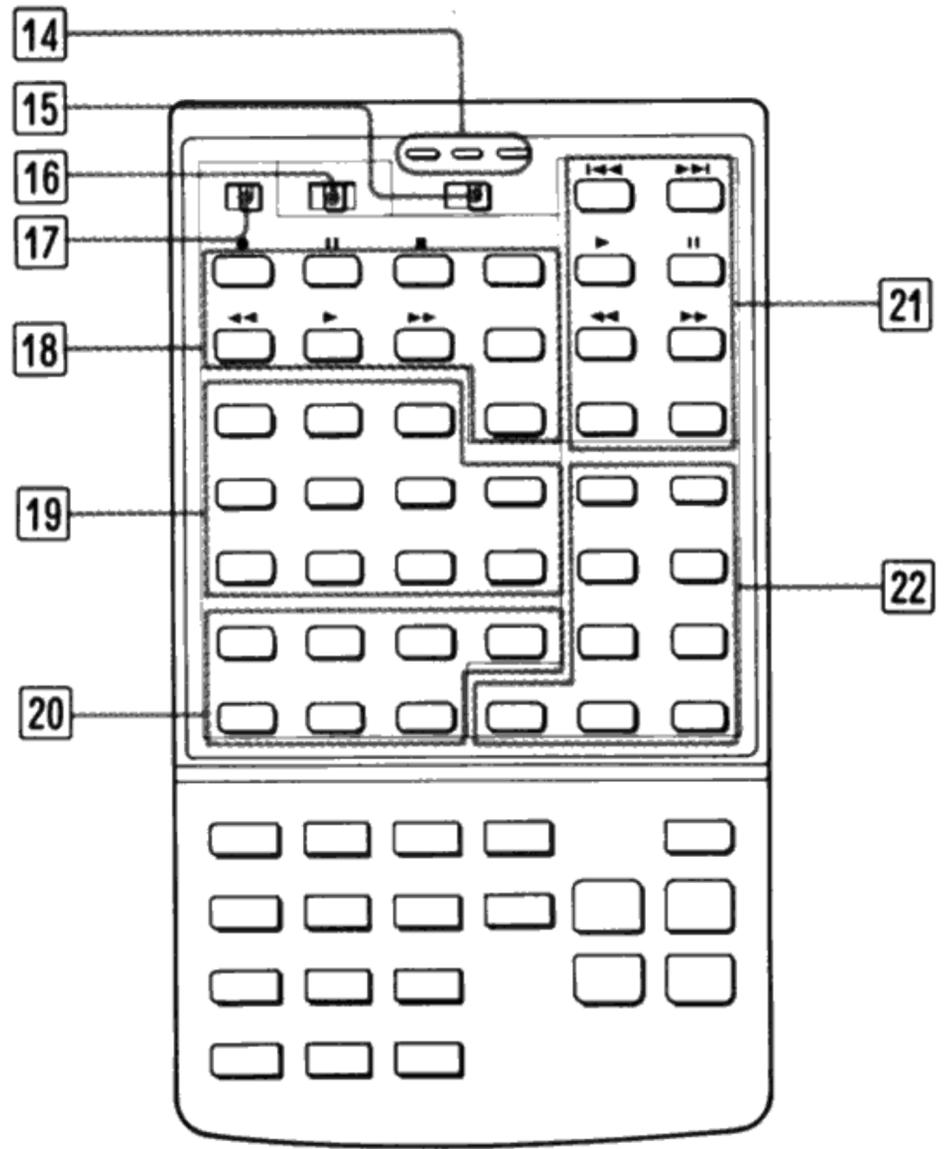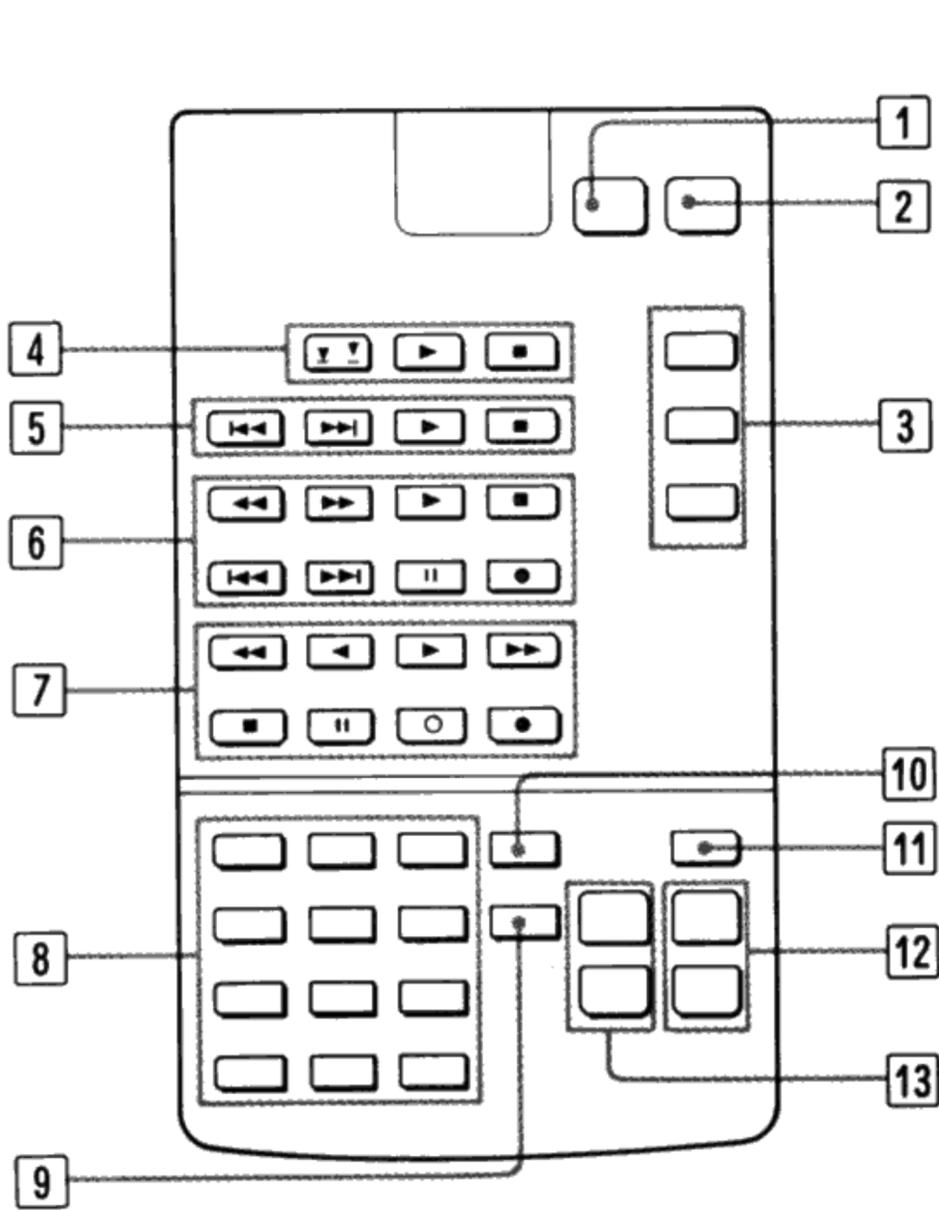
1 AUDIO POWER ON/OFF switch
Turns the power of the amplifier on or off.

2 SYSTEM POWER OFF switch
Turns off the power of the amplifier, TV, VTR1 or VTR2.

3 VIDEO POWER ON/OFF switch
TV: Turns the power of the TV on or off.
VTR1: Turns the power of the VTR 1 on or off.
VTR2: Turns the power of the VTR 2 on or off.

4 PHONO buttons
▼ ▼: Lifts or lowers the tonearm.
►: Starts record playing
■: Stops record playing

5 CD butons
I◄◄/►►I: AMS *
►: Starts playing
■: Stops playing
*AMS = Automatic Music Sensor

6 DAT buttons
◄◄/►►: Leftward and rightward fast winding
►: Forward play
■: Stop
I◄◄/►►I: AMS
II: Pause
O: Record

7 TAPE button
◄◄: Leftward fast winding
◄: Reverse play
►: Forward play
►►: Rightward fast winding
■: Stop
II: Pause
O: Record muting
●: Recording

8 Program source selectors

9 ADAPTOR switch

10 SOURCE DIRECT switch

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[11] **MUTING switch**

[12] **ATTENUATOR buttons**

[13] **TUNER PRESET buttons**
  + : Selects higher preset number.
  − : Selects lower preset number.

[14] **Indicators**
  LEARNED
  Transmit indicator
  READY

[15] **LEARN/USER/SONY selector**
  Selects the function of the buttons.
  SONY: To operates this commander normally.
  LEARN: To memorize the function of another remote
    commander on one of the buttons.
  USER: To recall the memorized function on buttons.

[16] **FM-AM/TV selector**
  Selects the unit to be controlled; tuner or TV.

[17] **VTR selector**
  Selects the command mode.
  If your VTR has a command mode selector, set this
  selector to the same position as that set on the VTR.
  If your VTR does not have one, set to 1.
  If a Sony 8mm VTR is connected, set to 2.

[18] **VTR operation buttons**
  ●: Recording
  II: Pause
  ■: Stop
  ◄◄: Rewind
  ►: Play
  ►►: Fast forward
  CH + : For higher numbered channels
  CH − : For lower numbered channels
  ANT TV/VIDEO: Selects the input signal of the VTR: TV or
    video.

[19] **TUNER FM-AM/TV channel buttons**
  10-key preset channel buttons: Memorize or recall the
    preset channels for the unit determined by the setting
    of the FM-AM/TV selector.
  ENTER : Completes the operation for memory presetting
    of radio or TV channels.

[20] **TV buttons**
  MTS(Multichannel TV Sound): Receives a multichannel TV
  sound program when the FM-AM/TV selector is set to TV.
  TV/VTR :Selects the TV signal input.
  CH + : Selects a higher TV channel.
  CH − : Selects lower TV channel.
  VOL + : Increases the sound level.
  VOL − : Decreases the sound level.
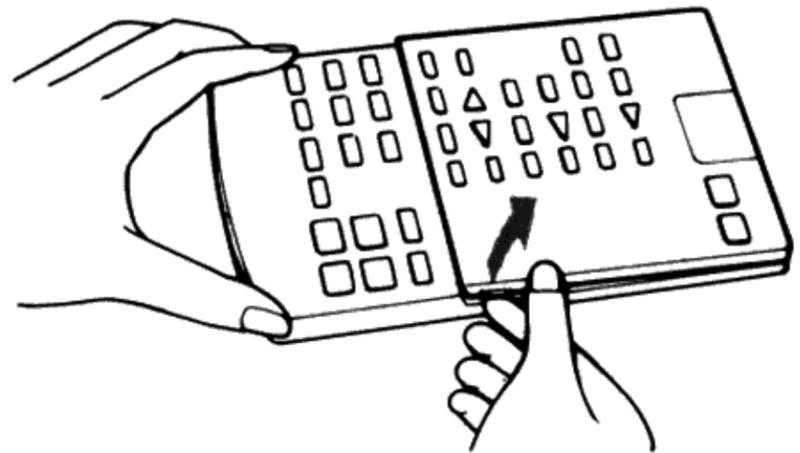 DISPLAY: Displays the selected signal source on the TV
    screen.

[21] **VDP (Video disc player) buttons**
  I◄◄/►►I: Chapter search
  ►: Play
  II: Pause
  ◄◄: Reverse play
  ►►: Fast play
  STEREO: Outputs left and right channel sound
    simultaneously.
    Use for bilingual programs.
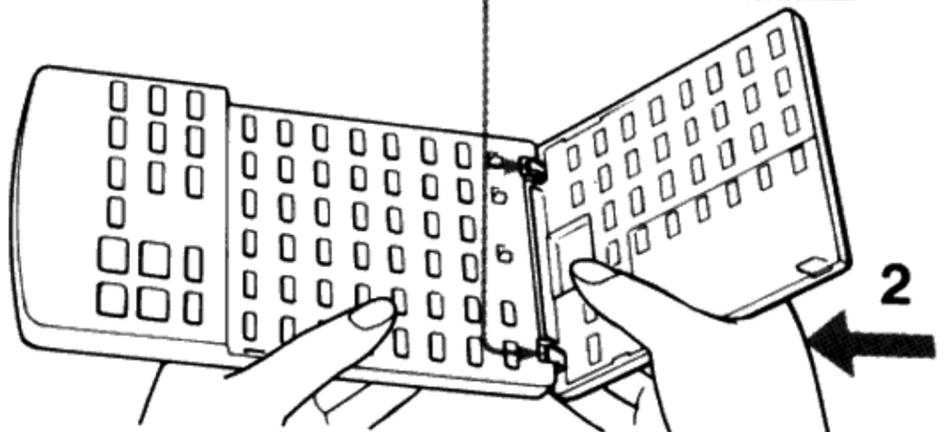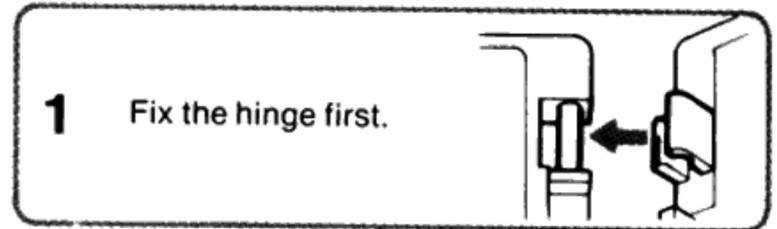 TV/VDP: Selects TV signal input or disc program.
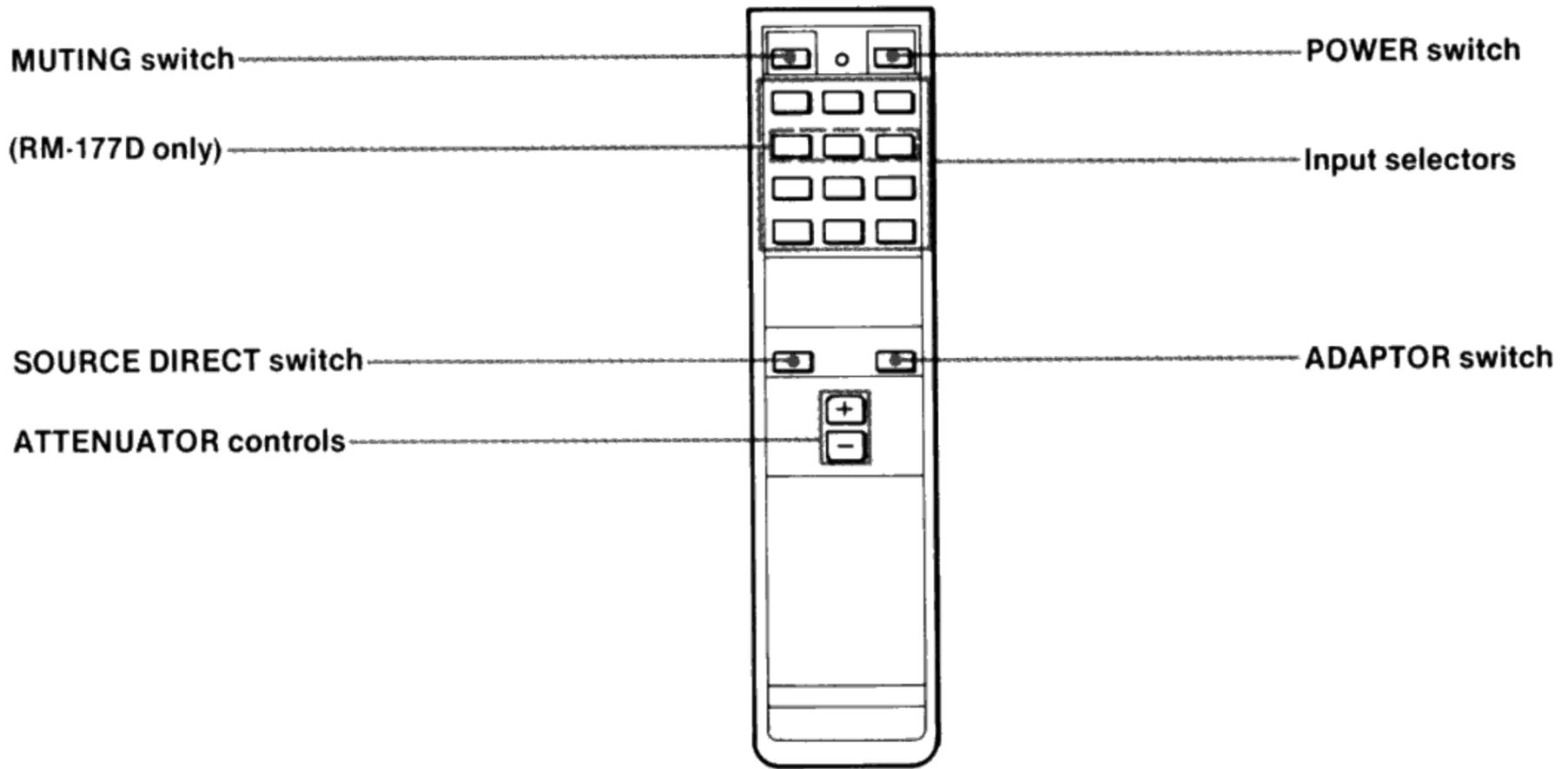
[22] **FREE buttons**

Opening and closing the lid
To open the lid, lift it up gently. Otherwise, the lid may be
removed.

To put back the lid, proceed as follows.

1 Fix the hinge first.

2

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Remote commander RM-177/177D

MUTING switch ———————————————————————— POWER switch

(RM-177D only) ————————————————————————— Input selectors

SOURCE DIRECT switch ——————————————————— ADAPTOR switch

ATTENUATOR controls ———————————————

Installing batteries

Open the battery lid located on the rear.
Insert two (four for RM-E7) size AA (R6) batteries with correct polarity.

Battery life
About a half year of normal operation can be expected when using the Sony SUM-3(NS) batteries.
When the batteries are exhausted, the remote commander cannot operate the unit. If this happens, replace both batteries with new ones.

To avoid battery leakage
When the commander is not to be used for a long time, remove the batteries to avoid damage caused by battery leakage and corrosion.
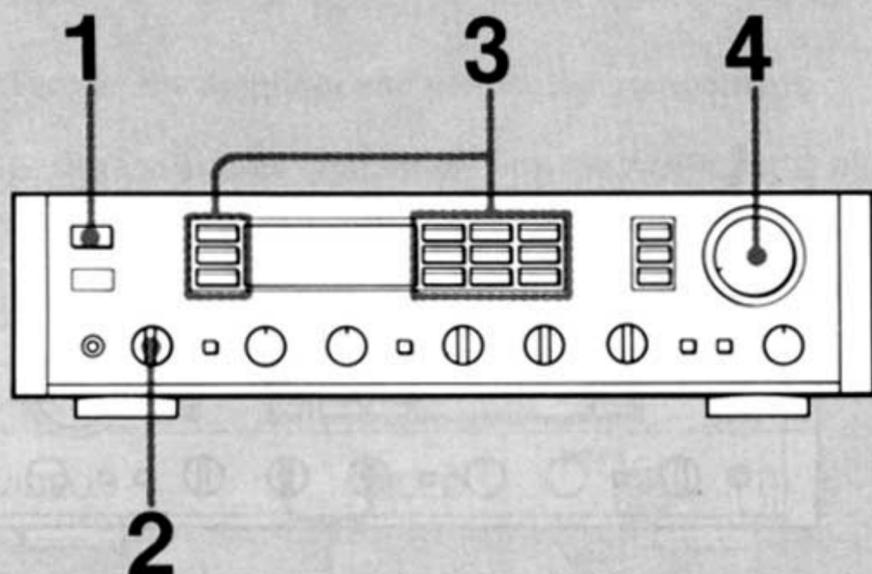
To avoid malfunction of the commander
Keep the commander away from extremely hot or humid place.

Coverage of the remote commander
The commander can remotelly control the equipments placed within the distance of 7m.

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Listening to an audio program source

1 Turn on POWER and connected components.

2 Set OUTPUT to ON.

3 Press the audio input selector and play the program source.

4 Adjust the sound level with ATTENUATOR.

Playing a phonograph record program
Be sure to set the CARTRIDGE load selector to the appropriate position according to your cartridge type.

CARTRIDGE load selector setting	Type	Impedance
MM	Moving-magnet	—
40ΩMC	Moving-coil	40 ohms or more
3ΩMC	Moving-coil	3 ohms to 40 ohms

When the connected graphic equalizer is used
Turn ON the ADAPTOR switch.

FM simulcast TV program

For countries where FM simulcast programs are available, you can enjoy certain TV program with FM stereo sound.
1 Turn on the power of this unit and the connected component.
2 Select the desired TV program with the connected VTR or tuner.
3 Select the TUNER of the audio input selector.
4 On the tuner, tune in the FM simulcast TV program.
5 Adjust the sound with the ATTENUATOR knob.

When you turn on the power
The red indicator on the ATTENUATOR knob blinks for several seconds immediately after this power is turned on.

Notes on selecting a digital signal source on the TA-E77ESD
• To enjoy digital audio input signal, press the DIGITAL-1 or -2 corresponding to the inputs that the source equipment is connected.
Confirm that the DAT selector is turned off.

• When the audio input selector DAT is pressed while selecting DIGITAL-1 or -2, both the indicators of DAT and the selected DIGITAL-1 or -2 are lit. This indicates that the digital sound source connected to the DIGITAL IN is directly output through the DAT DIGITAL OUT.
To play back the DAT, press the audio input selector DAT after confirming that the DIGITAL-1 or -2 is not selected.

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Sound adjustment

To record audio program

Tone control
Use BASS and TREBLE controls to adjust the tone to suit the characteristics of the listening room and the program source.
1 Turn off SOURCE DIRECT switch.
2 Adjust the BASS and TREBLE controls.
The TURNOVER frequency selector select the frequency range controlled by each control (below 200Hz or 400Hz for BASS control, and 3kHz or 6kHz for TREBLE control).

Note
Be sure to turn on the SOURCE DIRECT switch when the tone control is not required.

If subsonic noise components (lower than 15Hz) created by warped phonograph records, etc.
Press the SUBSONIC switch (⊏⊐) to reduce unwanted noise.

To regulate the sound level
Use the ATTENUATOR control.

If the left and right sound is not balanced
Adjusts the BALANCE control.
To check the stereo balance, depress the MODE selector to MONO.

To decrease the sound level immediately
Press the MUTING switch.
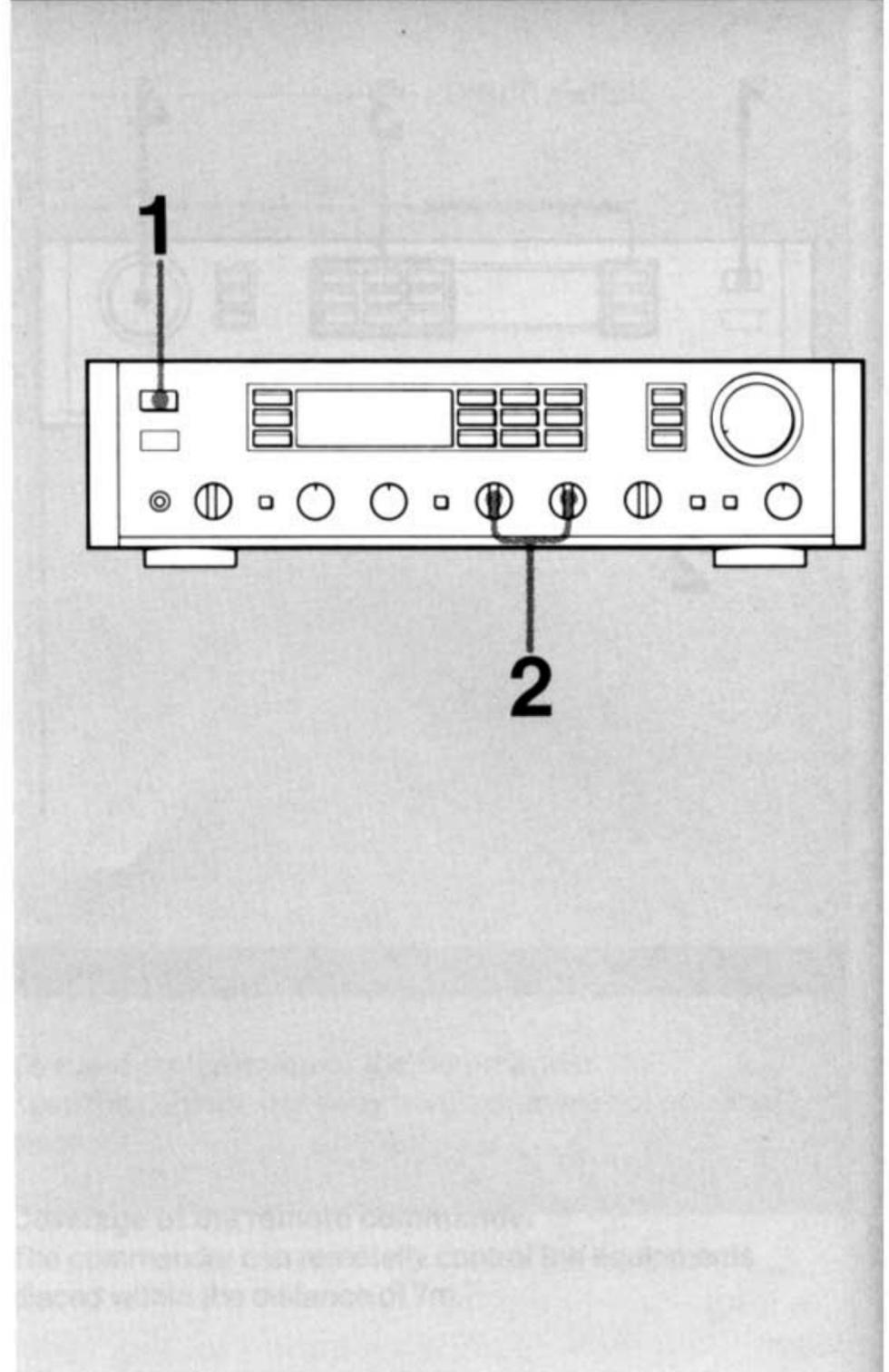It reduces the sound level by 20dB.

Headphone monitoring
For private listening, connect headphones to the HEADPHONES jack and turn OFF the OUTPUT switch.

> **To use the tone and BALANCE controls, SUBSONIC switch and MODE selector**
> Turn off the SOURCE DIRECT switch. Any source can be reproduced through these circuits.

While recording a program
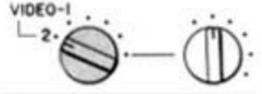Another audio program sources can be listened to by setting the audio input selector.
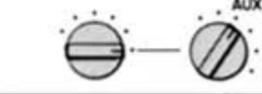The setting of sound level and tone quality controls have no effect on the recording.

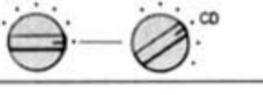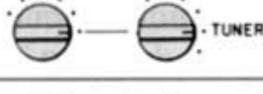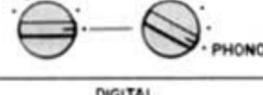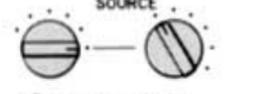**One program source can be recorded on several components**
The audio signals selected by the AUDIO REC SELECTOR are simultaneously output through the REC output jacks of TAPE-1 and -2, ANALOGUE OUT jack of DAT and OUT jacks of VIDEO-1, -2 and -3.

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1 Turn on the amplifier and connected components.

2 Select the source equipment with the AUDIO REC SELECTOR.

Audio program source to be recorded	AUDIO REC SELECTOR	
VIDEO-1	VIDEO 1	
VIDEO-2	VIDEO 2	
VIDEO-3	VIDEO 3	
TAPE-1	TAPE-1	
TAPE-2	TAPE-2	
Auxiliary source program	AUX	

Audio program source to be recorded	AUDIO REC SELECTOR	
CD	CD	
Radio	TUNER	
Phonograph record	PHONO	
Digital program CD or DAT (TA-E77ESD only)	DIGITAL SOURCE	Select the equipment with the audio input selector, DIGITAL-1, DIGITAL-2 or DAT.

3 Play the program source to be recorded.

4 Set the tape recorder and/or VTR in the record mode.

Recording CD program onto a DAT (TA-E77ESD only)
Direct digital to digital dubbing is not possible because of copy prohibit code recorded on CD.
For recording of CD program onto DAT, connect the ANALOGUE OUT to the line input of DAT.

Digital tape dubbing is possible with two digital audio tape decks (TA-E77ESD only)
Connect one DAT deck to DIGITAL IN 1 or 2 (for playback) and the other to the DIGITAL OUT jack (for recording).

Digital signal flow chart (TA-E77ESD only)
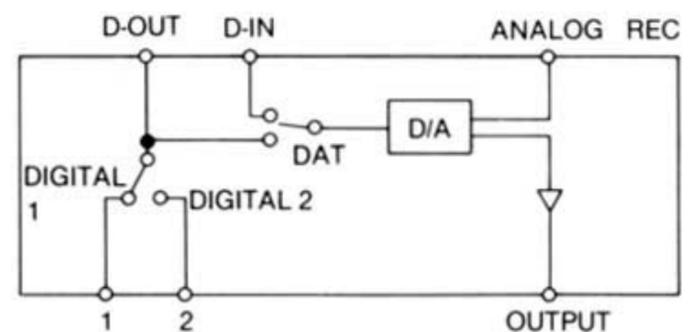
To dub video signals

In case of recording of video signals, signals output through the VIDEO OUT jacks according to the selection of the audio input selectors are as shown below.
Video signal dubbing from VIDEO-1 to VIDEO-2 or vice versa is possible. VIDEO-3 is available for playback only to dub.

Audio input selector	Video signals output through VIDEO OUT jack		
	MONITOR VIDEO OUT jack	VIDEO-1 OUT jack	VIDEO-2 OUT jack
VIDEO-1	VIDEO-1	—	VIDEO-1
VIDEO-2	VIDEO-2	VIDEO-2	—
VIDEO-3	VIDEO-3	VIDEO-3	VIDEO-3
Other audio input selectors	VIDEO-3	VIDEO-3	VIDEO-3

When the connectors for component video signal of the luminance and the chrominance (Y-C separate signal) are used for video signal dubbing (TA-E77ESD only)
Video signals are output as shown below.
Video signal dubbing is possible only from S VIDEO-2 to S VIDEO-1.

Audio input selector	Video signals output through VIDEO OUT jack	
	MONITOR VIDEO OUT jack	VIDEO-1 OUT jack
VIDEO-1	S VIDEO-1	—
VIDEO-2	S VIDEO-2	S VIDEO-2
Other audio input selectors	—	—

To record video and audio signals individually
1 Connect the video program source to the VIDEO 3.
2 Connect a VTR to the VIDEO 1 or VIDEO 2.
3 Select the audio program source with the audio input selector.
4 Play back the VTR connected to VIDEO 3. Play the audio program source and select the AUDIO REC SELECTOR. Then, start recording on VTR connected to VIDEO 1 or VIDEO 2.

How to use learning function (RM-E7 only)
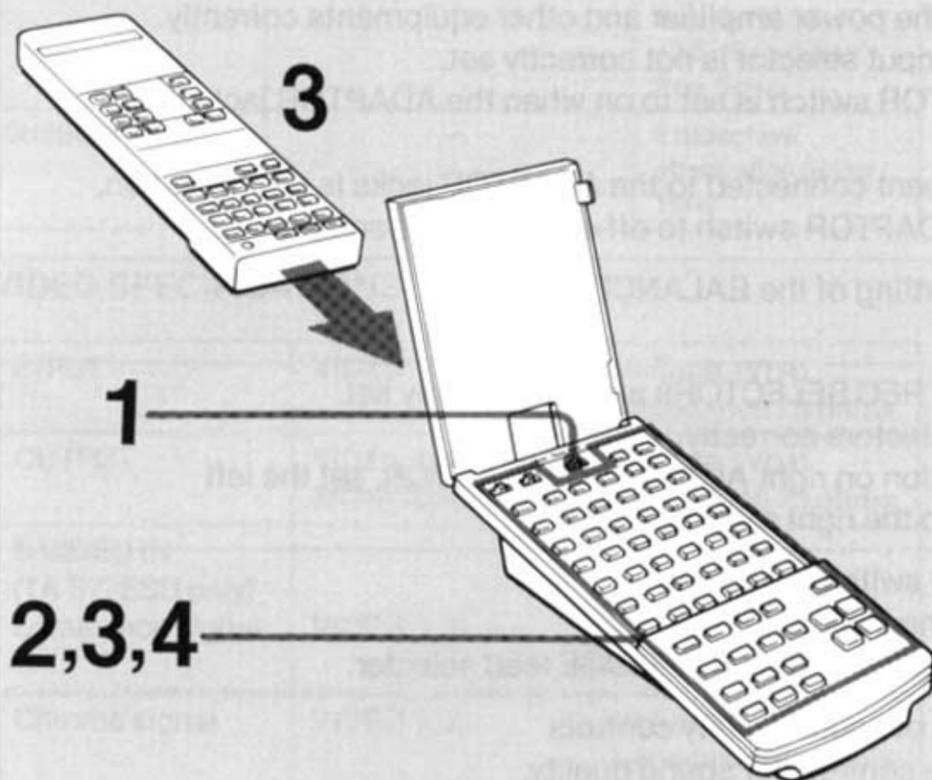
1 Set LEARN/USER/SONY to LEARN.
The READY indicator lights up.

2 Turn this commander towards another commander and press a button to which a function is to be memorized.
If the selected button is inoperative, the READY indicator flickers.

3 While keeping the button pressed, press the desired function button on the other commander.
The function is memorized by this unit. When the memorization is completed, the READY indicator goes out and the LEARNED indicator lights up.

4 Release the button.
The LEARNED indicator goes out and the READY indicator lights up to indicate that the next learning is ready to start.

When learning is finished
Set the LEARN/USER/SONY selector to a position other than LEARN. The READY indicator goes out.

To use the learned function
Set the LEARN/USER/SONY selector to USER.

To use for other functions than learning
Set the LEARN/USER/SONY selector to SONY.

Notes on programmable commander

On recording operation
To memorize the recording function onto the commander, always press the ◄ or ► button while keeping the ● button pressed. The learning may not be performed if you press ● only.

To activate recording using learned function, press ◄ or ► while keeping ● pressed.

On non-memorized buttons
When you press a button on which any function has not been memorized, with the LEARN/USER/SONY selector set to USER, Sony standard function will be activated.
If the button pressed has learned unrelated signals, such as noise from fluorescent light, no function will be activated.

To erase all the learned functions
1. Set the LEARN/USER/SONY selector to LEARN.
2. While keeping the ►►I of the VDP buttons pressed, press TV/VTR of the TV buttons.

Note
The memorization will be remained for two or three days without installing the batteries.

Index sheet
Use the supplied index sheet by placing it on the buttons for further reference.

CAUTION
Be sure to confirm if the functions have been stored as a few of the functions of other manufacturer commanders are not storable on this commander.

Troubleshooting guide

Before going through the check list below, first refer back to the connection and operating procedures.
Should any problem persist after you have made these checks, consult your nearest Sony dealer.

Trouble	Cause/Remedy
No audio	Faulty setting of OUTPUT selector. Faulty connection • Connect the power amplifier and other equipments correctly. The audio input selector is not correctly set. The ADAPTOR switch is set to on when the ADAPTOR jacks are not used. The equipment connected to the ADAPTOR jacks is not turned on. • Set the ADAPTOR switch to off or turn on the equipment.
No audio from one channel or unbalanced left and right sound level	Incorrect setting of the BALANCE control
No recording	The AUDIO REC SELECTORs are not correctly set. • Set the selectors correctly. For selection on right AUDIO REC SELECTOR, set the left selector to the right most position.
Low volume	The MUTIG switch is depressed. • Release the switch. Incorrect setting of the CARTRIDGE load selector.
Lack of bass sound or obscure instrument position	Mal-setting of sound quality controls • Adjust the controls for sound quality. Faulty setting of the CARTRIDGE load selector.
Severe hum or noise	Noise from TV, etc. • Keep the connecting cords away from transformers or motors, TV and fluorescent lights. Faulty connection of turntable system. • Ground the turntable system
Remote control operation cannot be performed.	The batteries in the commander are exhausted. • Replace them with new ones.

Specifications

AUDIO SPECIFICATIONS

Item	Condition			Data
Total harmonic distortion	At rated 20Hz – 20kHz output			0.001%
Intermodulation (M)distortion 60Hz:7kHz = 4:1	at rated output			0.001%
Residual noise	Network A			Less than 10μV
Frequency response	PHONO MM			RIAA equalization curve ±0.2dB
	TUNER, CD, VIDEO 1, 2, 3 TAPE 1, 2, AUX, ADAPTOR IN			3Hz – 300kHz $^{+0}_{-3}$ dB
Input sensitivity	PHONO	MC	3 ohms	0.17mV, 100 ohms
			40 ohms	0.17mV, 1k ohm
		MM		2.5mV, 50k ohms
	TUNER, CD, AUX, TAPE 1, 2, VIDEO 1, 2, 3 ADAPTOR IN			150mV, 50k ohms

Item	Condition		Data
Maximum input capability (1kHz)	PHONO (1 kHz, THD 0.003%)	MC	9mV
		MM	150mV
S/N (network)	PHONO	MC (0.5mV)	83dB(A)
		MM (5mV)	95dB(A)
	TUNER, CD, AUX, TAPE 1, 2, VIDEO 1, 2, 3 ADAPTOR IN		105dB (A)
Output voltage impedance	REC OUT 1, 2, VIDEO OUT, ADAPTOR OUT, DAT OUT (TA-E77ESD)		150mV, 1k ohm
	HEADPHONES		45 milliwatts (at 8 ohms) Accepts low and high impedance headphones.
	PRE OUT		1.5V, 47 ohms 1.5V, 200 ohms (only W. Germany)

Item	Condition	Data
Tone controls	BASS, at 100Hz	$^{+3.5}_{-4}$ dB (turnover freq. 200Hz) $^{+7}_{-6}$ dB (turnover freq. 400Hz)
	TREBLE, at 10kHz	$^{+7}_{-7.5}$ dB (turnover freq. 3kHz) ±3.5 dB (turnover freq. 5kHz)
SUBSONIC filter	—	6 dB/octave attenuation below 15Hz

VIDEO SPECIFICATIONS

INPUT	VIDEO 1, 2, 3	Voltage 1Vp-p Impedance 75 ohms
OUTPUT	VIDEO 1, 2 MONITOR TV	Voltage 1Vp-p Impedance 75 ohms
S VIDEO IN (TA-E77ESD only) Luminance signal	VIDEO 1, 2	Voltage 1Vp-p Impedance 75 ohms
Chroma signal	VIDEO 1, 2	Voltage 0.286Vp-p Impedance 75 ohms
S VIDEO OUT (TA-E77ESD only) Luminance signal	VIDEO 1 MONITOR	Voltage 1Vp-p Impedance 75 ohms
Chroma signal	VIDEO 1 MONITOR	Voltage 0.286Vp-p Impedance 75 ohms

DIGITAL SPECIFICATIONS (TA-E77ESD only)

Converter section

Digital input (phono jacks)	Input level (sensitivity) 0.5 Vp-p ±20%	Impedance 75 ohms
Digital output	Output level (voltage) 0.5Vp-p ±20%	Impedance 75 ohms The input signal comes unprocessed to the digital output terminals via a buffer, only when the TA-E77ESD is operating.

Number of channels
  2 (stereo)
Demodulation (D/A conversion)
  16-bit linear
Frequency response
  5Hz – 20kHz ±0.5dB
  (Input digital signal sampling freq. 44.1kHz)
Harmonic distortion
  Less than 0.004% at 1kHz
  (Input digital signal sampling freq. 44.1kHz 16-bit operation)
Dynamic range More than 95dB
  (Input digital signal sampling freq. 44.1kHz 16-bit operation)
Channel separation
  More than 90dB

GENERAL

System
  Low-noise FET high gain, NFB type equalizer amplifier, low noise FET, Double-stage differential, push-pull output, flat amplifier passive type direct tone control
Power requirements
  USA and Canada: 120V AC, 60Hz
  West Germany 220 – 240 V AC, 50/60 Hz
  Other countries: 110 – 120V or 220-240V AC adjustable, 50/60Hz
Power consumption
  30W
AC outlets USA and Canada: 1 switched, 400W max.
  1 unswitched, 400W max.
  European countries: 1 switched 600W max.
  Other countries: 1 switched, 400W max.
  1 unswitched, 400W max.
Dimensions Approx. 470 × 130 × 370mm (w/h/d) (18$^1/_2$ × 5$^1/_4$ × 14$^1/_2$ inches) incl. projecting parts and controls
Weight Approx. 12.1kg (26 lb 11oz):TA-E77ES
  Approx. 13kg (28lb 11oz) :TA-E77ESD
Supplied accessory
  USA and Canada: Programmable commander RM-E7 (1), Digital signal cord (1), Connecting cord (1), Sony New Super batteries (4), Index sheet
  European countries: Remote commander RM-177D (1), Digital signal cord (1), Connecting cord (1), Sony New Super batteries (2)
  Other countries: Remote commander RM-177 (1), Connecting cord (1), Sony New Super batteries (2)

Design and specifications subject to change without notice.