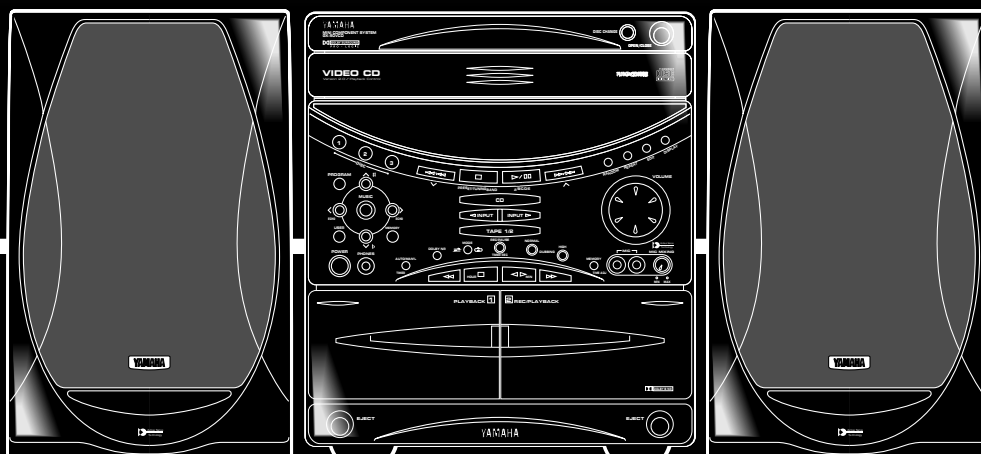


YAMAHA

Active Servo
Technology

GX-90VCD

MINI COMPONENT SYSTEM



COMPACT
disc
DIGITAL VIDEO

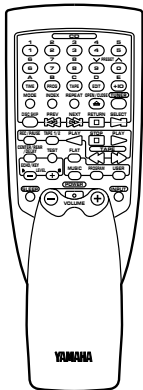
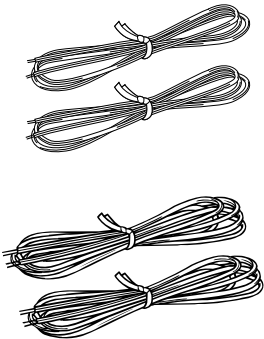
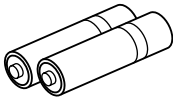
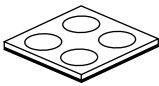
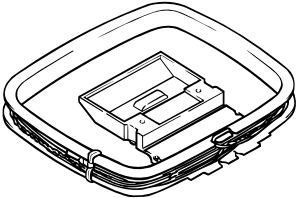

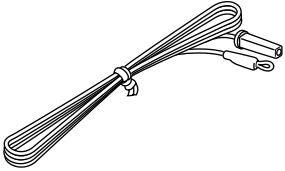
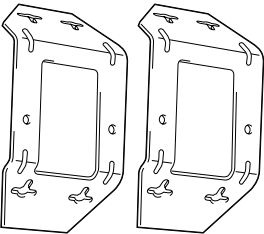
VIDEO CD

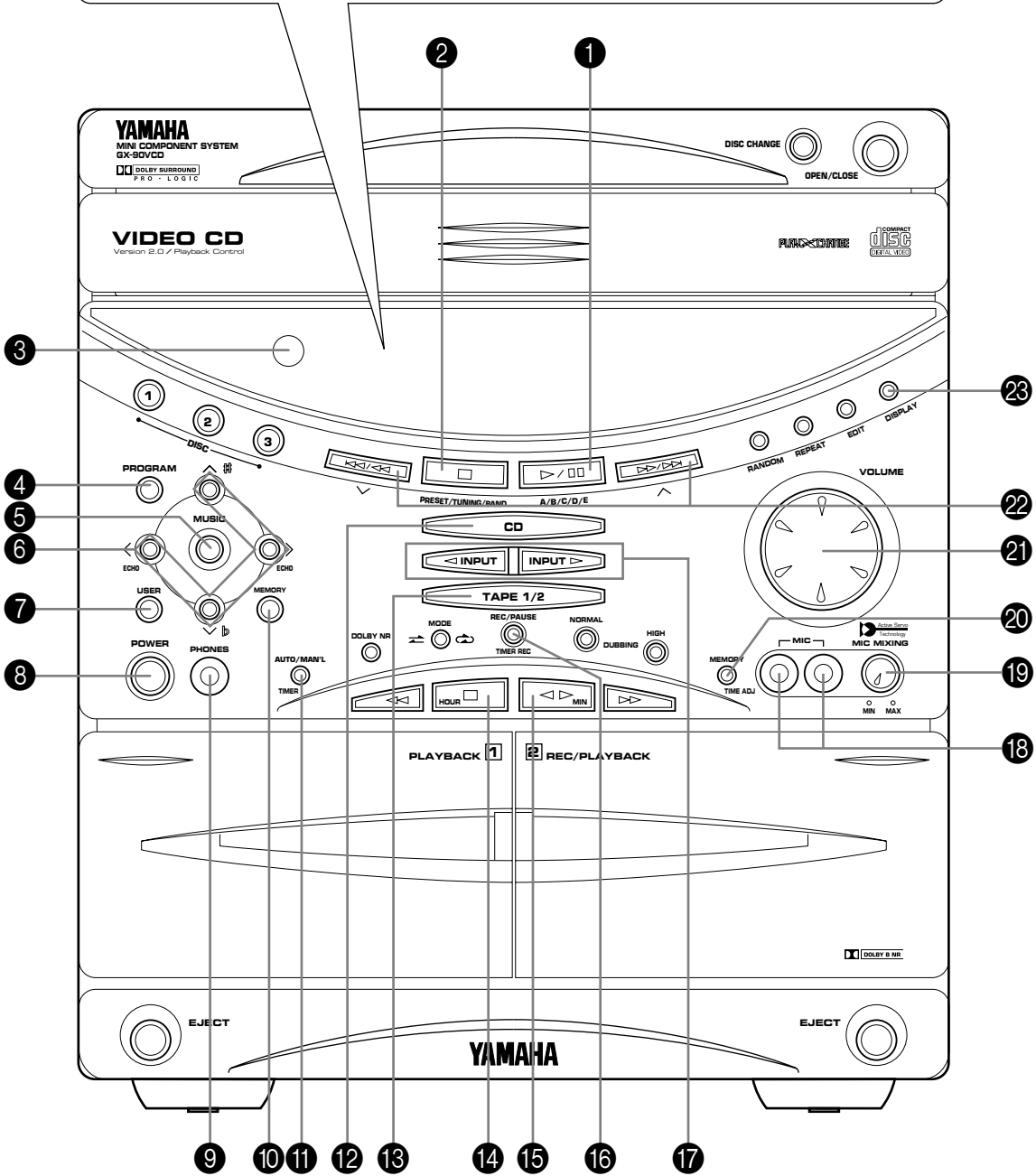
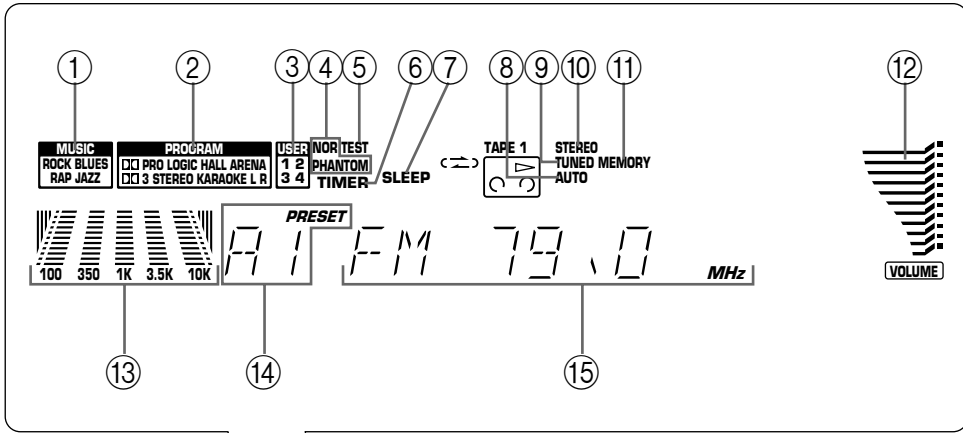
OWNER'S MANUAL

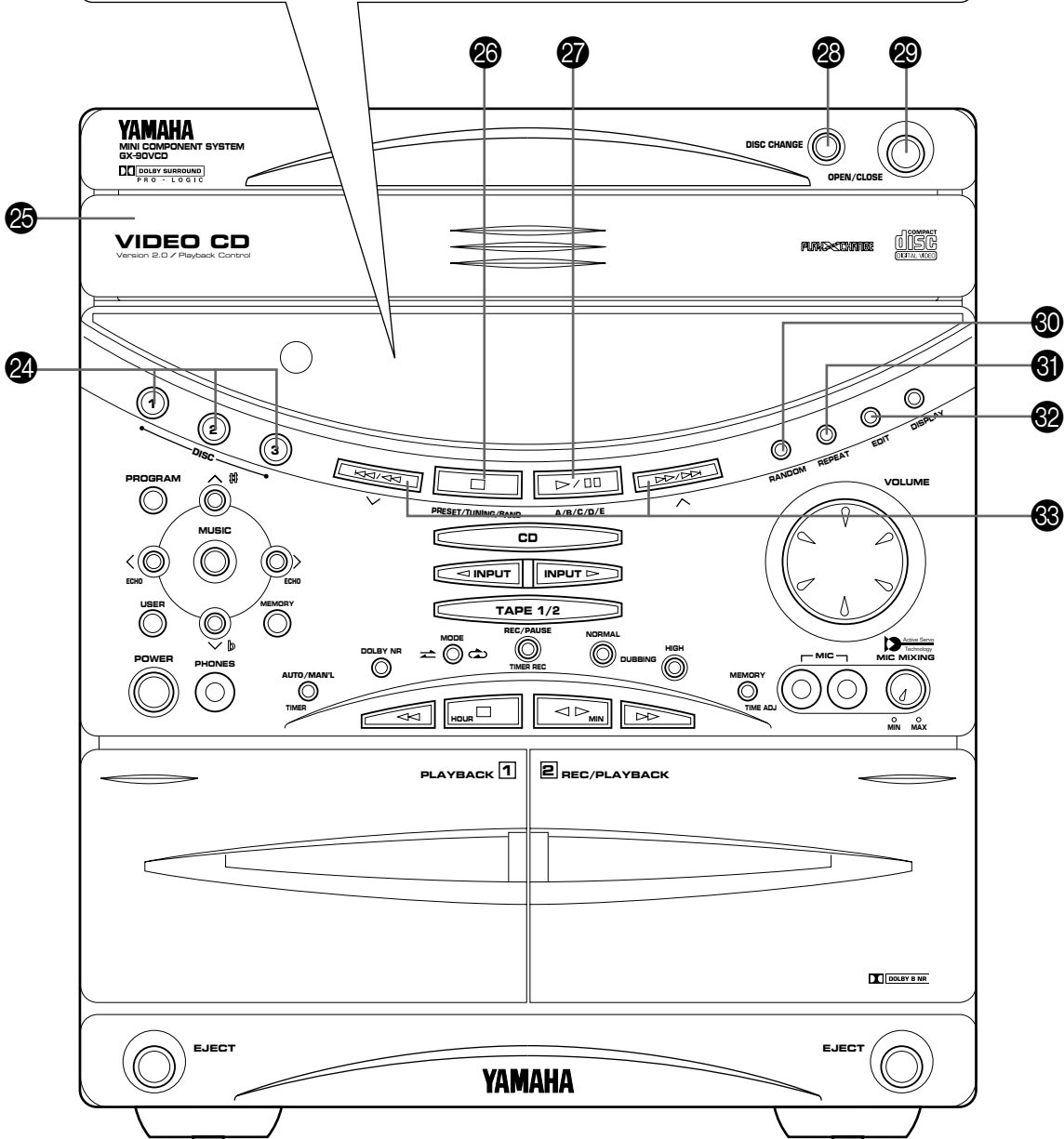
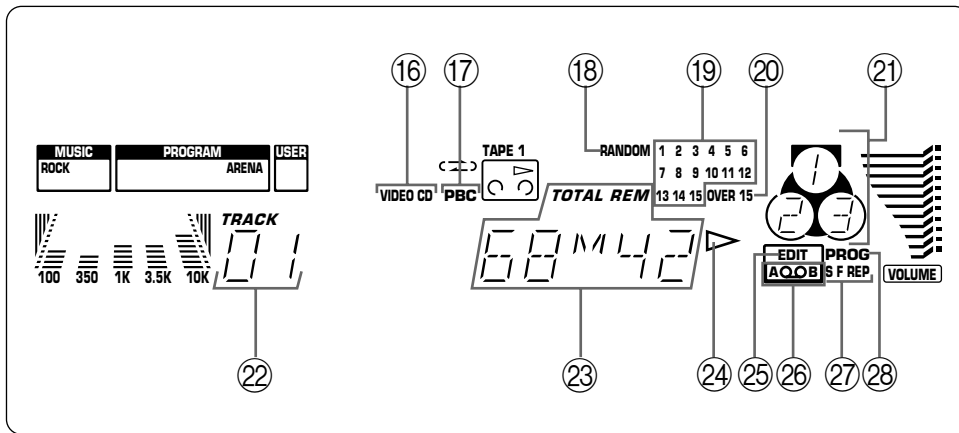
使用说明书

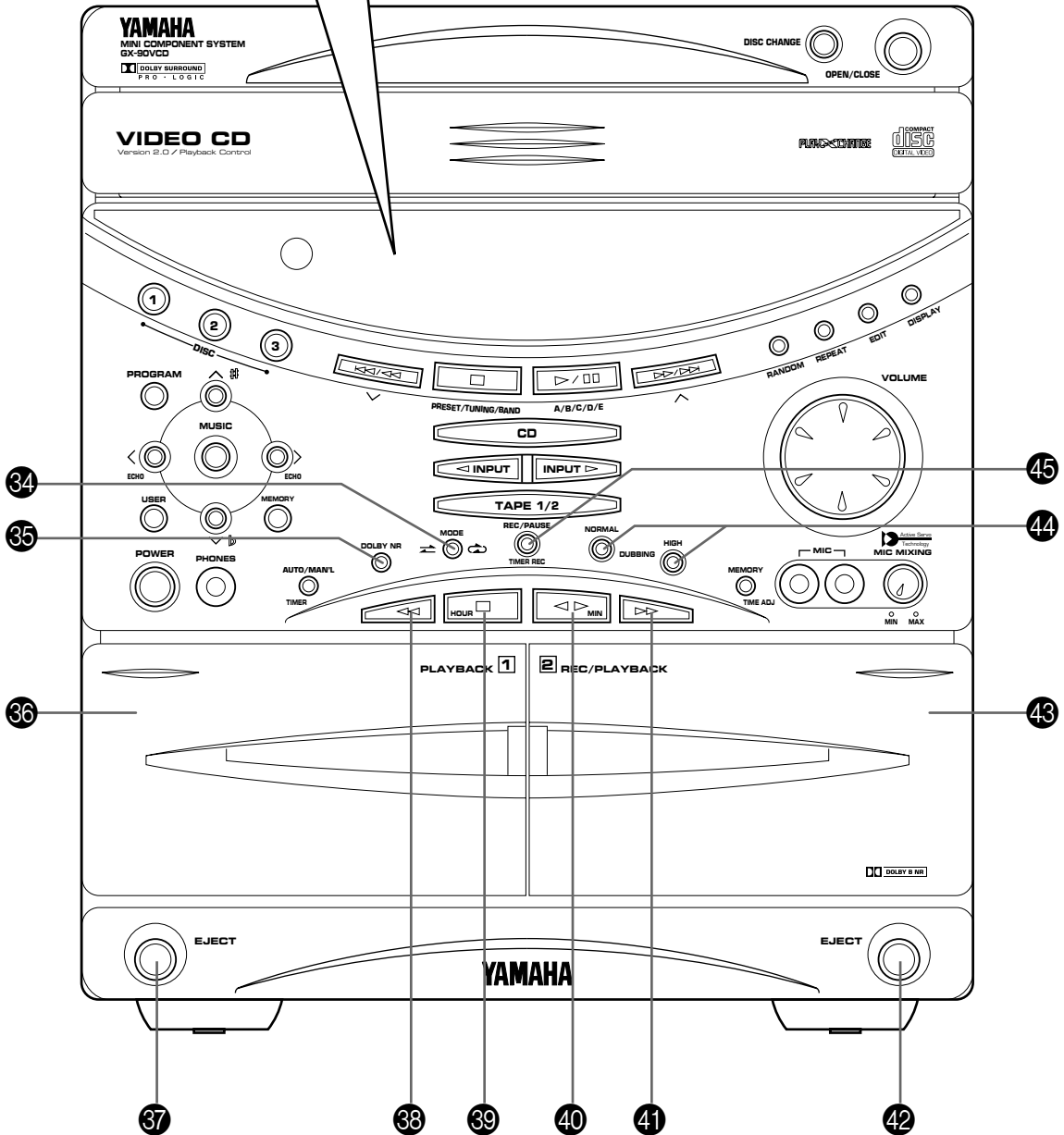
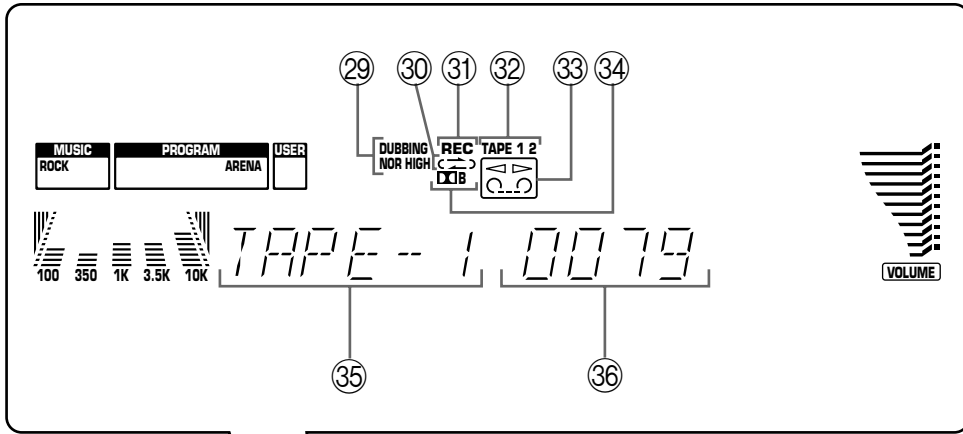
SUPPLIED ACCESSORIES
随机赠送配件

- After unpacking, check that the following parts are contained.
- 拆包后，请检查箱内是否配备下述附件

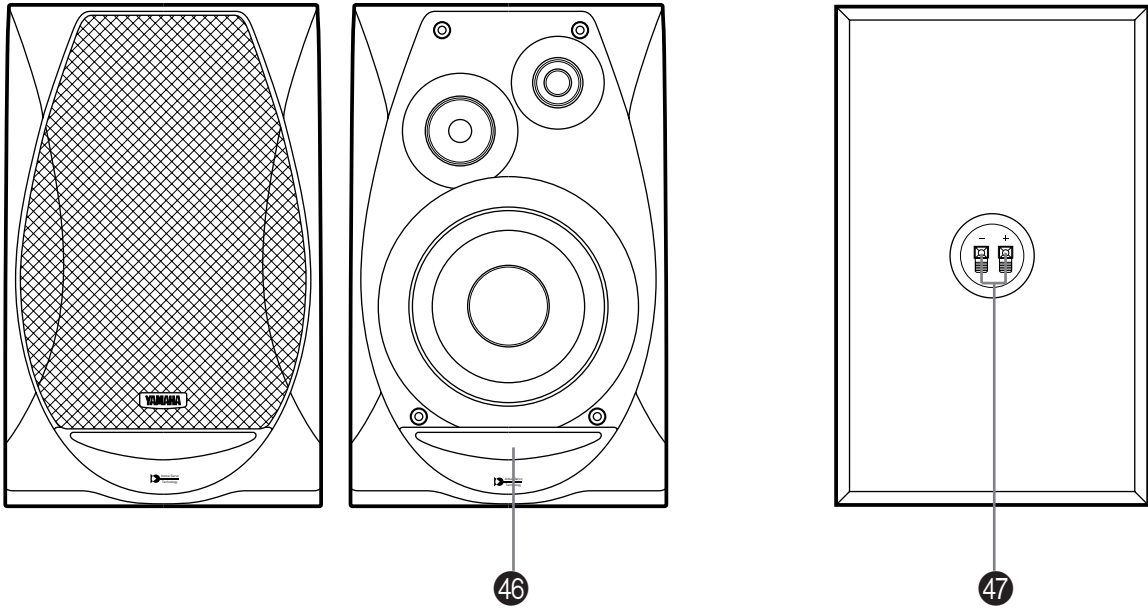
<ul style="list-style-type: none">• Remote control transmitter• 遥控器 	<ul style="list-style-type: none">• Speaker cords• 扬声器接线 
<ul style="list-style-type: none">• Batteries (size AA, UM/SUM-3, R6, HP-7)• 电池 (尺寸: AA, UM/SUM-R6, HP-7) 	<ul style="list-style-type: none">• Pads• 护垫 
<ul style="list-style-type: none">• AM loop antenna• AM 环形天线 	<ul style="list-style-type: none">• Screws• 螺钉 
<ul style="list-style-type: none">• Indoor FM antenna• 室内 FM 天线 	<ul style="list-style-type: none">• Mounting brackets• 安装架 



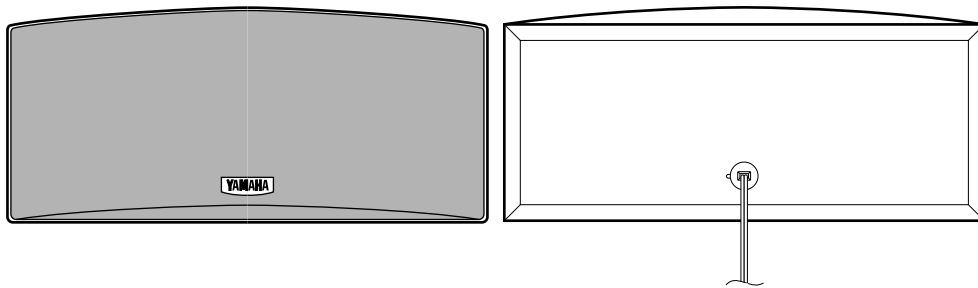




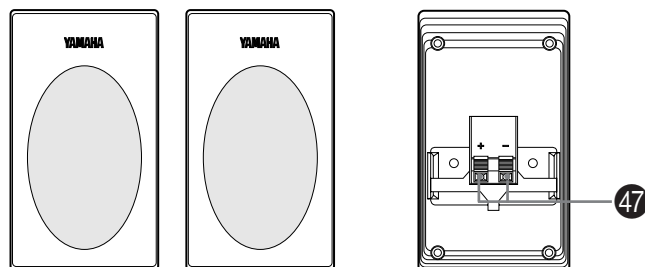
NX-GX70 Front speakers
前置扬声器



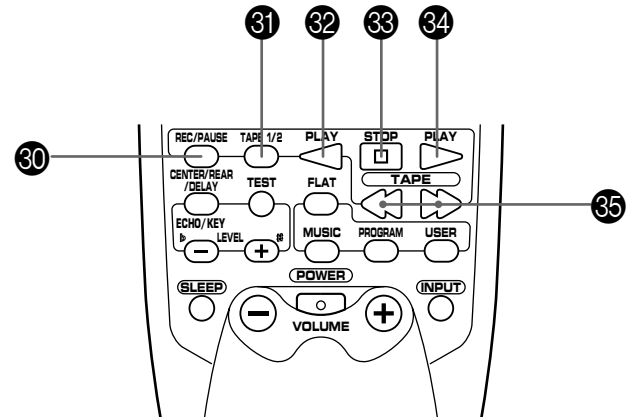
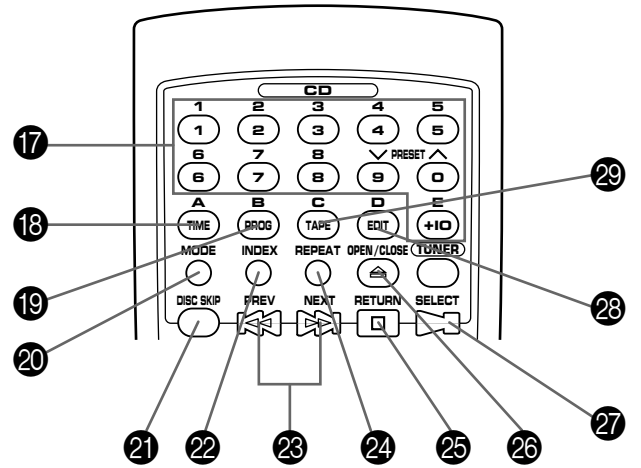
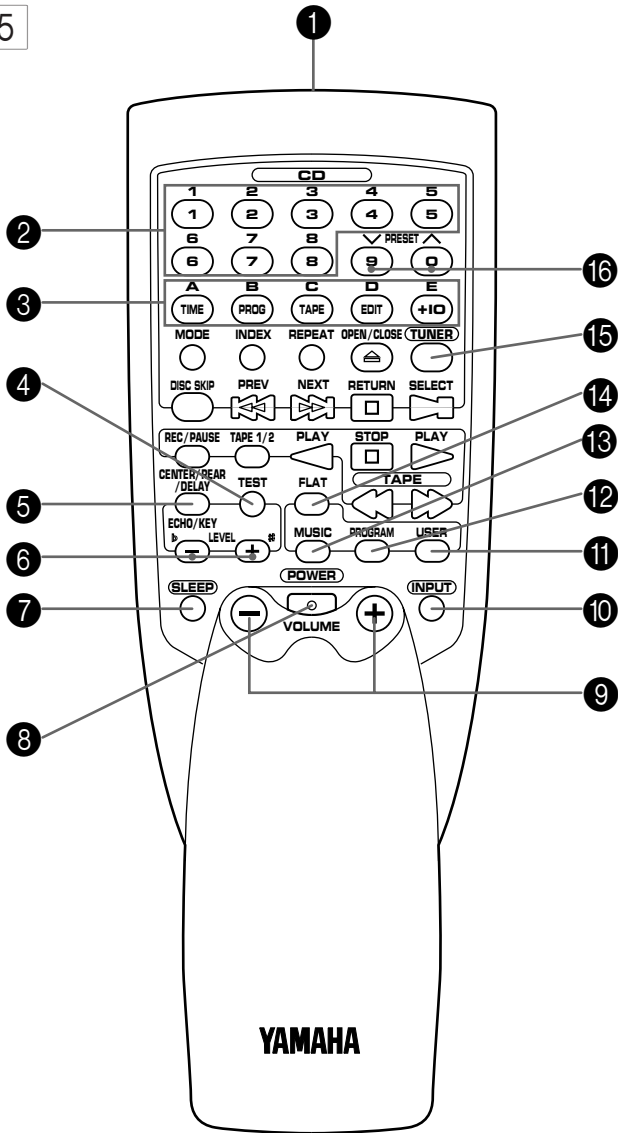
NX-C70 Center speaker
中置扬声器



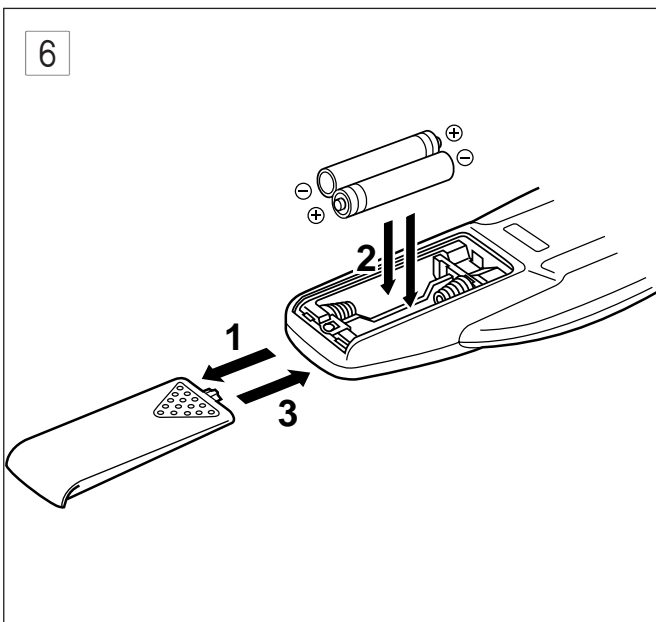
NX-E70 Rear speakers
后置扬声器



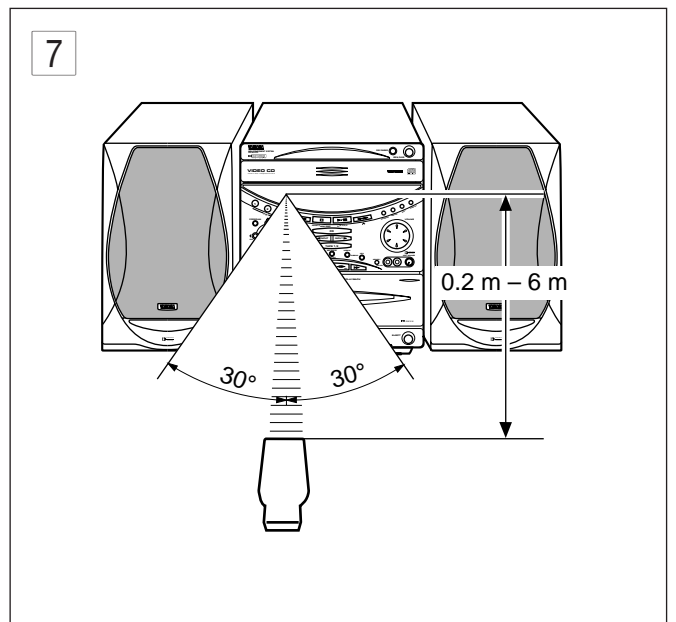
5

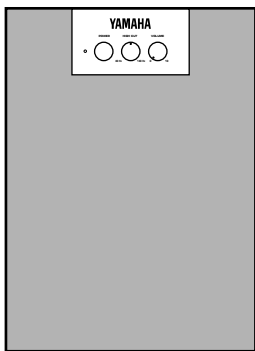


6

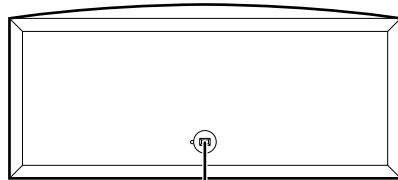


7

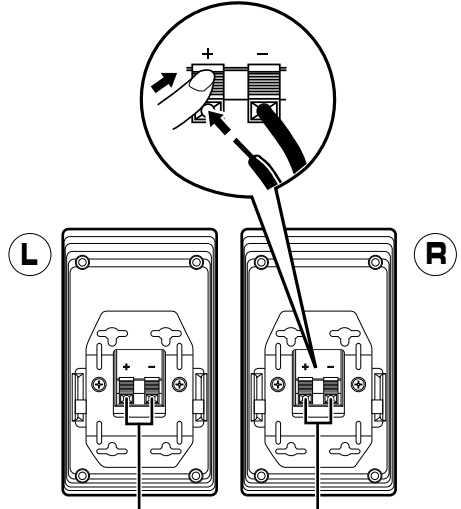
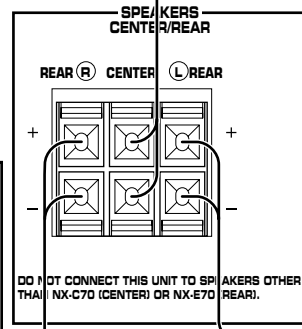
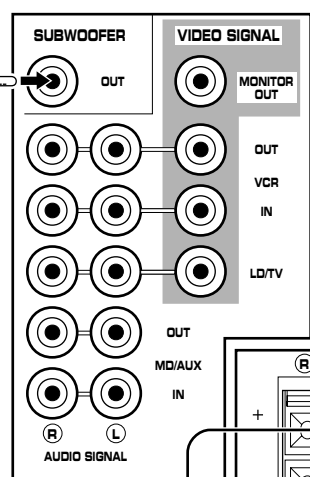




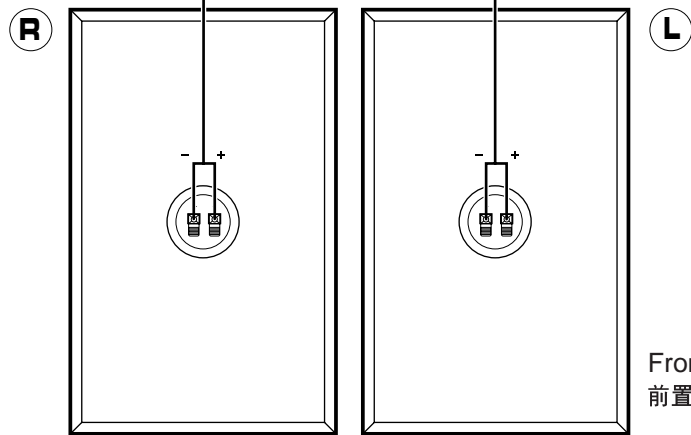
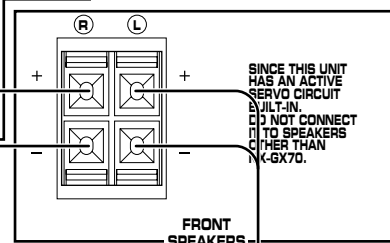
Subwoofer system
超低音扬声器系统



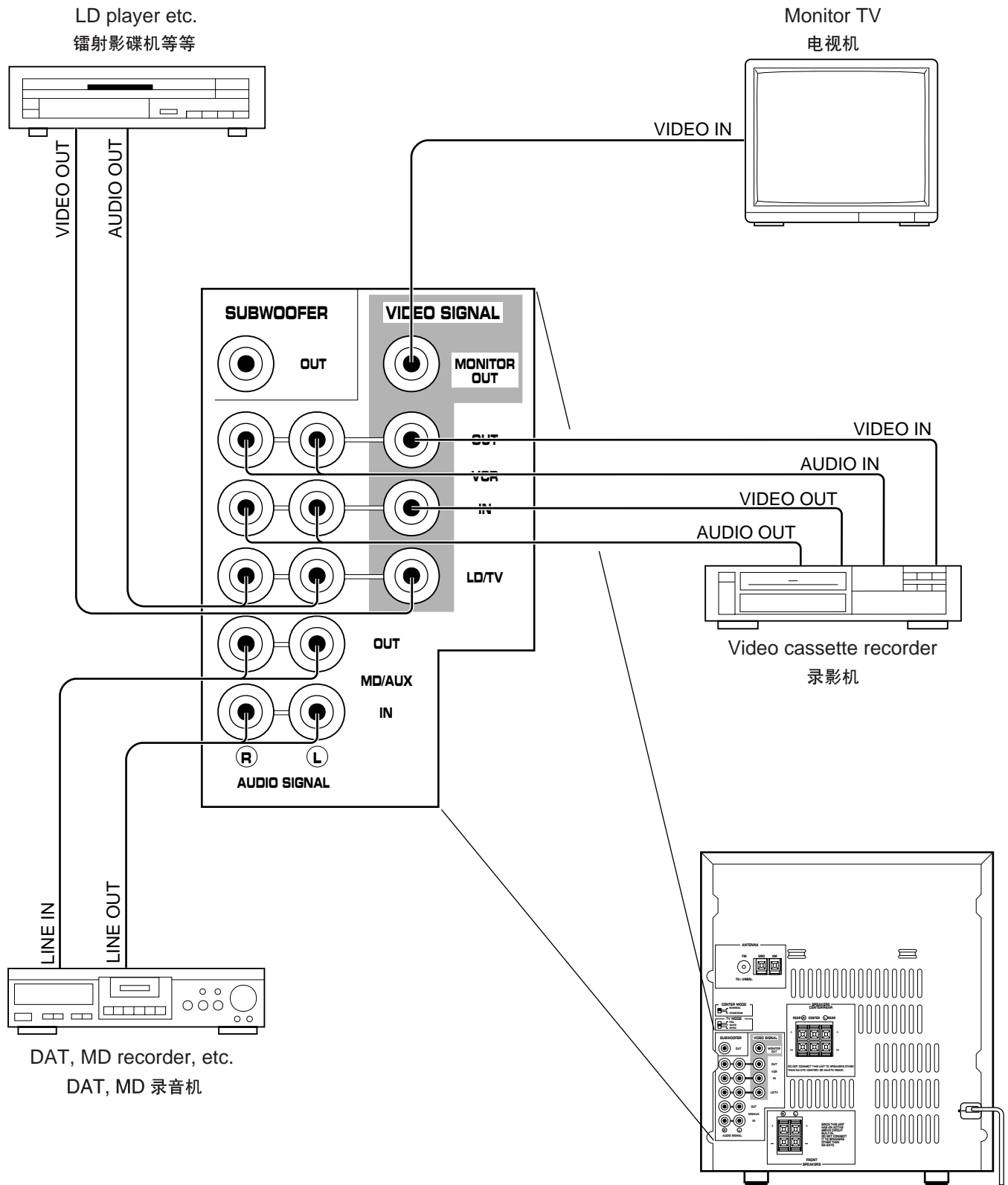
Center speaker
中置扬声器



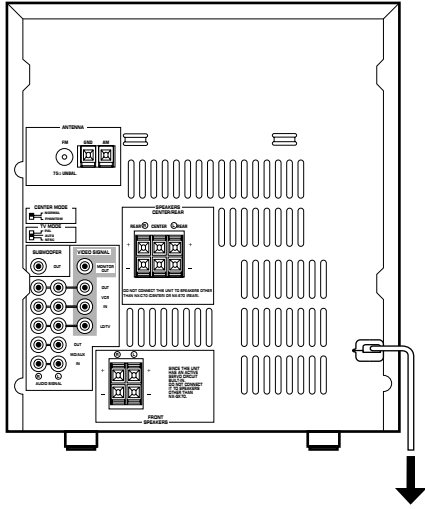
Rear speakers
后置扬声器



Front speakers
前置扬声器

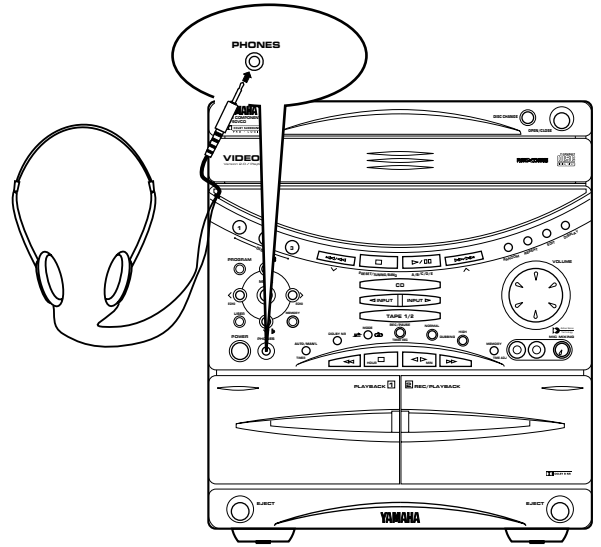


10

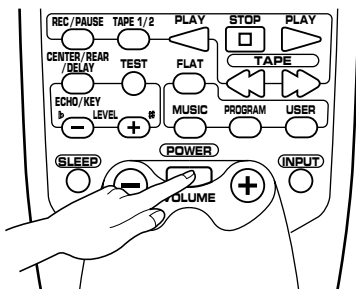
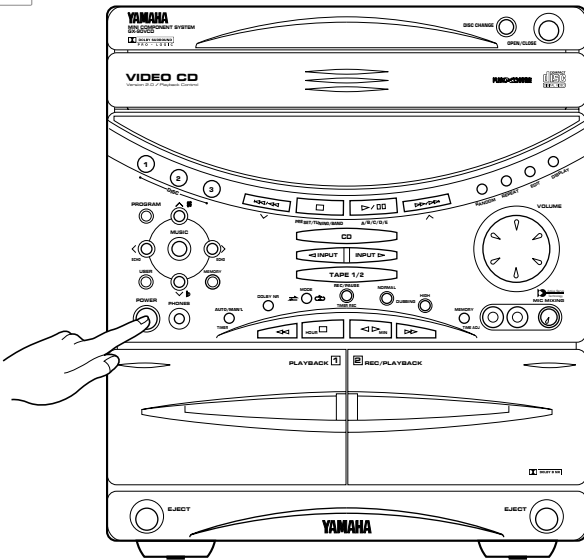


To AC outlet
往交流电出口

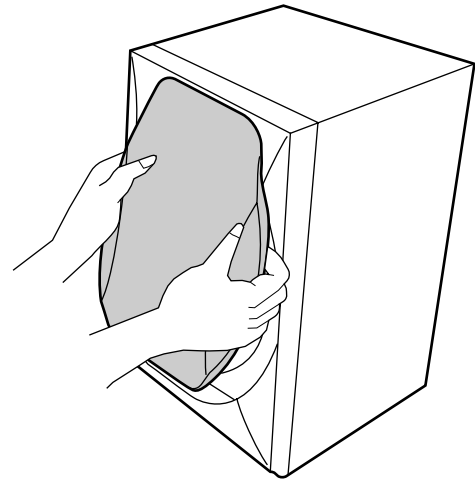
12



11



13



INTRODUCTION

Thank you for purchasing this YAMAHA product. We hope it will give you many years of trouble-free enjoyment. For the best performance, read this manual carefully. It will guide you in operating your YAMAHA product.

CONTENTS

	Page		Page
PRECAUTIONS	2-3	VIDEO-CD PLAYER OPERATION.....	18-24
FEATURES	4-5	PLAYBACK CONTROL OF VIDEO-CD (Ver. 2.0).....	25-27
NAMES OF CONTROLS AND INDICATORS.....	6-7	TUNING OPERATION	28-30
REMOTE CONTROL TRANSMITTER	7-8	TAPE DECK OPERATION	31-34
SETTING UP THE MAIN UNIT	8	RECORDING CD/VIDEO-CD SOURCES.....	35-40
SETTING UP THE SPEAKERS.....	9-11	OTHER RECORDINGS	41-42
CONNECTIONS.....	11-13	OPERATING EXTERNAL UNITS	
SETTING THE VIDEO OUTPUT FORMAT SELECTOR		CONNECTED WITH THIS SYSTEM	43
(TV MODE) SWITCH	13	USING GRAPHIC EQUALIZER	44-45
TURNING THE POWER ON/OFF TO THIS SYSTEM.....	13	USING SOUND FIELD PROCESSOR	46-49
SETTING THE CLOCK.....	14	STORING YOUR OWN PROGRAMS.....	50
ADJUSTING BRIGHTNESS OF THE DISPLAY	14	KARAOKE OPERATION	51-52
VOLUME CONTROL	15	HOW TO USE THE BUILT-IN TIMER	53-56
LISTENING WITH HEADPHONES.....	15	MAINTENANCE.....	57
REMOVING THE FRONT GRILLES OF FRONT		TROUBLESHOOTING.....	57-58
SPEAKERS.....	15	SPECIFICATIONS	59-60
SPEAKER BALANCE ADJUSTMENT.....	16-17		

For basic source play, the following illustrations on top of pages will help you to look for the section you need.



.....CD/Video-CD playback



.....Tuning



.....Tape playback/recording

PRECAUTIONS: READ THIS BEFORE OPERATING YOUR UNIT

- To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- This system is designed for using the provided Active Servo Processing Speaker System for front speakers. Therefore, **do not attempt to connect other conventional speakers to the FRONT SPEAKERS terminals of this system.**
- Choose the installation location of this unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep it away from sources of hum such as transformers and electric motors.
- Do not operate this unit upside-down. It may overheat, possibly causing damage.
- Never open the cabinet. If something drops into the set, contact your dealer.
- The openings on the cabinet assure proper ventilation of the unit. If these openings are obstructed, the temperature inside the cabinet will rise rapidly and eventually damage the circuits. Therefore, avoid placing objects against these openings and do not install the unit where the flow of air through the ventilation openings could be impeded.
- Always set the VOLUME control to minimum before starting an audio source play: increase the volume gradually to an appropriate level after play has started.
- When not planning to use this unit for long periods of time (ie., vacation, etc.), disconnect the AC power plug from the wall outlet.
- Grounding or polarization – Precautions should be taken so that the grounding or polarization of the unit is not defeated.
- Do not use force on switches, controls or connection wires. When moving the unit, first disconnect the power plug and the wires connected to other equipment. Never pull the wire itself.
- Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
- To prevent lightning damage, disconnect the AC power plug and the antenna cable when there is an electrical storm.
- Do not plug the AC power plug to the wall socket before you finish all connections.
- Never allow metallic items (e.g. screwdrivers, tools, etc.) to come near the cassette deck’s record/playback head assembly in this unit. Doing so may not only scratch or damage the head’s mirror-smooth finish, it may change the magnetic characteristics of the heads, causing a deterioration in reproduction performance quality.
- Although the cassette deck’s record/playback heads used in this unit are high quality heads with outstanding reproduction characteristics, they can become dirty through the use of old tapes or from dust accumulation over time. This can have a serious effect on reproduction quality. Clean the heads regularly with one of the commonly available head cleaners or with cleaning solutions.
- The voltage to be used must be the same as that specified on this unit. Using this unit with a higher voltage than that which is specified is dangerous and may result in a fire or other type of accident causing damage. YAMAHA will not be held responsible for any damage resulting from use of this unit with a voltage other than that which is specified.
- The sound level at a given volume setting depends on speaker location and other factors. Care should be taken to avoid exposure to sudden high levels of sound, which may occur when turning on the unit with the volume control setting at high, and to continuous high levels of sound.
- Sudden temperature changes and storage or operation in an extremely humid environment may cause condensation inside the cabinet. Condensation can cause the unit to malfunction. To eliminate condensation:
 - **Pickup**
Leave the power on with no disc in the unit until normal playback is possible (about 1 hour).
 - **Tape head**
Leave the power on with no tape in the unit until normal playback is possible (about 1 hour).
Note
If condensation forms on the tape head, foreign matter may accumulate during use.
 - **Remote control**
Wipe off condensation on the transmitter window with a soft cloth before operating the unit.

IMPORTANT

Please record the serial number of this unit in the space below.

Serial No.:

The serial number is located on the rear of the unit. Retain this Owner’s Manual in a safe place for future reference.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PRECAUTIONS: READ THIS BEFORE OPERATING YOUR UNIT**NOTE**

Please check the copyright laws in your country to record from records, compact discs, radio, etc. Recording of copyright material may infringe copyright laws.

CAUTION FOR CARRYING THIS UNIT

Be sure not to carry or tip this unit with discs remaining in it.

CAUTION FOR MOVING THIS UNIT

Before moving this unit, first remove all discs from the disc table and close the table by pressing the OPEN/CLOSE button. After you confirm that "NO DISC" lights up on the display, switch off the power by pressing the POWER switch, and then disconnect the power plug from the AC outlet.

The apparatus is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the apparatus itself is turned off.

VOLTAGE SELECTOR (General model only)

The voltage selector on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply.

Voltages are 110/120/220/240V AC, 50/60 Hz.

WARNING

To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.

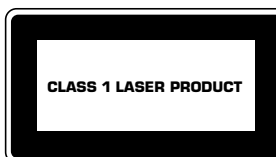
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

CAUTION 1

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION 2

As the laser beam used in this unit is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.



This unit is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser Output: max. 44.6μW*

* This output is the value measured at a distance of about 200mm from the objective lens surface on the Optical Pick-up Block.

The Video-CD player on this system can play discs of the following types only.

Type of disc	Mark printed on the disc	Type of signal recorded	Size (Dimension)	Maximum possible play time
Video-CD		Sound + Picture (Movie)	12 cm	74 minutes
			8 cm (Single type)	20 minutes
Compact disc		Sound only	12 cm	74 minutes
			8 cm (Single type)	20 minutes

Never attempt to load a disc other than above on this system because it may cause a damage to this system and/or other units connected to this unit.

VIDEO-CD

Video-CDs are classified into two types, version 1.1 and 2.0. This system can play not only discs of version 1.1, but also version 2.0 on which a Playback Control can be made.

Video-CD, version 1.1: With the same operation as compact discs, you can enjoy sounds and pictures (movies).

Video-CD, version 2.0: In addition to a normal play which is the same as discs of version 1.1, you can make a Playback Control. (For details on Playback Control, refer to page 25.)

FEATURES

The System

- **5 Speaker Multi-Channel Audio System Including Two Front Speakers, One Center Speaker and Two Rear Speakers**
- **Active Servo Processing Front Speaker System (NX-GX70)**
- **Free-Standing/Wall Mounting Type Rear Speaker System (NX-E70)**
- **Remote Control Capability**

Amplifier

- **Minimum RMS Output Power per Channel**
Front L, R: 65W + 65W (6 Ω) RMS Output Power, 1% THD, 1 kHz
Center: 20W (8 Ω) RMS Output Power, 1% THD, 1 kHz
Rear 20W (8 Ω) RMS Output Power, 1% THD, 1 kHz
- **Adjustable Display Brightness**
- **2 Microphone Jacks and Mic Mixing Level Control for Karaoke**
- **Echo Level and Key Level Control Capability**
- **Multi-Use Timer/Sleep Timer**
- **Automatic Power-Off Function**
- **4 External Audio/Video Component Connecting Capability**
- **SUBWOOFER Output Terminal Which Passes Low Frequencies Only**
- **Video Output Format Selector (TV MODE) Switch**

Video-CD Player

- **3-Disc Carousel Auto-Changer (for Playing Back Video-CDs and Compact Discs)**
- **A Window to Make Disc Playback Visible from Outside**
- **PLAYXCHANGE; Disc Changing Capability while Playing Back Another**
- **20-Track Random Access Programmable Playback**
- **Single Track/Entire Disc/All Disc Repeat Play**
- **Random-sequence Play**
- **Playback Control Function Available for Video-CDs, Version 2.0**
- **Automatic Synchronized Recording with Disc Playback**
- **Automatic Track Editing Function for Recording to Tape**

Tape Deck

- **Double Cassette Tape Deck with Automatic Reversing Function**
- **2-Speed Tape Dubbing**
- **Dolby B Type Noise Reduction System**

Tuner

- **40 Station Random Access Preset Tuning**
- **40 Station Automatic Preset Tuning**

FEATURES

Sound Field Processor Including Dolby Pro Logic Surround Decoder

- 2 Programs for Dolby Surround Decoding (DOLBY PRO LOGIC and DOLBY 3 STEREO)
2 Programs for Sound Field Processing (HALL and ARENA)
3 Karaoke Modes
- Automatic Input Balance Control for Dolby Pro Logic Surround
- 2 Center Channel Modes (NORMAL/PHANTOM)
- Test Tone Generator for Easier Speaker Balance Adjustment

Graphic Equalizer

- 5-Band Adjustable Graphic Equalizer
- 4 Preset Graphic Equalizer Modes Selectable According to the Music Source (ROCK, BLUES, RAP and JAZZ)
- 4-Sound Field and 4-Equalizer Control Mode Storing Capability

Dolby Pro Logic Surround

This unit employs a Dolby Pro Logic Surround decoder similar to professional Dolby Stereo decoders used in many movie theaters. By using the Dolby Pro Logic Surround decoder, you can experience the dramatic realism and impact of Dolby Surround movie theater sound in your own home. Dolby Pro Logic employs a four channel five speaker system. The Pro Logic Surround system divides the input signal into four levels: the left and right main channels, the center channel (used for dialog), and the rear surround sound channels (used for sound effects, background noise, and other ambient noises). The center channel allows listeners seated in even less-than-ideal positions to hear the dialog originating from the action on the screen while experiencing good stereo imaging.

Dolby Surround is encoded on the sound track of pre-recorded video tapes, laser discs, and some TV/cable broadcasts. When you play a source encoded with Dolby Surround on this unit, the Dolby Pro Logic Surround decoder decodes the signal and distributes the surround-sound effects.

In addition, this unit features a built-in automatic input balance control. This always assures you the best performance without manual adjustment.

Manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby", the double-D symbol and "Pro Logic" are trademarks of Dolby Laboratories Licensing Corporation.

NAMES OF CONTROLS AND INDICATORS

For amplifier/tuner

(See figure 1 on page 3 at the beginning part of this manual.)

- 1 A/B/C/D/E Button
- 2 PRESET/TUNING/BAND Selector Button
- 3 Remote Control Sensor
- 4 PROGRAM Selector Button
- 5 MUSIC Button
- 6 Equalizer Control Buttons (ECHO Buttons)
(Key Level Control \sharp / \flat Buttons)
- 7 USER Button
- 8 POWER Switch
- 9 PHONES Jack
- 10 User Program MEMORY Button
- 11 AUTO/MAN'L (TIMER) Button
- 12 CD Input Selector Button
- 13 TAPE 1/2 Input Selector Button
- 14 HOUR Button
- 15 MIN Button
- 16 TIMER REC Button
- 17 INPUT Selector Buttons
- 18 MIC (Microphone) Jacks
- 19 MIC MIXING (Microphone Mixing) Level Control

- 20 Tuner MEMORY (TIME ADJUST) Button
- 21 VOLUME Control
- 22 \vee (Down)/ \wedge (Up) Buttons
- 23 DISPLAY Button

Display

- 1 Preset Equalizer Mode Indicator (MUSIC)
- 2 Sound Field Program Indicator (PROGRAM)
- 3 User Program Number Indicator
- 4 Center Channel Mode (NOR/PHANTOM) Indicator
- 5 TEST Indicator
- 6 TIMER Set Indicator
- 7 SLEEP Indicator
- 8 AUTO Tuning Indicator
- 9 TUNED Indicator
- 10 STEREO Indicator
- 11 MEMORY Indicator
- 12 Volume Level Meter
- 13 Graphic Equalizer Level Indicators
- 14 Preset Number Indicator
- 15 Multi Information Display
(Time, Station Frequency, Volume Level, etc.)

For Video-CD player

(See figure 2 on page 4 at the beginning part of this manual.)

- 24 DISC Selector Buttons
- 25 Disc Table
- 26 Stop Button: \square
- 27 Play/Pause Button: \blacktriangleright / \square
- 28 DISC CHANGE Button
- 29 OPEN/CLOSE Button: \blacktriangle
- 30 RANDOM Button
- 31 REPEAT Button
- 32 EDIT Button
- 33 Skip Buttons: \blacktriangleleft / \blacktriangleright
(Search Buttons: \blacktriangleleft / \blacktriangleright)

Display

- 16 VIDEO CD Indicator
- 17 PBC Indicator
- 18 RANDOM Play Indicator
- 19 Music Calendar Indicator
- 20 Music Calendar OVER 15 Indicator
- 21 Disc Indicator
- 22 Track Number Indicator
- 23 Time Display
- 24 Play Indicator: \blacktriangleright
- 25 EDIT Indicator
- 26 Tape Side Indicator
- 27 (S, F) REPEAT Indicator
- 28 Program (PROG) Play Indicator

NAMES OF CONTROLS AND INDICATORS

For Tape deck

(See figure 3 on page 5 at the beginning part of this manual.)

- 34 Reverse **MODE** Selector Button
- 35 **DOLBY NR** Button
- 36 Deck 1 Cassette Compartment
- 37 Deck 1 **EJECT** Button
- 38 Fast Wind Button: <<
- 39 Stop Button: □
- 40 Play Button: < ▷
- 41 Fast Wind Button: ▷▷
- 42 Deck 2 **EJECT** Button
- 43 Deck 2 Cassette Compartment
- 44 **DUBBING (NORMAL/HIGH)** Buttons
- 45 **REC/PAUSE** Button

Display

- 29 **DUBBING (NOR/HIGH)** Indicator
- 30 Reverse Mode Indicator
- 31 Recording (**REC**) Indicator
- 32 Tape Number Indicator
- 33 Play Direction Indicator
- 34 Dolby (**□**) **B NR** Indicator
- 35 Tape Number Indicator
- 36 Tape Counter

Speakers (Front/Center/Rear)

(See figure 4 on page 6 at the beginning part of this manual.)

- 46 YST Port
- 47 Speaker Terminals

REMOTE CONTROL TRANSMITTER

Names of control buttons

(See figure 5 on page 7 at the beginning part of this manual.)

■ Amplifier/tuner control buttons

- 1 Remote Control Transmitter Window
- 2 Preset Station Number Buttons
- 3 **A, B, C, D, E** Selector Buttons
- 4 **TEST** Button
- 5 **CENTER/REAR/DELAY** Selector Button
(**ECHO/KEY** Selector Button)
- 6 **LEVEL** Control Buttons
- 7 **SLEEP** Button
- 8 **POWER** Switch
- 9 **VOLUME** – (Down)/+ (Up) Buttons
- 10 **INPUT** Selector Button
- 11 **USER** Button
- 12 **PROGRAM** Button
- 13 **MUSIC** Button
- 14 **FLAT** Button
- 15 **TUNER** Input Selector Button
- 16 **PRESET** Number ∨ (Down)/ ^ (Up) Buttons

■ Video-CD player control buttons

- 17 Track Number Input Buttons
- 18 **TIME** Button
- 19 **PROGRAM** Button
- 20 Disc Play **MODE** Selector Button
- 21 **DISC SKIP** Button
- 22 **INDEX** Button
- 23 Skip Buttons: <<</>>>
(Search Buttons: <<</>>>)
(**PREV/NEXT** Buttons)
- 24 **REPEAT** Button
- 25 **STOP** Button: □
(**RETURN** Button)
- 26 **OPEN/CLOSE** Button: △
- 27 **PLAY/PAUSE** Button: ▷ ■
(**SELECT** Button)
- 28 **EDIT** Button
- 29 **TAPE** Button

■ Tape deck control buttons

- 30 **REC/PAUSE** Button
- 31 **TAPE 1/2** Button
- 32 **PLAY** Button: <
- 33 **STOP** Button: □
- 34 **PLAY** Button: ▷
- 35 Fast Wind Buttons: <<</>>>

REMOTE CONTROL TRANSMITTER

Loading the batteries for the remote control transmitter

(See figure 6 on page 7.)

- 1 Remove the battery compartment cover.
(Slide the cover in the direction of the arrow.)
- 2 Insert 2 "AA" size batteries (UM/SUM-3, R6, HP-7 or equivalent) into the battery compartment.
* Installing the batteries improperly may cause failure.
- 3 Replace the battery compartment cover.

Precautions for battery use

- Insert the batteries according to the direction indicated in the battery compartment.
- Replace all batteries with new ones at the same time.
- Remove the batteries if they are weak or if the unit is not in use for long periods.
- Don't mix normal batteries with rechargeable batteries.

Proper use of the remote control transmitter

(See figure 7 on page 7.)

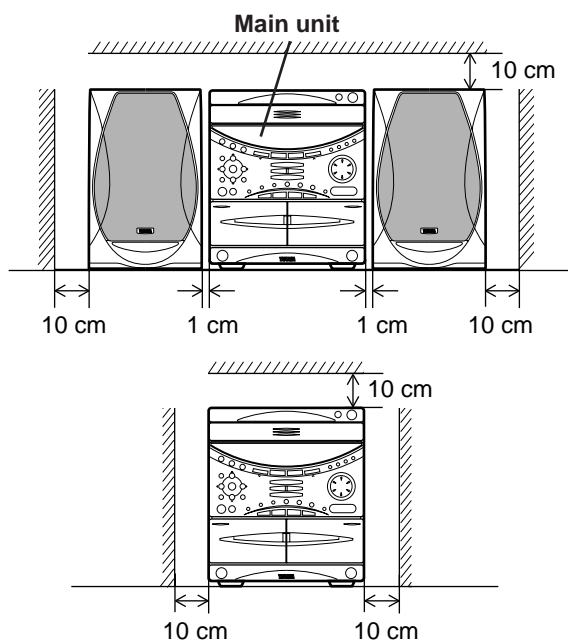
Aim (within the range of 60° with no obstacles) the remote control transmitter at the remote control sensor and operate as shown.

Notes concerning use

- Replace the batteries if control distance decreases or operation becomes unstable.
- Periodically clean the transmitter window on the remote control transmitter and the sensor on the main unit with a soft cloth.
- Exposing the sensor on the main unit to strong light (especially an inverter type of fluorescent lamp etc.) may interfere with operation. In this case, reposition the main unit to avoid direct lighting.
- Keep the remote control transmitter away from moisture, excessive heat, shock and vibrations.
- The remote control transmitter's usable range is within 0.2m (8") and 6m (20') away from the sensor.

SETTING UP THE MAIN UNIT

Setup examples



Place the main unit as illustrated on the left and allow spaces more than indicated around the main unit and more than 10 cm (3-15/16") behind the main unit to assure good ventilation. Be sure not to place another unit or any object on top of the main unit to prevent the ventilation holes on the top panel of the main unit from being obstructed. Otherwise, it may cause fire or damage to the main unit.

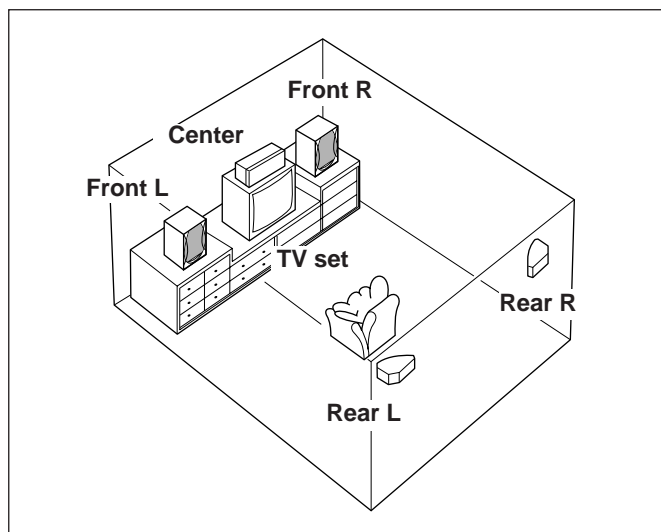
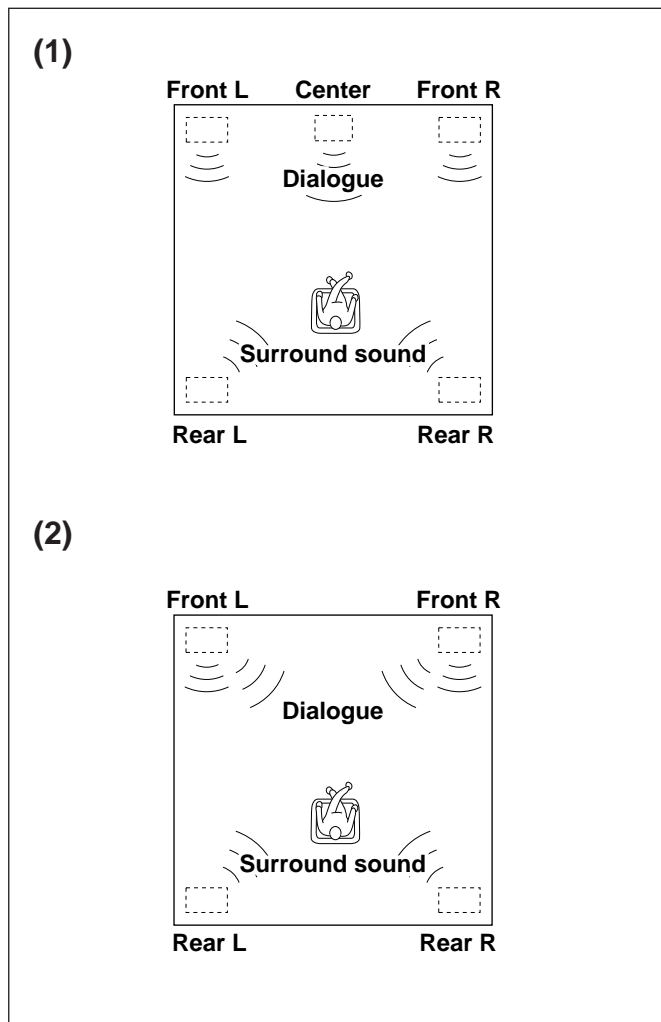
Notes

- When placing the front speakers apart from the main unit, allow a space of at least 10 cm (3-15/16") above, behind and on the both sides of the main unit.
- If the main unit is put in a rack, the front of it must be fully opened.
- Disconnect the AC supply lead from the AC outlet before connecting or disconnecting any component.

SETTING UP THE SPEAKERS

This system is designed to provide the best sound-field quality with a 5 speaker configuration: front speakers, rear speakers and a center speaker. You may omit the center speaker, if for some reason it is not practical to use a center speaker. (Refer to the “**4-Speaker Configuration**” shown below.)

The front speakers are used for the main source sound plus the effect sounds. The rear speakers are used for the effect and surround sounds, and the center speaker is for the center sounds (dialog etc.).



Speaker configuration

(1) 5-Speaker Configuration

This configuration is the most effective and recommended one. In this configuration, the center speaker is necessary as well as the rear speakers. If the sound field program **DOLBY PRO LOGIC** or **DOLBY 3 STEREO** is selected, conversations will be output from the center speaker and the ambience will be excellent.

- Set the center channel mode to the “**NORMAL**” position. (For details, refer to page 16.)

(2) 4-Speaker Configuration

The center speaker is not used in this configuration. If the sound field program **DOLBY PRO LOGIC** is selected, the center sound is output from the left and the right front speakers, although the program **DOLBY 3 STEREO** is useless in this configuration. However, the sound effect of other programs can be the same as that of the 5-speaker configuration.

- Be sure to set the center channel mode to the “**PHANTOM**” position. (For details, refer to page 16.)

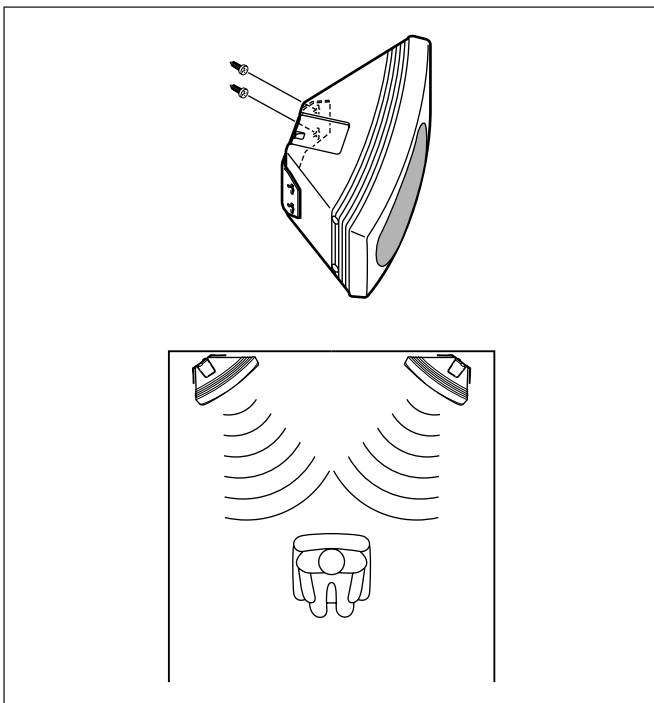
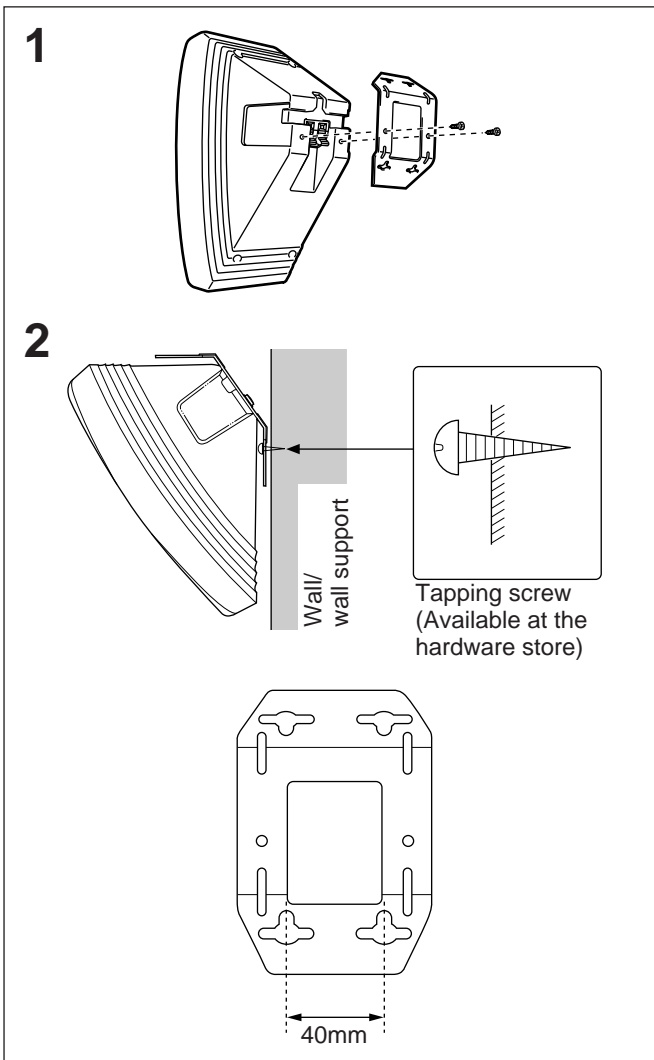
Note

Be sure to use two rear speakers. If you connect one rear speaker only, sound will not be output from the rear speaker.

Speaker placement

- Front speakers:** In normal position.
- Rear speakers:** Behind your listening position, facing slightly inward. Nearly six feet (approx. 1.8 m) up from the floor.
- Center speaker:** Precisely between the front speakers.

SETTING UP THE SPEAKERS



■ Mounting the rear speakers

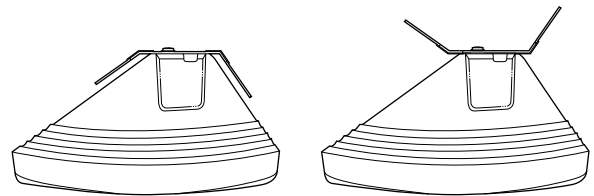
Mount the rear speakers on a shelf, rack or on the floor directly, or hang them on the wall.

To mount the rear speakers on a wall

- 1 Attach the provided mounting bracket to the rear of the speaker by using the provided screws.
- 2 Fasten screws into a firm wall or wall support as shown in the diagram, and hang the holes of the mounting bracket on the protruding screws.
 - * The holes are arranged so that the speakers can be mounted in a side long, upright or upside-down way.
 - * Make sure that the screws are caught by a narrow part of the holes securely.

Notes

- Never attach the bracket to the speaker conversely.



Good

No good

- Speaker cords should be connected to the speaker's terminals after the bracket has attached to the speaker to prevent the speaker cords pressed between the speaker and the bracket.

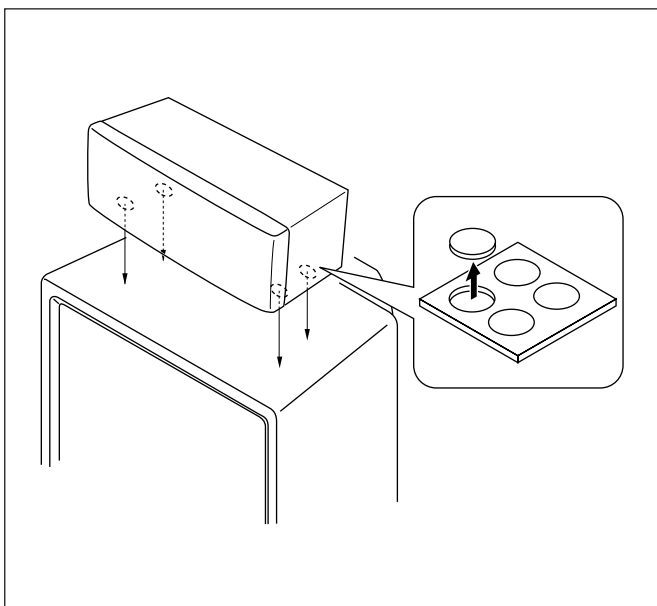
To hang in a side long way

Hang the speakers so that each of them faces inside as figured left.

WARNING:

- Each speaker weighs 0.8 kg (1 lbs. 12 oz.). Do not mount them on thin plywood or soft wall surface material, as the screws may come out of the flimsy surface, causing the speakers to fall down and be damaged, or result in personal injury.
- Do not fasten the speakers to wall with nails, adhesives, or other unsound hardware. Long-term use and vibrations may cause them to fall down.
- To avoid accidents resulting from tripping over loose speaker cables, fix them to the wall.

SETTING UP THE SPEAKERS



■ Mounting the center speaker

Place the speaker on top of the TV or on the floor under the TV or inside the TV rack so that it is stabilized.

When placing the speaker on top of the TV, to prevent the speaker from falling down, put the provided pads at four points on bottom of the speaker.

Notes

- Do not place the speaker on top of the TV whose area is smaller than the bottom area of the speaker. If placed, the speaker may drop out causing an injury to you.
- Though this speaker is a magnetic shielding type, there may be some influence on a TV picture depending on the type of TV or the placement of the speaker. In such a case, place the speaker apart from the TV so that there is no influence on TV picture.

CONNECTIONS

Never plug the AC supply lead of this system into the AC outlet until all connections are completed.

Connecting speakers

(See figure 8 on page 8.)

Connect the provided speakers to the SPEAKERS terminals on the rear of the main unit.

Connect the front speakers (NX-GX70) to the FRONT SPEAKERS terminals, the center speaker (NX-C70) to the CENTER SPEAKERS terminals and the rear speakers (NX-E70) to the REAR SPEAKERS terminals.

Do not connect speakers other than the designated to the respective SPEAKERS terminals.

- * Use the provided speaker cords for the connections. Normally, use the short cords to connect with the front speakers, and use the long ones to connect with the rear speakers.

Note on connecting a subwoofer (separate purchase)

You may wish to add a subwoofer to reinforce the bass frequencies.

Connect the SUBWOOFER OUT terminal of the main unit to the INPUT terminal of the subwoofer amplifier, and connect the speaker terminals of the subwoofer amplifier to the subwoofer.

With some subwoofers, including the Yamaha Active Servo Processing Subwoofer System, the amplifier and subwoofer are in the same unit.

- * The SUBWOOFER OUT terminal is for output to a monaural amplifier driving a subwoofer. Only frequencies below 200 Hz from the front and center channels are output.

How to Connect:

Connect the provided speaker cords to the SPEAKERS terminals properly as shown below. If the connections are faulty, no sound will be heard from the speakers. Make sure that the polarity of the speaker wires is correct, that is the + and – markings are observed. If these wires are reversed, the sound will be unnatural and lack bass.

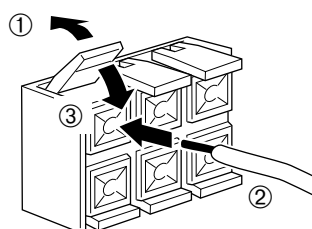
As a sure method, connect the wire with a silver line to the + terminals on both main unit and speaker, and connect the wire with no line to the – terminals on both of them.

Caution

Do not let the bare speaker wires touch each other as this could damage the amplifier and/or speakers.

Red: positive (+)

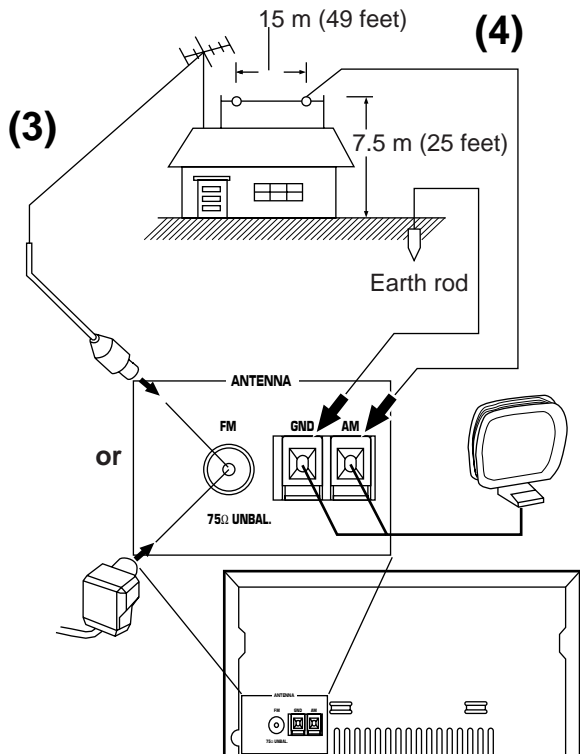
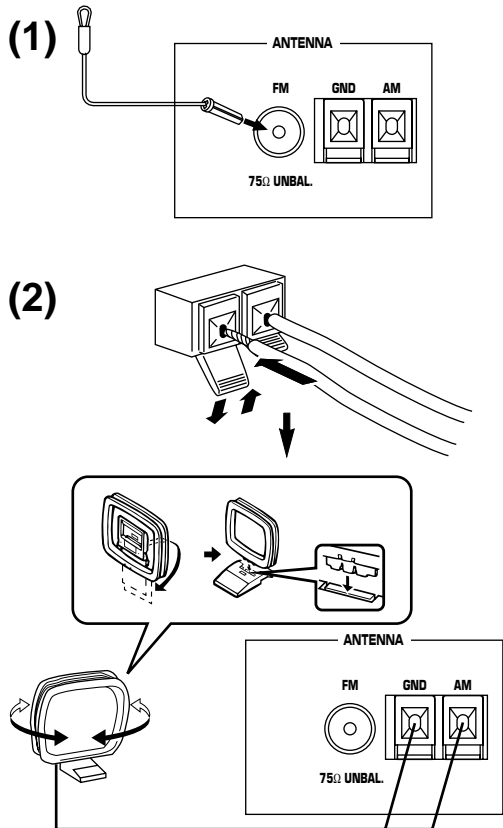
Black: negative (–)



- ① Press up the tab.
- ② Insert the bare wire. [Remove approx. 5mm (1/4") insulation from the speaker wires.]
- ③ Press down the tab and secure the wire.

Note

To connect the speaker wires from the center speaker (NX-C70) to the CENTER SPEAKERS terminals on the main unit, make sure to connect the wire with a silver line to the + terminal and the wire with no line to the – terminal.



Antenna connection

(1) Supplied FM antenna

Connect the FM antenna wire to the corresponding terminal and direct the FM antenna wire to the direction where the strongest signal can be received.

(2) Supplied AM loop antenna

Connect the AM loop antenna wires to the corresponding terminals. Position the AM loop antenna for optimum reception. Place the AM loop antenna on a shelf etc., or install it on the rack or wall with screws (not supplied).

Notes

- When static is still heard even after adjusting the position of the AM loop antenna, try reversing the wire connections (right to left).
- Do not place the AM loop antenna on the unit. It will result in noise generation, since the unit is equipped with digital electronics. Place the AM loop antenna away from the unit.

(3) External FM antenna

Use an external FM antenna instead of an indoor FM antenna if you need better reception. Consult your dealer.

(4) External AM antenna

Use an external AM antenna if you need better reception. Consult your dealer.

Note

When using an external AM antenna, be sure to keep the wire of the AM loop antenna connected.

FREQUENCY STEP switch (General model only)

Because the interstation frequency spacing differs in different areas, set the FREQUENCY STEP switch (located at the rear) according to the frequency spacing in your area. Before setting this switch, disconnect the AC supply lead of this unit from the AC outlet.

CONNECTIONS

Connecting external components

(See figure 9 on page 9.)

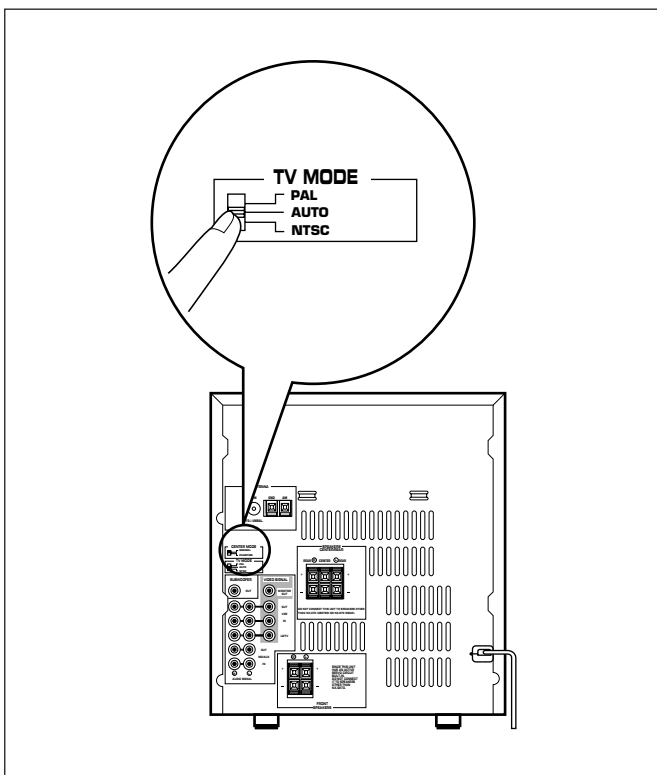
This system can be connected with external audio and video components. Make connections between this system and other components using RCA pin plug connector cables correctly, that is to say **L** (left) to **L** and **R** (right) to **R**. Also, refer to the owner's manual for each component to be connected to this system.

Connecting the AC supply lead

(See figure 10 on page 10.)

- After completing all connections, plug the AC supply lead into a convenient AC outlet.
- Unplug the AC supply lead from the AC outlet if the unit is not to be used for a long period of time.

SETTING THE VIDEO OUTPUT FORMAT SELECTOR (TV MODE) SWITCH



The Video-CD player on this system is designed for use with the NTSC and PAL television formats. Set this switch to the position for the format your monitor TV employs.

PAL: Outputs signals in the PAL format no matter which format (PAL or NTSC) the currently playing disc employs. Set to this position if your monitor TV employs the PAL format.

AUTO: Outputs signals in the same format as the currently playing disc employs. Set to this position if your monitor TV can be switched in between the PAL and NTSC formats automatically.

NTSC: Outputs signals in the NTSC format no matter which format (PAL or NTSC) the currently playing disc employs. Set to this position if your monitor TV employs the NTSC format.

Note

Make sure to play back a disc which employs the same format that your monitor TV employs, otherwise a picture will not be played back normally.

TURNING THE POWER ON/OFF TO THIS SYSTEM

(See figure 11 on page 10.)

If the AC supply lead is connected to the AC outlet, this system can be turned ON and OFF (STANDBY mode) by pressing the POWER switch on the front panel of the main unit or the POWER switch on the remote control transmitter.

Automatic power-off function

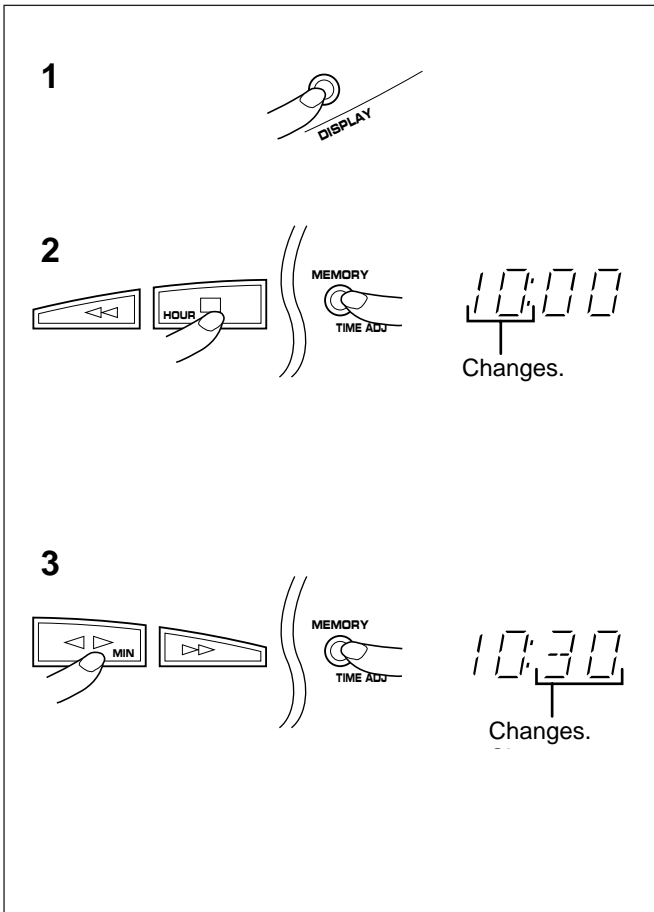
The power of this system will be automatically turned off if there is no operation on the control parts of this system, no illumination on the graphic equalizer level indicators and no playback of CD or tape for about 30 minutes.

* This function is not available unless time setting is made on the built-in clock.

STANDBY mode

While the power is on, pressing the POWER switch (or the POWER switch on the remote control transmitter) switches the system to the STANDBY mode. (In this mode, the display shows only the time.) In this mode, main voltage is still present inside the system. If you want to switch off the system completely, disconnect the AC power plug from the AC outlet.

SETTING THE CLOCK



- 1 While the power is on, press the DISPLAY button to display the time. If the power is off, you can proceed to the next step.
- 2 While holding the TIME ADJ button pressed, press the HOUR button and set the hour.
 - * Press the HOUR button once to advance the time by 1 hour. Press and hold to advance continuously.
 - * To reverse the hour, press the ◀ button instead of the HOUR button.
- 3 While holding the TIME ADJ button pressed, press the MIN button and set the minute.
 - * Press the MIN button once to advance the time by 1 minute. Press and hold to advance continuously.
 - * The hour setting will not advance even if minute is advanced from "59" to "00".
 - * To reverse the minute, press the ▶▶ button instead of the MIN button.

China and Singapore models use a 24-hour display. For General model, either a 24-hour display or a 12-hour display [shown by "AM (PM) 12:00"] is selected depending on the setting of the FREQUENCY STEP switch on the rear panel, so you cannot select a desired type freely.

In the event of a power failure or when the AC supply lead is disconnected.

The time display will go out, however, the clock will function for about 5 minutes without power supply. So you do not have to reset the time if the AC power supply is resumed within about 5 minutes.

When the AC power supply is resumed after more than 5 minutes pass without power supply, the time display will flash on and off to indicate that the time must be reset.

ADJUSTING BRIGHTNESS OF THE DISPLAY

If desired, you can adjust brightness of the display.

- 1 Press and hold the DISPLAY button for more than 2 seconds so that "DIMMER±0" appears on the display.
- 2 Holding the DISPLAY button pressed, turn the VOLUME control clockwise to increase or counterclockwise to decrease brightness.

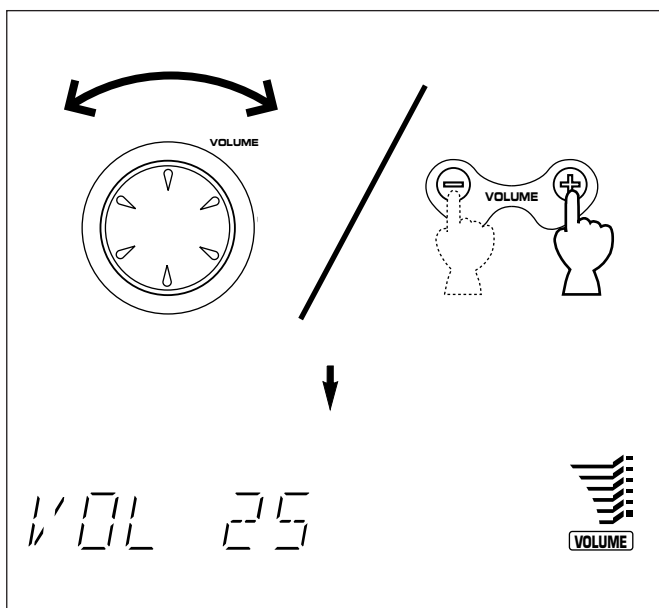
This adjustment can be made even though the power of this unit is off (in the standby mode).

Control range

When the power is on: ±0 to -6 (Preset value: ±0)

When the power is off: +3 to -3 (Preset value: ±0)

VOLUME CONTROL



Front panel operation

Rotate the VOLUME control clockwise to increase the volume, and counterclockwise to decrease the volume.

Remote control operation

Press the VOLUME + button to increase the volume and the VOLUME – button to decrease the volume.

* Adjusted volume level is shown by the volume level meter and in figures on the display.

LISTENING WITH HEADPHONES

(See figure 12 on page 10.)

- Be sure that your headphones have a 3.5 mm (1/8") diameter plug and are between 16 ohms and 50 ohms impedance. Recommended impedance is 32 ohms.
- When headphones are connected, the speakers are defeated automatically and you can listen to the sound to be output from the front speakers through headphones. Adjust the VOLUME control for desired volume.

REMOVING THE FRONT GRILLES OF FRONT SPEAKERS

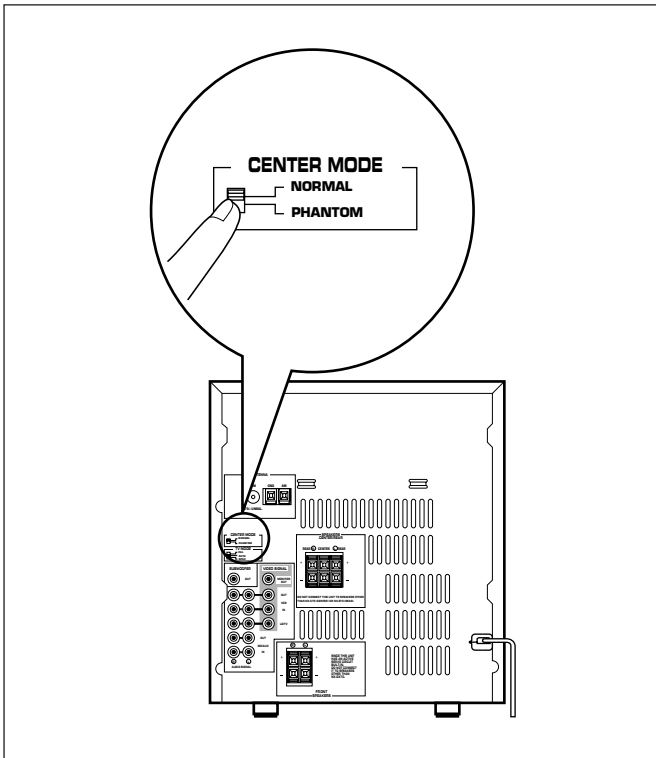
(See figure 13 on page 10.)

The front grille is fastened to the enclosure at four points, and can be removed if desired. To remove the grille, first hold the bottom of the grille and unfasten the lower part of the grille by pulling it gently, and then hold both sides of the grille and slowly pull straight away from the speaker. To reattach, line up the four pegs on the inside surface of the grille with the four corresponding holes on the speaker and push gently.

Note

When the grille is removed, take care not to touch the speaker units with your hands or to exert excessive force with tools.

SPEAKER BALANCE ADJUSTMENT



This procedure lets you adjust the sound output level balance between the front, center, and rear speakers using the built-in test tone generator. When this adjustment is performed, the sound output level heard at the listening position will be the same from each speaker. This is important for the best performance of the built-in Dolby Pro Logic surround decoder. **The adjustment of each speaker output level should be done at your listening position with the remote control transmitter. Otherwise, the result may not be satisfactory.**

Before operation

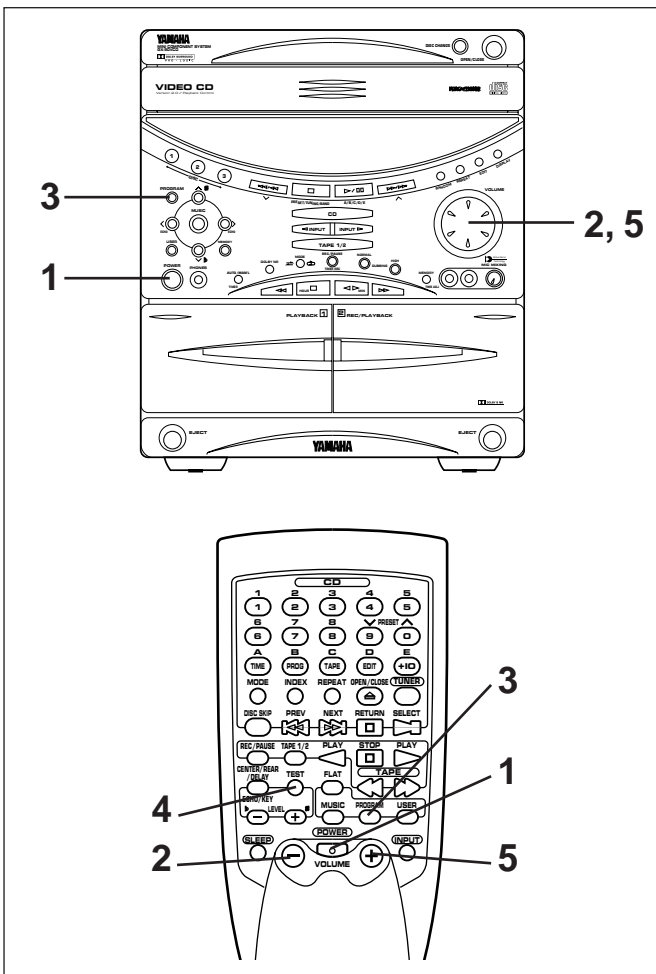
Set the CENTER MODE switch on the rear panel of the main unit to the position suitable for your speaker system configuration. (Refer to page 9 for details.)

NORMAL (For 5 speaker configuration):

Select this position when you use the center speaker.

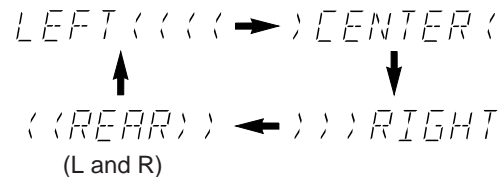
PHANTOM (For 4 speaker configuration):

Select this position when you do not use the center speaker. The center sound will be output from the left and right front speakers.



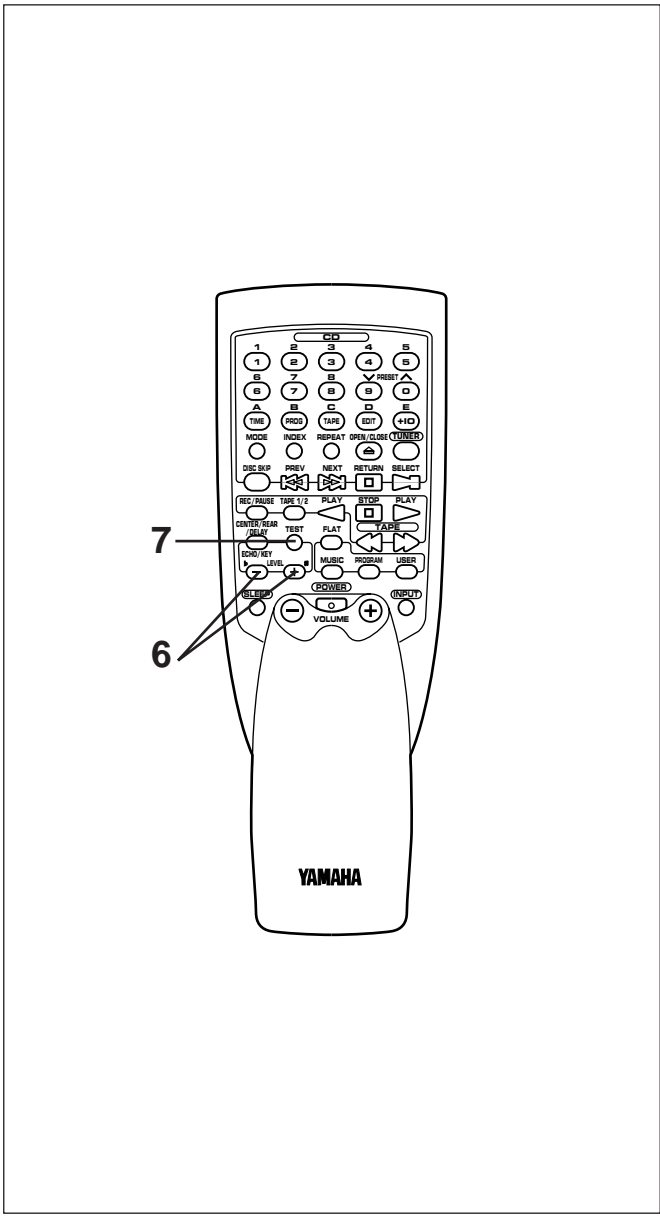
- 1 Press the POWER switch to turn the power on.
- 2 Turn the VOLUME control fully counterclockwise to decrease the volume to minimum.
- 3 Press the PROGRAM button once or more so that "PRO LOGIC" lights up on the sound field program indicator.
- 4 Press the TEST button.
* "TEST" flashes on and off on the display.
- 5 Press the VOLUME + (up) button to increase the volume.

You will hear a test tone (like pink noise) from the left front speaker, then the center speaker, then the right front speaker, and then the rear speakers, for about two seconds each. The display changes as shown below.



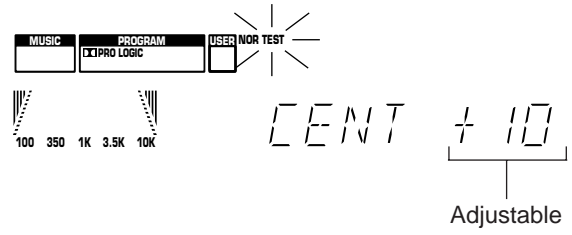
* The test tone from the left rear speaker and the right rear speaker will be heard at the same time.

SPEAKER BALANCE ADJUSTMENT



6 Adjust the sound output levels of the center speaker and the rear speakers by using the LEVEL control buttons so that they become almost as same as that of the front speakers.

- When the test tone is output from the center speaker, pressing the LEVEL control buttons change the output level of the center speaker.



- When the test tone is output from the rear speakers, pressing the LEVEL control buttons change the output level of the rear speakers.



* Pressing the + button raises and the – button lowers the level.

7 If the adjustments have finished, press the TEST button to cancel the test tone.

* "TEST" disappears from the display.

Notes

- Once you have completed these adjustments, you can adjust whole sound level on your audio system by using the VOLUME control (or the VOLUME keys on the remote control transmitter) only.
- In step 6, if the center channel mode is in the "PHANTOM" position, the sound output level of the center speaker cannot be adjusted. This is because in this mode, the center sound is automatically output from the left and right front speakers.



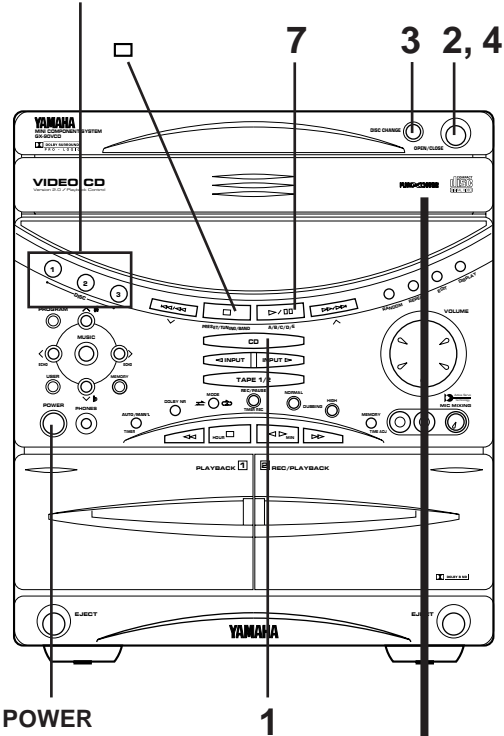
VIDEO-CD PLAYER OPERATION

CD/Video-CD playback

* If you will play back a Video-CD, turn on the monitor TV connected to this system.

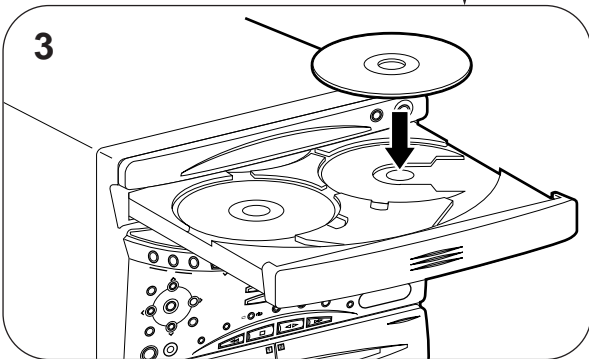
- 1 Press the CD input selector button.
- 2 Press the OPEN/CLOSE button to open the disc table.
- 3 Place discs on the trays, label side up.
 - * Up to three discs can be loaded on the trays.
 - To load the third disc, rotate the disc table by pressing the DISC CHANGE button on the front panel or the DISC SKIP button on the remote control transmitter.
 - * 8 cm (3") discs may be played without an adaptor.
- 4 Press the OPEN/CLOSE button to close the disc table.
 - * The total number of tracks and the total playing time of the disc being selected will be displayed for several seconds.
 - * The music calendar will be displayed only for the number of tracks on the disc being selected.
 - * If the compact disc contains more than 15 tracks, the "OVER 15" indicator will light up on the music calendar.
 - * If the selected disc is a Video-CD, "VIDEO CD" lights up on the display.

DISC selector buttons



POWER

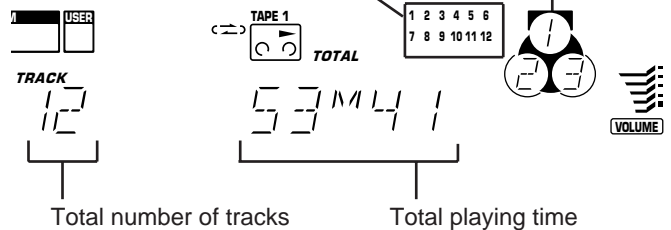
1



3

Music calendar

The disc on the tray located on the top of this indicator is now being selected.



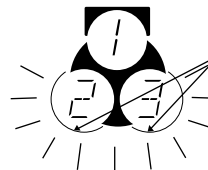
Total number of tracks

Total playing time

- 5 If necessary, change the disc play mode by pressing the disc play MODE selector button on the remote control transmitter watching the display.

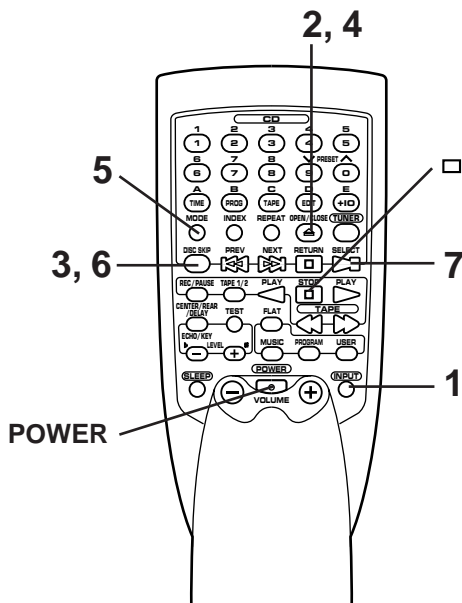
Single disc play mode: Only a designated disc is played back.

All disc play mode: All discs on the disc table are played back sequentially.



Lights up only when the all disc play mode is selected.

- 6 If necessary, select another disc by pressing the DISC SKIP button on the remote control transmitter once or more (so that the corresponding disc tray number is located on the top of the disc indicator).
- 7 Press the play/pause button to start playback from track 1.
 - * The "▶" indicator will appear and playback will begin.
 - As the playback of each track on the music calendar is finished, that track number will go out.



POWER

2, 4

3, 6

7

1



VIDEO-CD PLAYER OPERATION

For easier operation

Pressing the DISC selector button (1, 2 or 3) will select the disc directly, and playback will begin from track 1 automatically.

Note

If a Video-CD, version 2.0 is selected, "PBC" lights up on the display, and the total number of tracks, the total playing time of the disc and the music calendar will not be displayed. In this mode, disc playback is controlled by the rule of Playback Control. (For details of Playback Control, refer to page 25–27.)

To cancel this mode and restore the normal playback mode, press and hold the stop \square (RETURN) button for more than 2 seconds. "PBC" disappears from the display.

To call the Playback Control mode again, press and hold the stop \square (RETURN) button for more than 2 seconds.

To interrupt playback

- 1 Press the play/pause \triangleright/\square button.
* The " \triangleright " indicator will flash.

- 2 Press the play/pause \triangleright/\square button to resume playback from the same point.

To stop playback

Press the stop \square button.

To switch the unit off after use

Turn the unit off by pressing the POWER switch. (The indicators will go off except for the current time display.)

Direct operation

When the power is off (in the standby mode), pressing the CD input selector button or the DISC selector (1, 2 or 3) button will turn the power on and start disc playback automatically.

When the power is on, even if an input source other than Video-CD player is selected, pressing a DISC selector button or closing the disc table by pushing the front edge of the disc table gently will start playback directly. In this case, if the tape deck is playing back a tape, it will be stopped automatically.

* These ways of playback can also be used to close the disc table. If the table is closed in these ways, playback will begin automatically, however, the display will not show the total number of tracks and the total playing time of the disc to be played back.

PLAYXCHANGE

During playback, you can open the disc table by pressing the DISC CHANGE button without interrupting playback.

However, in this case, pressing the DISC SKIP button or a DISC selector button has no effect.

Precautions

- If TV or radio interference occurs during Video-CD player operation, move the unit away from the TV or radio.
- Subjecting the unit to shock or vibration can cause mistracking.
- Playing back some discs at high volume can cause mistracking. In this case, listen at lower volume.
- Do not pull open the disc table forcibly with your hands.
- Do not push the disc table while it is moving.
- If the power fails while the table is open, wait until the power supply returns or gently push the table manually to close it.
- The temperature range for playing back discs is recommended to be 5°C (41°F) – 35°C (95°F).

Direct-selection playback

By using the track number input buttons on the remote control transmitter, any track you wish to listen to can be played back directly.

Use the track number input buttons to select the desired track number. Playback will begin automatically.

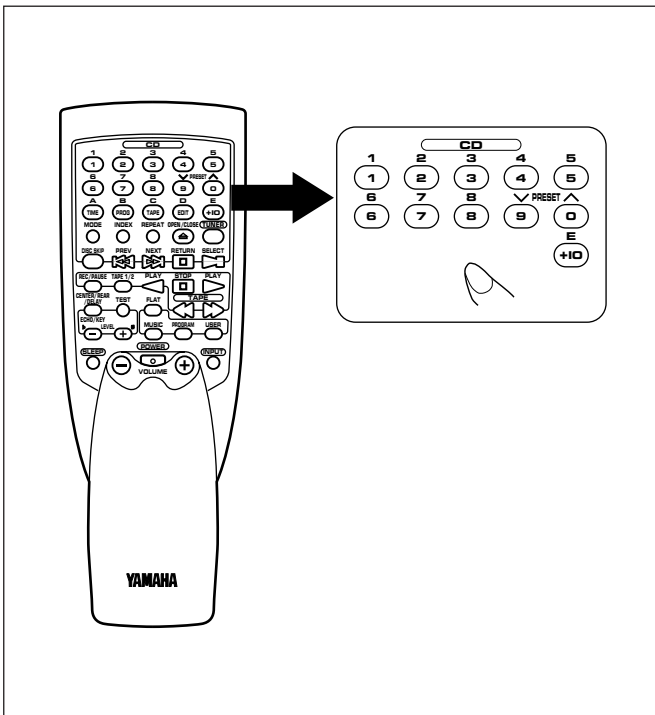
A. For example, to choose selection 5
Press the "5" button.

B. For example, to choose selection 12
(1) Press the "+10" button.
(2) Within 3 seconds, press "2" button.

C. For example, to choose selection 20
(1) Press the "+10" button.
(2) Within 3 seconds, press the "+10" button again.
(3) Within 3 seconds, press the "0" button.

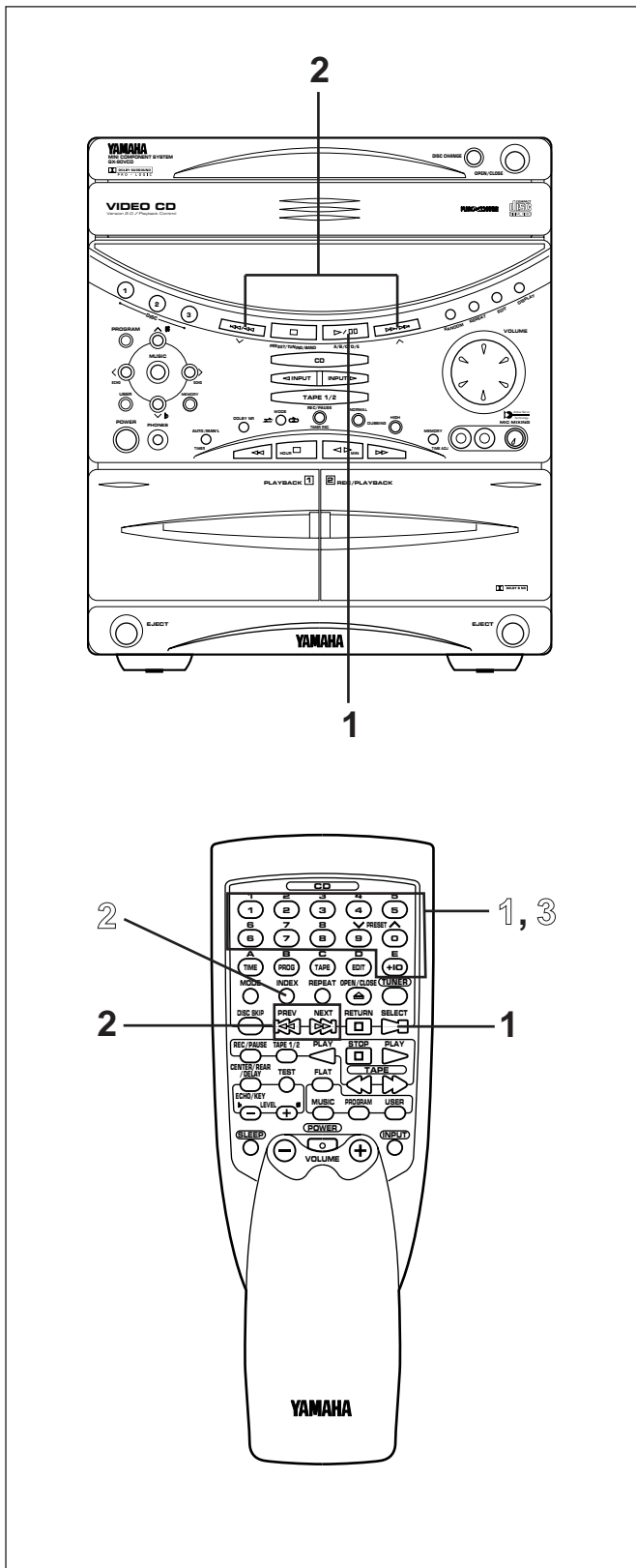
Note

If you select a track number higher than the number of tracks on the disc, playback will begin from the last track on the disc.





VIDEO-CD PLAYER OPERATION



“Skip search” and “Manual search” are performed using the same buttons.

Skip search

The beginning of any track can be found automatically.

- 1 Select a disc and begin playback.
- 2 Press the $\triangleright\triangleright$ button to advance or $\triangleleft\triangleleft$ button to reverse through the disc. Press once for each track to be advanced or reversed.
 - Press $\triangleright\triangleright$ once to advance to the track following the one now playing back.
 - Press $\triangleleft\triangleleft$ once to return to the start of the track now playing back.
 - Press $\triangleleft\triangleleft$ twice to return to the track before the track now playing back.

Notes

- This function can also be performed while the unit is stopped. Press the play/pause \triangleright/\square button when your desired track number appears on the track number display. Playback will begin from the beginning of the track.
- This function will be performed forward or backward from any point on the disc. However, it will not move forward during playback of the final track.

Manual search

- 1 Begin playback.
- 2 Press and hold the $\triangleright\triangleright$ button to advance playback rapidly, and the $\triangleleft\triangleleft$ button to reverse playback rapidly.
 - * The sound can be heard (although slightly garbled) during manual search in either direction. This is convenient for reviewing the contents quickly.

Note

Manual search can also be performed while playback is paused, though no sound will be heard.

Index search

If the currently selected disc includes index numbers, playback can be started from any desired index number.

- 1 Select a track which has index numbers by using the track number input buttons.
- 2 Press the INDEX button. “INDEX” appears on the display.
- 3 Select the desired index number by using the track number input buttons.

To cancel the index search function

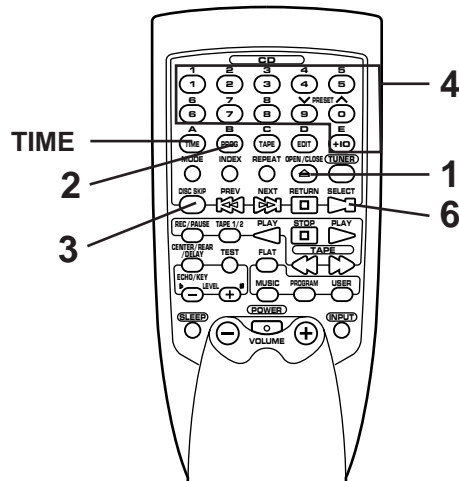
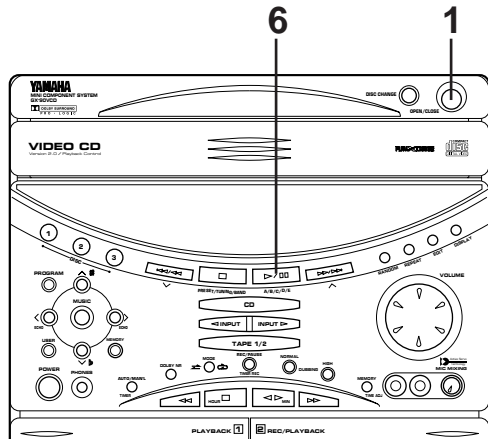
Press the INDEX button.

Notes

- If an index number is selected that is higher than any index number on that disc, playback will start from the last index number point on the disc.
- If the disc has no encoded index points, playback will begin from the start of the selected track.
- The index number can be designated only while “INDEX” is illuminated on the display.



VIDEO-CD PLAYER OPERATION



Program play

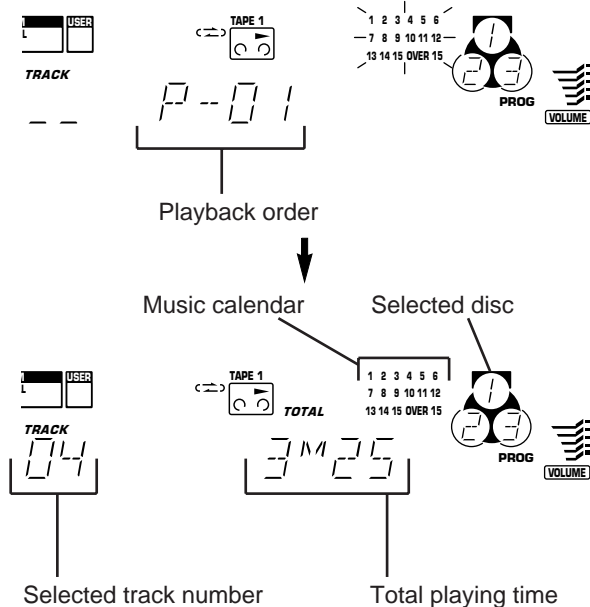
You can program up to 20 tracks in any desired order.

- 1 Load discs and close the disc table.
- 2 When in the stop mode, press the PROG button to prepare for programming.
 - * "PROG" and "P-01" will light up on the display, and all track numbers on the selected disc begin flashing.
- 3 If necessary, select a desired disc by pressing the DISC SKIP button.
- 4 Use the track number input buttons to select the desired track number.
 - * The selected track number and the total play time of the programmed tracks will light up on the display, and soon it is replaced by the display of the next playback order. Programmed track numbers on the selected disc will stop flashing and light up on the music calendar.
 - * Pressing the TIME button displays the total play time of the programmed tracks for about 1 second, and then it is replaced by the display of the next playback order.
- * **For example, to choose selection 12**
 - (1) Press the "+10" button.
 - (2) Within 3 seconds, press the "2" button.
- 5 Repeat steps 3 and 4 for any other track. Up to 20 tracks can be programmed.
- 6 Press the play/pause button to start playback of programmed tracks.

Notes

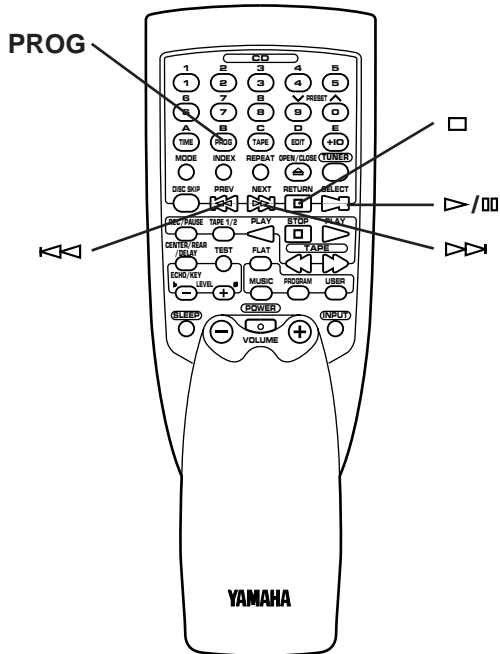
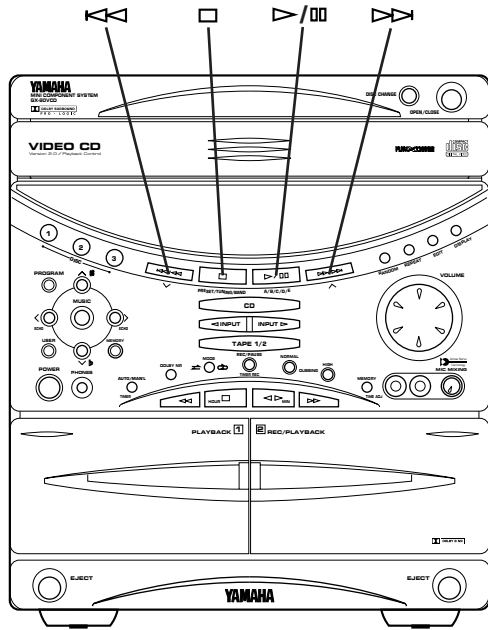
- When this unit is in the Playback Control mode ("PBC" is illuminated on the display), programming operations cannot be made.
- It is also possible to program a sequence of tracks while looking at the list of tracks on the surface of the disc before closing the disc table.
- During playback or pause, programming is not possible.
- If the total time of the programmed tracks becomes 100 minutes or more, the highest position of a figure will not be displayed.
- The total time of the programmed tracks will not be displayed, if track number 16 or higher is programmed.
- Skip search can be performed during playback, but only within the range of the programmed tracks.
- Manual search can be performed during playback to search all tracks, including unprogrammed tracks.
- If programs are made selecting tracks from more than one disc, pressing the DISC CHANGE button is useless during program play.

Display information during programming





VIDEO-CD PLAYER OPERATION



To stop program play

- Press the stop button. The first programmed track number will be displayed.
- To resume playback, press the play/pause button. Playback will begin from the beginning of the program.

To cancel a programmed sequence

There are several methods as described below.

- Press the stop button while the unit is stopped.
 - Open the disc table
- Switch off the power.

To check program data

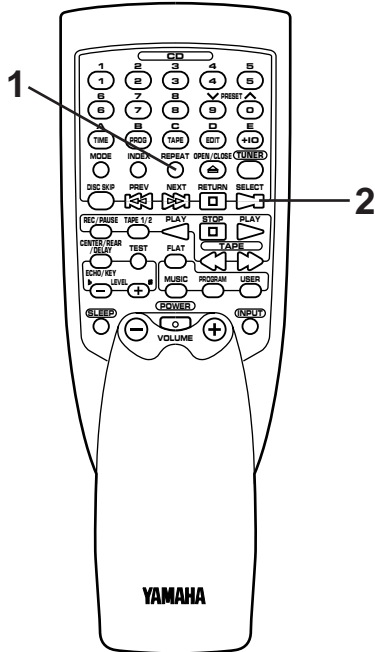
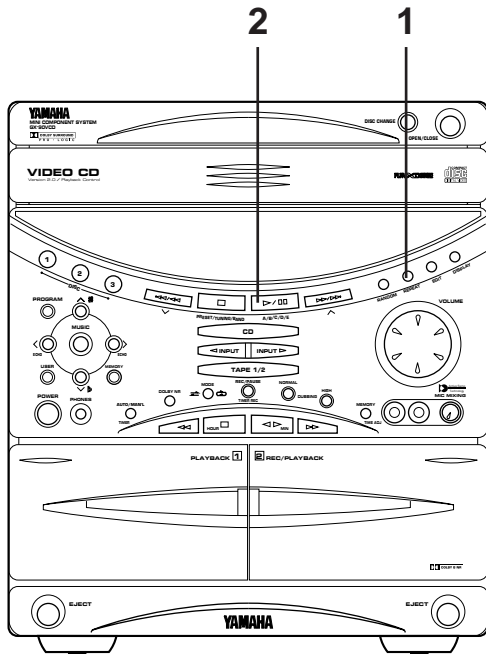
1. If during playing back, press the stop button.
2. Press the PROG button.
3. Each time the button is pressed, the track numbers and sequential order of the programmed tracks can be checked one after another. The display of the track number can be returned (sequentially in reverse order) by pressing the button.

To correct program data

1. Follow the procedure described in "To check program data".
2. Display the track number to be corrected by pressing the or button.
3. Press a track number input button to select a track to replace the one displayed. The previously programmed track will be cleared from the memory and the new one will be programmed.
4. When the correction has finished, press the PROG button or play/pause button once again.



VIDEO-CD PLAYER OPERATION



Repeat play

All discs, an entire disc, a single track or a programmed sequence can be continuously repeated.

- 1 While watching the display, press the REPEAT button once or more to select a desired repeat play mode (S REP or F REP).
- 2 Press the play/pause $\blacktriangleright / \parallel$ button.

Repeat play modes

SINGLE REPEAT (S REP)

A single track is played back repeatedly.

* This is also available in the program play mode and the random play mode. (If the repeat play mode is switched off, the program play mode or the random play mode will be resumed.)

FULL REPEAT (F REP)

When the unit is in the single disc play mode:

A designated disc is played back repeatedly.

* In the random play mode, the selected disc is repeatedly played back, but the order of tracks is different every time.

When the unit is in the all disc play mode:

All discs on the disc table are played back repeatedly.

* In the random play mode, the random play is performed among all discs and repeated with a different order of tracks every time.

Notes

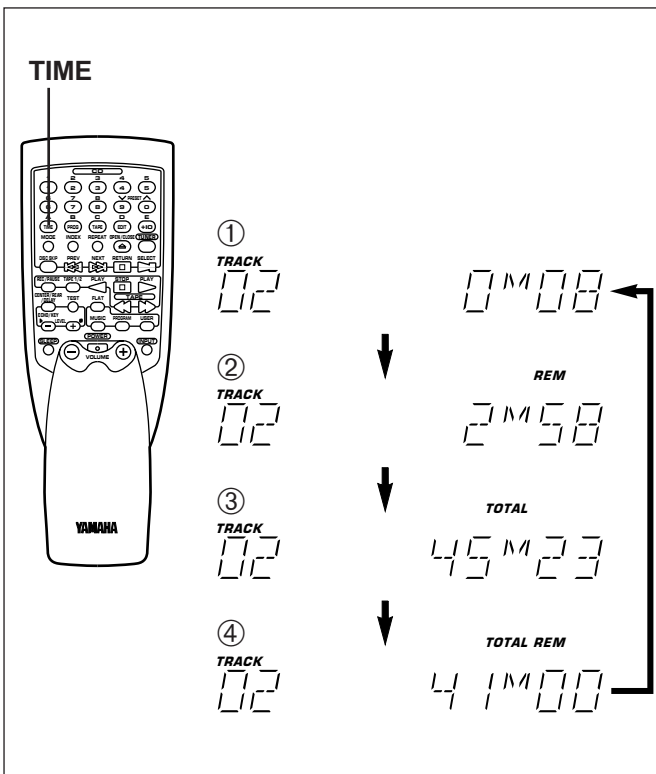
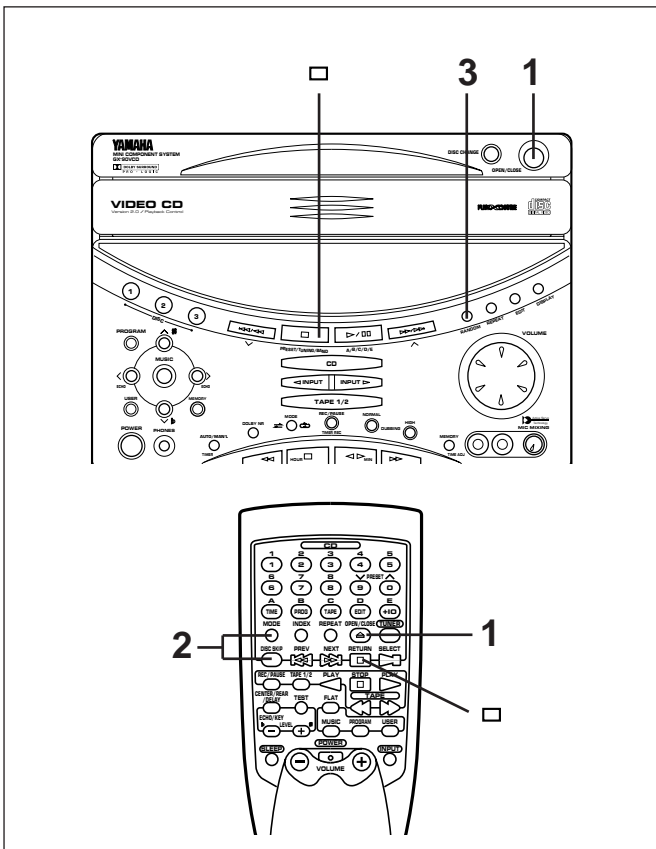
- In the program play mode, a sequence of programmed tracks is played back repeatedly.
- When this unit is in the Playback Control mode ("PBC" is illuminated on the display), no repeat play mode can be selected.

To cancel the repeat play

Press the REPEAT button once or more so that the (S, F) REP indicator goes out.



VIDEO-CD PLAYER OPERATION




Random play

Tracks on a selected disc or all discs on the disc table can be played back in a random order.

- 1 Load discs and close the disc table.
- 2 If necessary, switch the disc play mode by pressing the disc play MODE selector button.
 - * If the single disc play mode is selected, select a desired disc by pressing the DISC SKIP button.
- 3 Press the RANDOM button to begin random play.
 - * The "RANDOM" indicator will light up.

To cancel the random play

Press the stop  button, or press the RANDOM button again. The "RANDOM" indicator will go out.

Notes

- This feature will not function during programming, or during program play.
- This feature will not function when this unit is in the Playback Control mode ("PBC" is illuminated on the display).

Switching the time display

Each time the TIME button is pressed, the display will change as described below.

[Example]

When the second track is being played back (Refer to the illustration on the left.)

- ① The elapsed play time for the track now playing back will be displayed.
 - * 8 seconds have passed since the beginning of the second track.
- ② The remaining play time for the current track will be displayed.
 - * 2 minutes and 58 seconds remain till the end of the second track.
- ③ The total play time of the disc will be displayed. (If the unit is in the program play mode, the total play time of the programmed tracks will be displayed.)
- ④ The total remaining play time from the point being played at that time will be displayed.
 - * 41 minutes remain till the end of the disc.

Notes

- During random play, the total remaining play time on the disc will not be displayed.
- The remaining play time will not be displayed for track number 16 or higher.
- If track number 16 or higher is programmed, during the program play, the total play time and the total remaining play time will not be displayed.
- When this unit is in the Playback Control mode ("PBC" is illuminated on the display), only the elapsed play time is displayed.



PLAYBACK CONTROL OF VIDEO-CD (Ver. 2.0)

This function is available for Video-CDs, version 2.0 only. "PBC" will light up on the display when a version 2.0 disc is used.

The Playback Control differs with each disc. This section gives a basic explanation of Playback Control. Refer to the instruction manual for the disc for details.

Playback Control provides you with two types of new playback enjoyment.

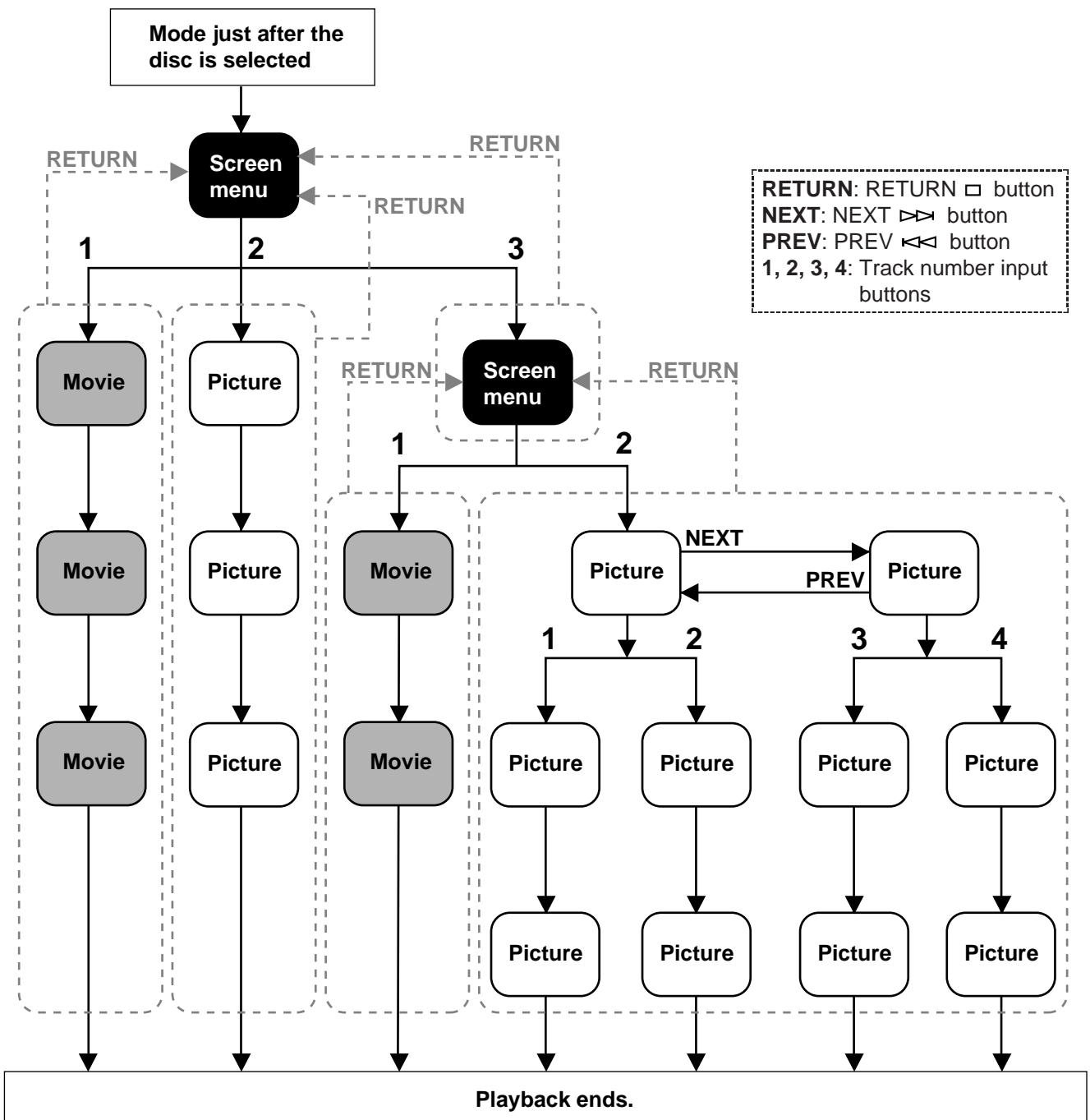
Playback selection on a screen menu

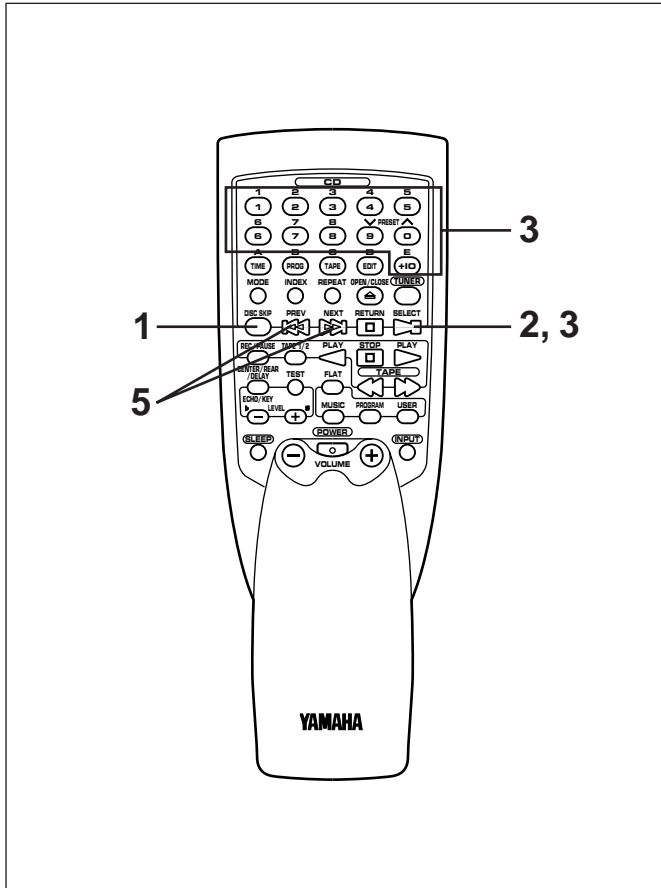
You can select pictures, music and information to play back by selecting items on a screen menu. (Similar to having a conversation.)

Playback of high quality pictures

You can enjoy watching pictures which are four times higher in quality than moving pictures.

A Flowchart of Playback Control (as an example)





Basic operation

Use the remote control transmitter for making Playback Control operations.

Note

Disc playback in the Playback Control mode depends on the data of the disc used. So, according to the contents of disc, the following operating method may not be applied to the disc.

Be sure to refer to the instruction manual for the disc.

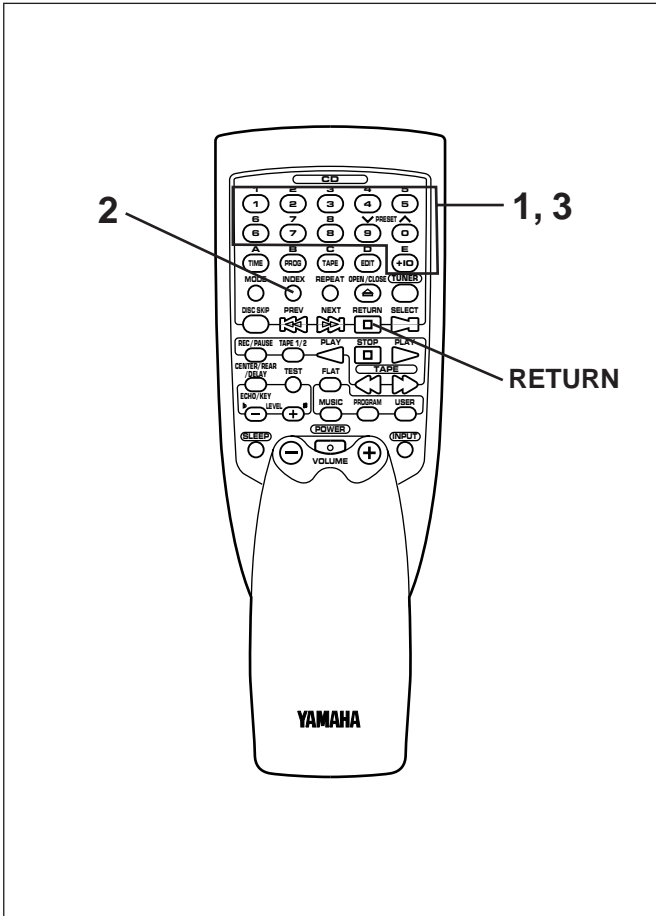
- 1 Stop this unit and select a Video-CD (version 2.0) by pressing the DISC SKIP button on the remote control transmitter.
 - * "PBC" lights up on the display.
- 2 Press the SELECT button. A screen menu appears on the TV monitor.
 - * Some discs show several short movies sequentially instead of a menu.
- 3 Select the number of item you want to play back by using the track number input buttons.
 - * If the disc shows several short movies sequentially, press the SELECT button when a desired picture appears.
- 4 Playback starts, or another menu appears. If another menu appears, repeat step 3. (Some discs have more than one screen menu.)
- 5 If "NEXT" or "▶▶" appears on the screen during playback, pressing the NEXT button will change to the next menu.
 - If "PREV" or "◀◀" appears on the screen during playback, pressing the PREV button will restore the previous menu.

Note

In the Playback Control mode, the TIME, REPEAT, PROG and RANDOM buttons are disabled.



PLAYBACK CONTROL OF VIDEO-CD (Ver. 2.0)



To stop playback

Press and hold the RETURN button for more than 2 seconds.

To return to a previous screen mode during playback

Press the RETURN button once.

* To return to the first screen mode, press the RETURN button repeatedly until the first screen mode appears.

If the disc has index numbers

If the currently selected disc includes index numbers, playback can be started from any desired index number.

- 1 Select a track which has index numbers by using the track number input buttons.
- 2 Press the INDEX button.
"INDEX" appears on the display.
- 3 Select the desired index number by using the track number input buttons.

To cancel the index search function

Press the INDEX button.

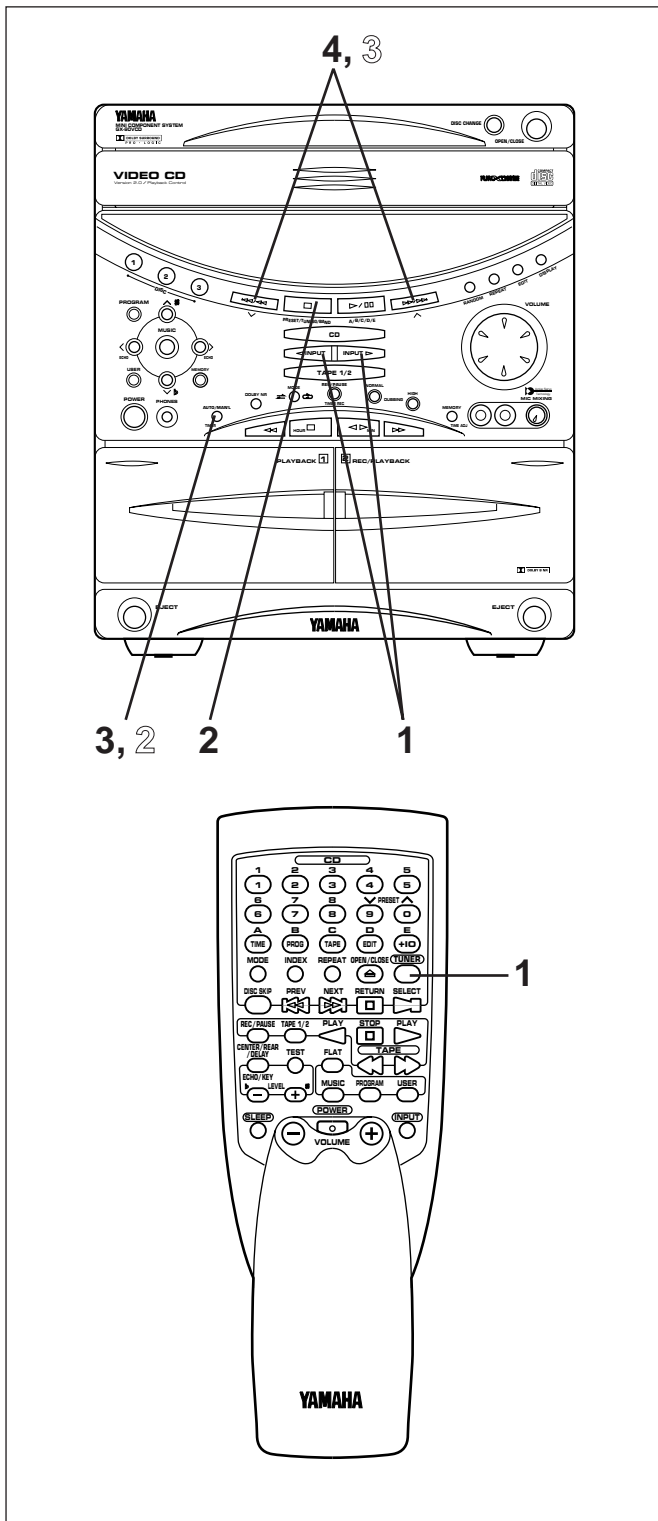
To playback a Video-CD (ver. 2.0) without Playback Control operation

Press and hold the RETURN button for more than 2 seconds when this unit is stopped. "PBC" disappears from the display, and this unit turns into a normal playback mode.

To restore the Playback Control mode again, press and hold the RETURN button for more than 2 seconds.



TUNING OPERATION



Normally, if station signals are strong and there is no interference, quick automatic-search tuning (Automatic tuning) is possible. However, if signals of the station you want to select are weak, you must tune to it manually (Manual tuning).

Automatic tuning

- 1 Press the INPUT selector \triangleright or \triangleleft button once or more so that "TUNER" appears on the display.
- 2 Select the reception band (FM or AM) by pressing the PRESET/TUNING/BAND button confirming it on the display.
 - * Do not select a preset tuning mode (in which "PRESET" lights up on the display.)
- 3 Press the AUTO/MAN'L button so that "AUTO" appears on the display. (In this mode, stations are received in stereo or monaural automatically.)
- 4 Press the \wedge button to tune to a higher frequency, or press the \vee button to tune to a lower frequency. (When tuned in to a station, "TUNED" will light up on the display.)
- 5 If the station where tuning search stopped is not the desired one, follow step 4 again.
 - * If the tuning search does not stop at the desired station, change to the Manual tuning method as described below.
 - * STEREO indicator will light up when an FM stereo broadcast with sufficient signal strength is received.

Manual tuning

- 1 Follow steps 1 and 2 of the Automatic tuning method.
- 2 Press the AUTO/MAN'L button so that "AUTO" disappears from the display. (In this mode, stations are received in monaural.)
- 3 Press and hold the \wedge button to tune to a higher frequency, or press and hold the \vee button to tune to a lower frequency. Release it just before reaching the desired frequency, and then press it repeatedly until the desired frequency appears. (When tuned in to a station, "TUNED" will light up on the display.)

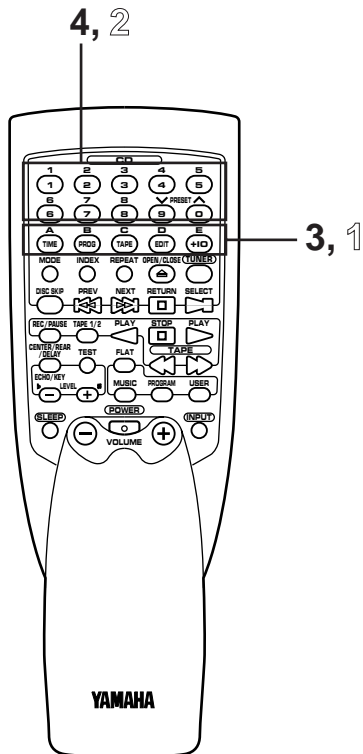
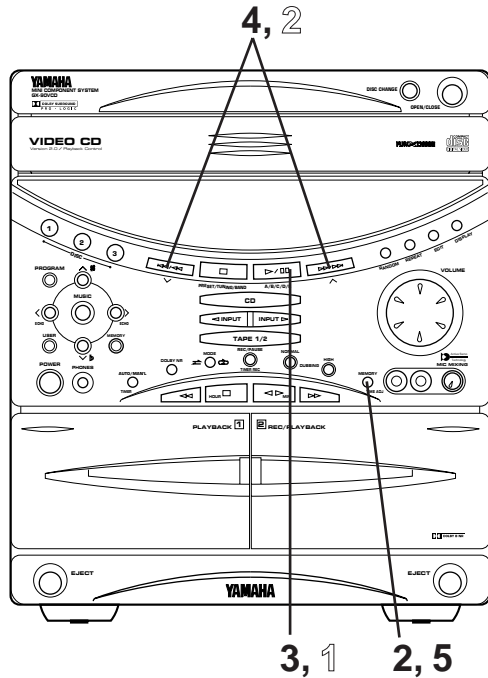
Note

If you tune in to an FM station manually, it is received in monaural automatically to increase the signal quality.

Note

Pressing the TUNER input selector button on the remote control transmitter switches the tuner from a normal tuning mode to a preset tuning mode and vice versa, or from FM to AM mode and vice versa.

TUNING OPERATION



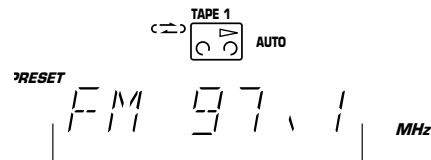
Preset tuning

This unit can store station frequencies selected by tuning operation. With this function, you can select any desired station by only calling the corresponding preset station number. Up to 40 stations (8 stations x 5 groups) can be stored.

To store stations

(Example: To store a station to A1)

- 1 Tune in to a desired station.
(Refer to the previous page for tuning procedure.)
- 2 Press the tuner MEMORY button.
* "MEMORY" and "PRESET" will flash on the display for about 5 seconds.
- 3 Select a desired group (A – E) of preset stations by pressing the A/B/C/D/E button confirming it on the display, before "MEMORY" goes out.
(In this case, select group A.)
- 4 Select a preset station number by pressing the \vee or \wedge button repeatedly before "MEMORY" goes out.
(In this case, select "1".)
- 5 Within about 5 seconds, press the tuner MEMORY button again.



The currently displayed station has been programmed to A1.

- * In the same way, program other stations to A2, A3 ... A8.
- * You can program more stations to the preset station numbers of other groups in the same way by selecting other groups in step 3.

To recall a preset station

- 1 Select a group of preset stations by pressing the A/B/C/D/E button.
- 2 Select the desired preset station number by pressing the \vee or \wedge button repeatedly.

Notes

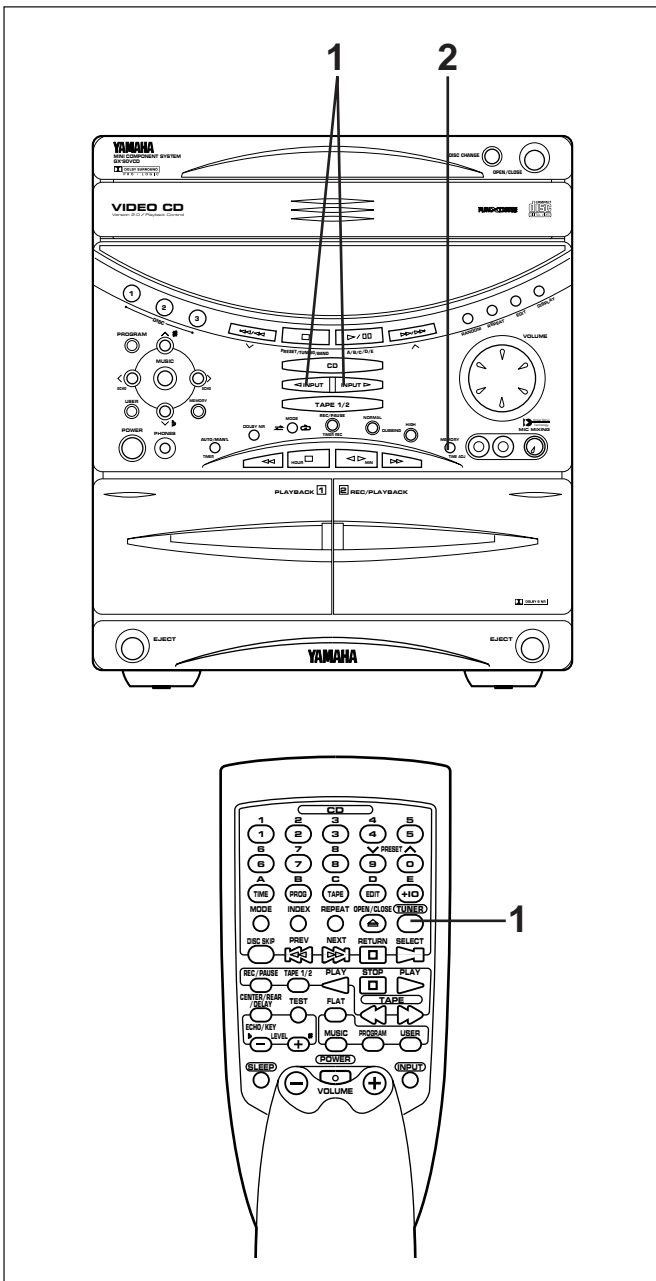
- A new setting can be programmed in place of the former one.
- For presets the setting of the AUTO/MAN'L button is stored along with the station frequency.

For easier operation

By using the preset station number buttons and the A,B,C,D,E selector buttons on the remote control transmitter, a preset station number and a group can be selected directly.



TUNING OPERATION



Automatic preset tuning

You can also make use of an automatic preset tuning function. By this function, this unit performs automatic tuning and stores stations with strong signals sequentially. Up to 40 stations are stored automatically in the same way as in the manual preset tuning method on the previous page.

- 1 Press the INPUT selector \triangleright or \triangleleft button once or more so that "TUNER" appears on the display.
- 2 Press and hold the tuner MEMORY button for about 2 seconds.
 - * The MEMORY and AUTO indicators will flash.

This unit performs automatic tuning and searches FM and AM stations in that order. Received stations are programmed to A1, A2 ... A8 sequentially.

When the automatic preset tuning is completed

The display shows the frequencies of the first preset station (stored to A1).

Check the contents and the number of preset stations by following the procedure of the section "To recall a preset station" on the previous page.

To recall a preset station

Simply follow the procedure of the section "To recall a preset station" on the previous page.

Notes

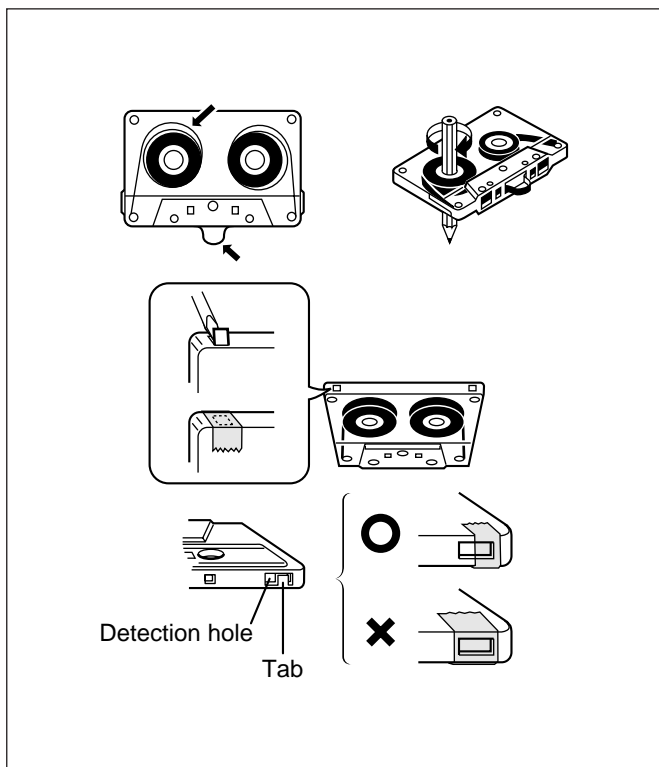
- The automatic preset tuning search will be performed through all frequencies until 40 stations are stored. If the number of received stations is less than 40, the search will stop after searching all frequencies.
 - * Since FM stations are searched for first, there may be a case that 40 preset stations are occupied by FM stations only.
- With this function, only stations with sufficient signal strength are stored automatically. If the station you want to program is weak in signal strength, tune to it in monaural manually and program it by following the procedure of the section "To store stations" on the previous page.
- You can replace a preset station by another FM or AM station manually by simply following the procedure of the section "To store stations" on the previous page.

Memory back-up

The memory back-up circuit prevents the programmed data from being lost even if the AC supply lead is disconnected from the AC outlet or the power is cut due to temporary power failure. If, however, the power is cut for more than one week, the memory may be erased. If so, it can be re-programmed by simply following the Preset tuning steps.



TAPE DECK OPERATION



Dolby B Type Noise Reduction


Dolby noise reduction is an extremely effective method of reducing undesirable background hiss on tapes. This unit incorporates Dolby B type noise reduction system that is the most popular one and almost of commercially available music tapes are recorded with the Dolby B NR.

Dolby B NR has a noise reduction effect of about 10 dB in the high frequency range.

Dolby noise reduction is a 2 part process that acts both on recording and playback; be sure that the same noise reduction is used on recording and playback.

Notes

- Tapes encoded with Dolby NR system should be decoded with the same Dolby NR system. Nevertheless, a Dolby encoded tape can be played back without decoding (and vice versa) with no harm to the recorded sound.
- Noise in the source material cannot be reduced with the Dolby NR system.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

General information


- Do not use C-120 tapes or poor-quality tapes, since they can cause malfunctions.
- Before loading a tape into the cassette compartment, tighten the tape slack with a pen or pencil.
- Tapes have removable tabs which prevent accidental recording or erasing from taking place. Removing the tab on the top left protects the side facing you from erasure. Cover the tab holes with adhesive tape to erase or record again.
- This deck is a Double Cassette Deck with Automatic Reverse Function.
Deck 1: Playback only.
Deck 2: Playback or recording.
- This deck features an auto tape selector. Just load the tape, and the tape formula being used will be sensed automatically.
- This unit can play back metal tapes as well as normal or chrome tapes, however recording cannot be done on metal tapes with good sound quality.
- When covering erasure prevention tab holes, do not cover the chrome and metal detection holes. Otherwise, the deck will treat tape as normal tape.
- Do not press the EJECT button during playback or recording.

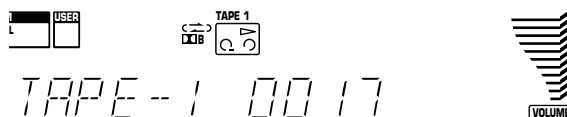
Automatic deck selecting function

If you load only one tape into the deck 1 or deck 2 cassette compartment, it is automatically selected and set ready for a playback.

About the tape counter

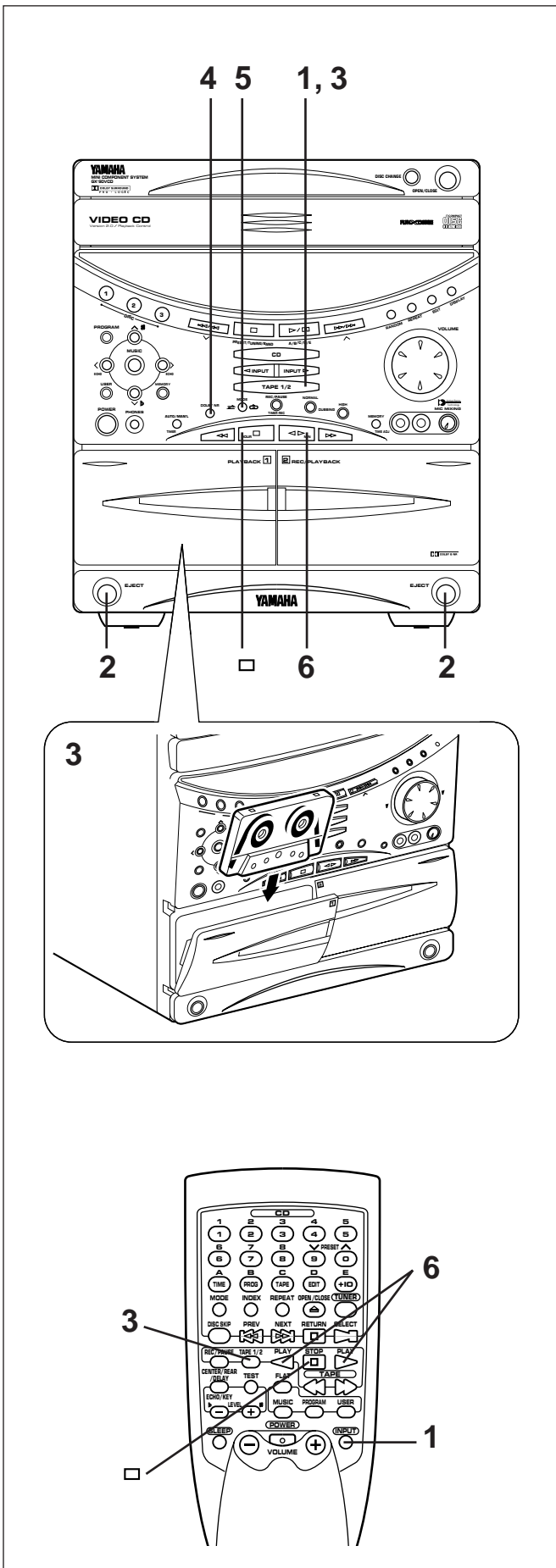
This unit is equipped with a tape counter that is useful for searching for and locating a desired point on tape. The tape counter for the tape 1 (or 2) currently selected is shown on the display.

Pressing the stop  button when the unit is stopped will reset the tape counter to "0000".





TAPE DECK OPERATION



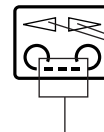
Tape 1 or tape 2 playback

- 1 Press the TAPE 1/2 input selector button.
- 2 Open the deck 1 or deck 2 cassette compartment by pressing the EJECT button.
- 3 Load a tape into the deck 1 or deck 2 cassette compartment, and close the lid panel completely by pressing the panel until it clicks.
 - * If you have loaded two tapes into both the cassette compartments, select either the tape 1 or tape 2 which you want to play back by pressing the TAPE 1/2 input selector button on the front panel or the TAPE 1/2 button on the remote control transmitter confirming it on the display.
- 4 Use the Dolby NR system by pressing the DOLBY NR button so that "NR B" lights up on the display, if the tape has been recorded with Dolby noise reduction. If not so, set the DOLBY NR button so that "NR B" does not light up.
 - * For details, refer to the "Dolby B Type Noise Reduction" on page 31.
- 5 If necessary, switch the reverse mode to the desired one by pressing the reverse MODE selector button so that the corresponding indicator lights up.

The reverse MODE selector button can be operated before or during playback, and changes tape playback as follows:

	→	↔
	Side A only	Side A → Side B (Repeats 8 times) Starts from side A.
	Side B only	Side A → Side B (Repeats 8 times) Starts from side B. (Side A is not played at the first time.)

- 6 Press the play ▷ button on the remote control transmitter to listen to side A, or the play ◁ button for side B.
 - * When using the play ◁ ▷ button on the front panel: Pressing the ◁ ▷ button once begins playback in the direction currently selected. Pressing the play button ◁ ▷ once more changes the tape running direction and begins playback.
 - * The play direction indicator on the display shows the currently selected tape direction.



Play direction indicator

Moves slowly in the current tape running direction during playback.

To stop playback

Press the stop □ button.



TAPE DECK OPERATION

Direct operation

When the power is off (in the standby mode), pressing the TAPE 1/2 input selector button or the play button will turn the power on and start playback of the selected tape automatically.

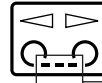
When the power is on, even if an input source other than tape deck is selected, pressing the play button (or the fast wind button) will start playback (or fast winding) directly.

Notes

- When removing the tape, press the stop □ button, and then open the cassette compartment.
- Even if you press the TAPE 1/2 input selector button on the front panel or the TAPE 1/2 button on the remote control transmitter during playback, the playback of currently selected tape cannot be changed to the other one though the tape number indicator on the display changes.

Winding the tape

- 1 If during playback, first press the stop □ button.
- 2 Next press the fast wind ◀◀ or fast wind ▶▶ button to wind the tape.



Moves rapidly in the direction of the current playback while searching.

- 3 Press the stop □ button to stop.

Note

When the tape is wound to the end, this unit will then function as described below, according to the setting of the reverse MODE selector button.

◀◀ : The tape stops at the end.

◀▶ : When the tape reaches the end, playback automatically starts from the reverse side.

Searching for the beginning of a desired selection

Carry out the following operation during playback to find the beginning of a desired selection on the tape.

To listen to the same selection

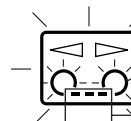
Press the ◀◀ button if the direction of the current playback is ▶.

Press the ▶▶ button if the direction of the current playback is ◀.

To listen to the next selection

Press the ▶▶ button if the direction of the current playback is ▶.

Press the ◀◀ button if the direction of the current playback is ◀.

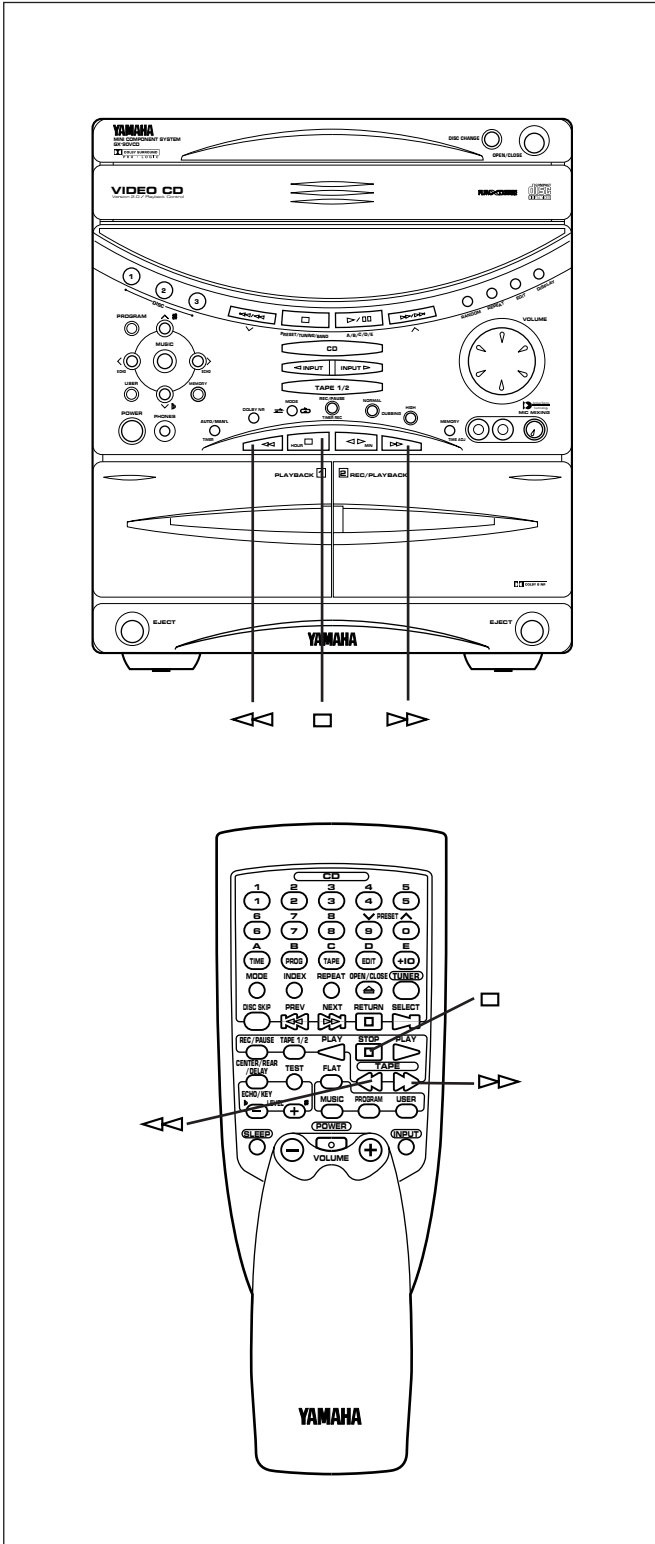


Flashes on and off.

Moves rapidly in the direction of the current playback while searching.

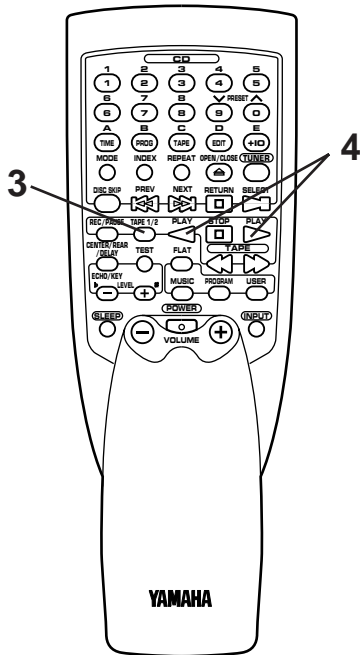
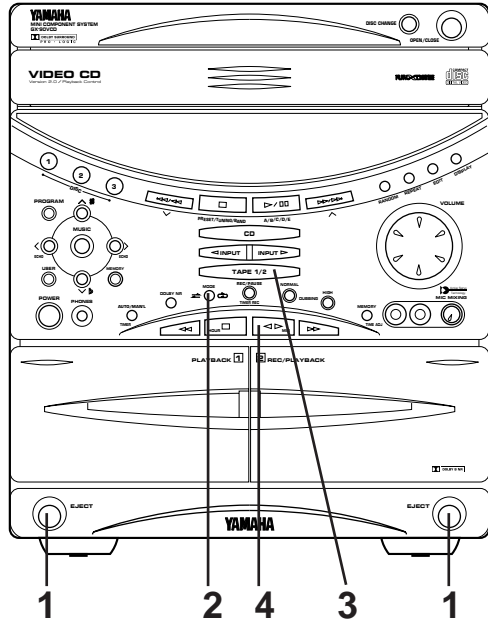
Notes

- This function may not work for tapes with
 - * Material with long pauses or quiet passages.
 - * Low recording levels or excessive noise.
 - * Pauses of less than 4 seconds between selections.
- If searching is carried out at the first or the last part of a selection, the desired selection may not be found.





TAPE DECK OPERATION



Continuous playback

- 1 Load the tapes into the deck 1 and deck 2 cassette compartments.
- 2 If the reverse mode “↔” is not selected, press the reverse MODE selector button to select it.

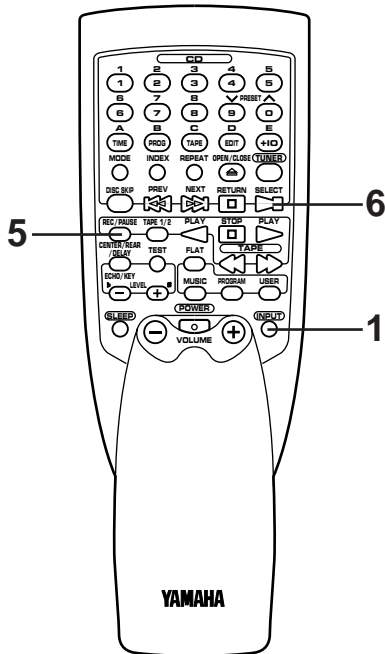
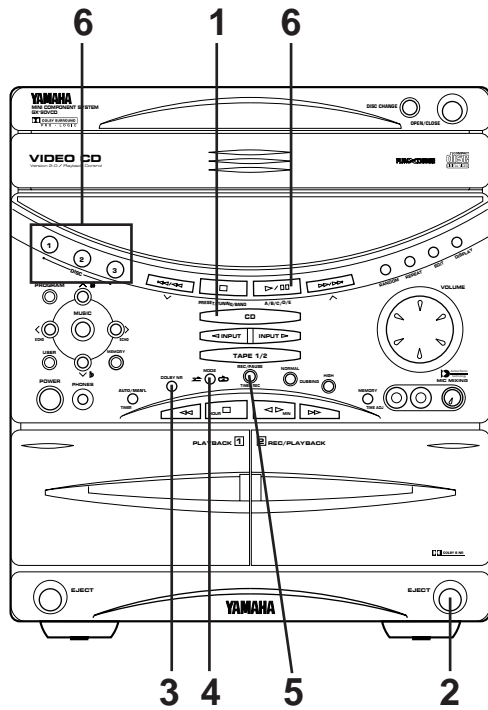
The reverse MODE selector button can be operated before or during playback, and changes tape playback as follows:

<Tape 1> 	Tape 1 Side A → B → Tape 2 Side A → B (Repeats 8 times) Starts from Tape 1 Side A.
<Tape 1> 	Tape 1 Side A → B → Tape 2 Side A → B (Repeats 8 times) Starts from Tape 1 Side B. (Tape 1 Side A is not played back at the first time.)

- 3 Select the tape to be played back first by pressing the TAPE 1/2 input selector button or the TAPE 1/2 button.
- 4 Press the play ▷ button on the remote control transmitter to listen to side A, or the play ◁ button for side B.
 - * When using the play ◁▷ button on the front panel: Pressing the ◁▷ button once begins playback in the direction currently selected. Pressing the play button ◁▷ once more changes the tape direction and begins playback.



RECORDING CD/VIDEO-CD SOURCES



General information

- When recording important selections, be sure to make a preliminary test to ensure that the desired source material is being properly recorded with good sound quality.
- The automatic recording level control circuit automatically controls the level of the input signal used for recording.
- Adjusting the VOLUME control has no effect on the recorded sound.
If, however, the built-in graphic equalizer and/or sound field processor is used, its effect is recorded along with the source.
* Music with an equalizer effect is suitable for listening to inside a car etc.
- For the tape deck, the deck which can be used for recording is deck 2 only. When recording, be sure to load a tape into the deck 2 cassette compartment.
- Recording cannot be done if the tape deck is selected as the playback source.

Synchronized recording

- 1 Press the CD input selector button and load the disc to be recorded.
- 2 Load a tape into the deck 2 cassette compartment.
* Wind past the beginning part of the tape on which recording cannot be performed.
- 3 When recording with the Dolby NR system, press the DOLBY NR button so that "NR B" lights up on the display.
If not, turn it off.
* For details, refer to the "Dolby B Type Noise Reduction" on page 31.
- 4 If desired, switch the reverse mode by pressing the reverse MODE selector button.

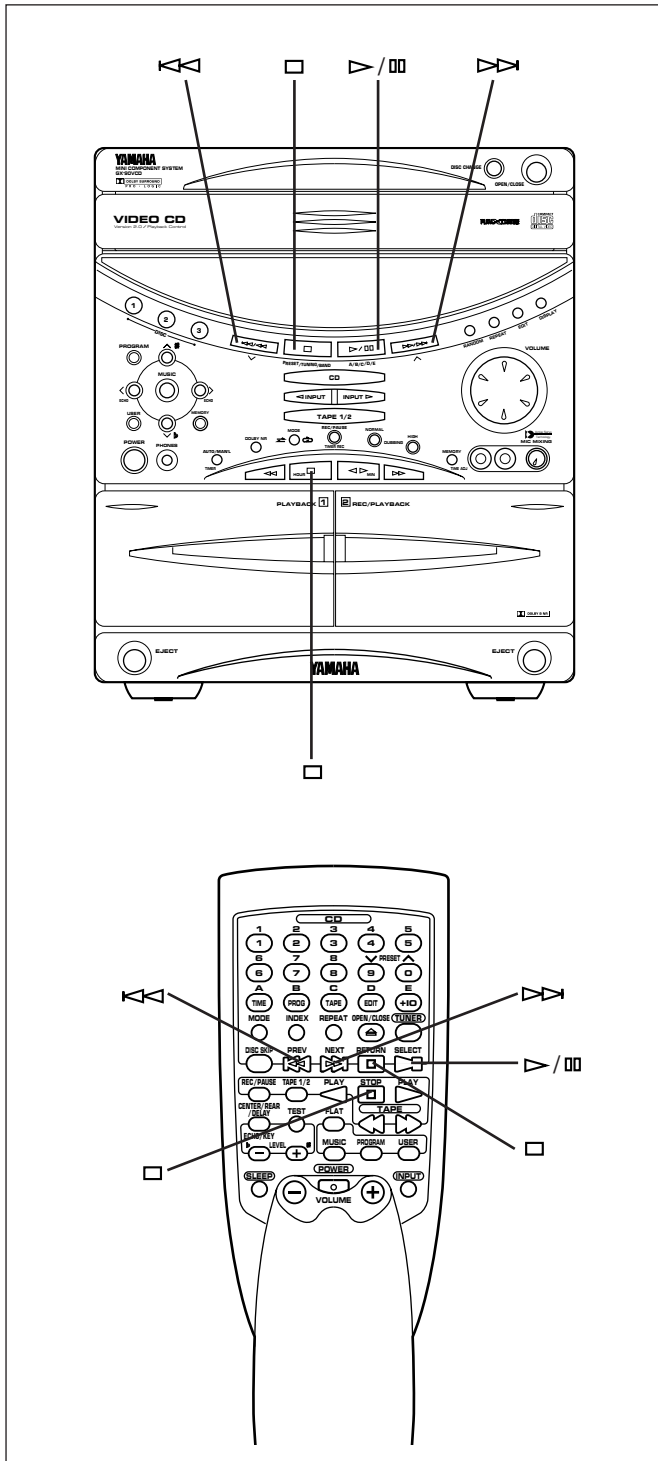
When the tape is set so that side A faces you, recording will be done as follows automatically according to the selected reverse mode.

	Side A only	Side A → Side B
	Side B only	Side B only





- 5 Press the REC/PAUSE button.
* "REC" lights up on the display.
- 6 Start disc playback by pressing the corresponding DISC selector button, or by pressing the play/pause button if the disc is already selected.
* Before disc playback begins, recording automatically begins on the side of the tape now selected.




RECORDING CD/VIDEO-CD SOURCES



To stop recording temporarily


- 1 Press the stop  button of the Video-CD player.
- 2 Choose the selection to be recorded next by using the  or  button, and then press the play/pause  button of the Video-CD player to resume recording (or simply press the track number input button on the remote control transmitter).

To stop recording

Press the stop  button of the tape deck.
(At this time, disc playback will not stop.)

Recording programmed tracks



Programmed tracks from one or more discs can also be recorded in the same way.





- 1 Program desired tracks from one or more discs. (Refer to page 21 for the programming procedure.)
- 2 Follow steps 2–5 on the previous page.
- 3 Press the play/pause  button of the Video-CD player.

Notes

- During Synchronized Recording, when more than 4 seconds elapse between tracks, the tape will stop automatically and resume recording when the beginning of the next track is found.
- The Synchronized Recording will function even when the Video-CD player is turned into random play mode.
- The Synchronized Recording cannot be made when this unit is in the Playback Control mode ("PBC" is illuminated on the display). To record a Video-CD, version 2.0, cancel the Playback Control mode.

Returning the tape to the point where the recording started automatically (REC RETURN function)

During recording, by only pressing the  or  button, you can rewind the tape to the point where the recording started automatically.

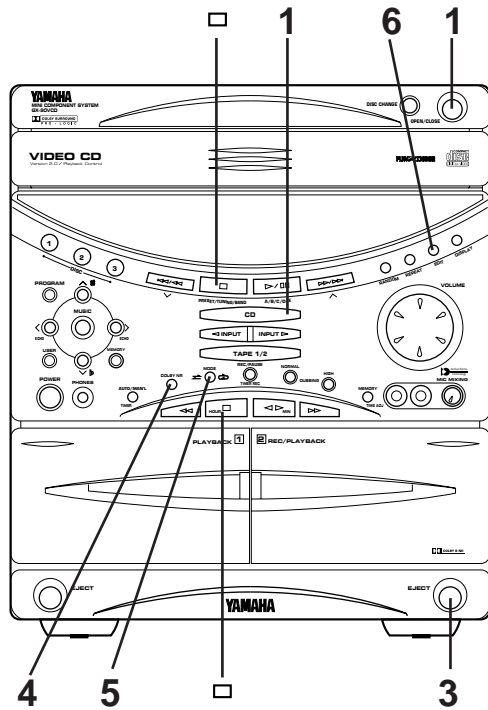
- Press the  button when the play direction indicator  is lit up.
 - Press the  button when the play direction indicator  is lit up.

* This function is available to all recording methods.



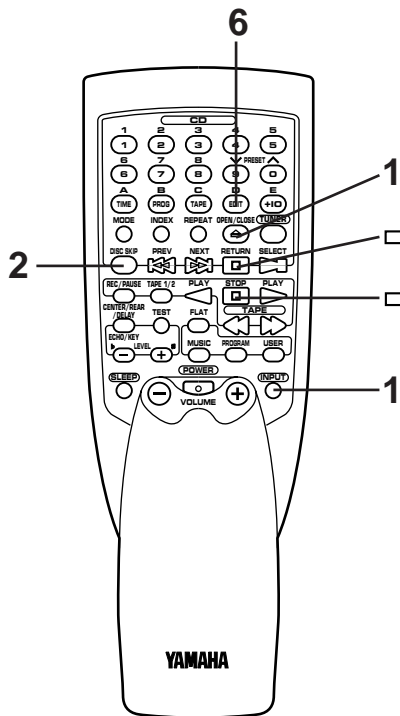
RECORDING CD/VIDEO-CD SOURCES

Recording disc(s) on both sides of a tape automatically



* A Video-CD cannot be recorded by this method.

- 1** Press the CD input selector button and load the disc to be recorded.
- 2** Select the disc by pressing the DISC SKIP button.
- 3** Load a tape into the deck 2 cassette compartment.
- 4** When recording with the Dolby NR system, press the DOLBY NR button so that " **NR** " lights up on the display. If not, turn it off.
 - * For details, refer to the "Dolby B Type Noise Reduction" on page 31.
- 5** If the reverse mode " **←→** " is not selected, press the reverse MODE selector button to select it.
- 6** Press the EDIT button. ("EDIT" appears on the display.) disc playback and recording starts. Recording is carried out on side A and B of the tape continuously.
 - * If the tape has not rewound to the end, it is rewound to the end rapidly before recording starts. Recording starts from the first part of the tape on which recording can be done.
 - * "A **○○** " (or " **○○** B ") on the display shows the side of the tape on which recording is being carried out.
 - * When the recording on side A finishes while a track is being played back, the sound is automatically faded out, and then the recording stops. The recording on side B starts from the beginning of the same track.



Notes


- When this Video-CD player is in the all disc play mode, if the tape's total possible recording time is longer than the total playing time of the selected disc, tracks on another disc are recorded continuously. In this case, as many as three discs can be recorded automatically.
- During recording, the DISC CHANGE button on the Video-CD player is disabled.
- The Video-CD player's repeat play mode will be canceled during this recording mode.

Recording programmed tracks


Programmed tracks from one or more discs can also be recorded in the same way.

- 1** Program desired tracks from one or more discs. (Refer to page 21 for the programming procedure.)
- 2** Follow steps 3–6 described above.

To cancel this function

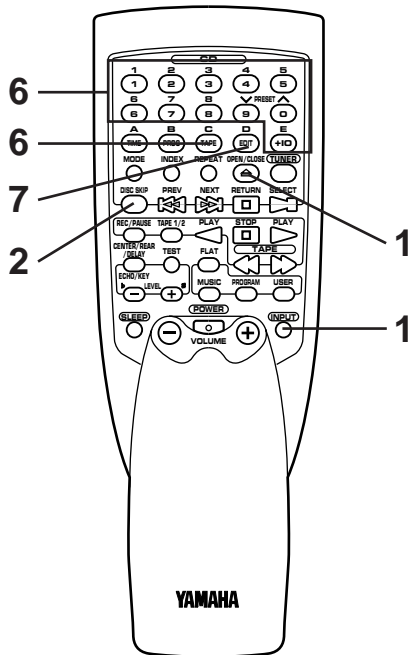
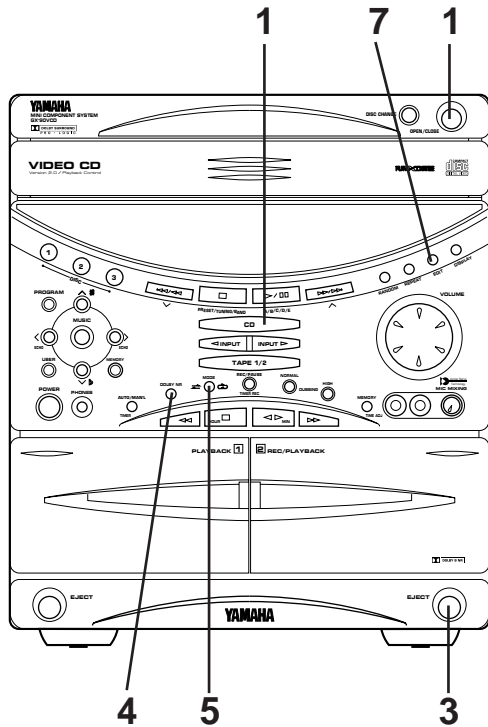
Before recording, press the stop  button of the Video-CD player or the tape deck.

To stop recording

Press the stop  button of the tape deck. (At this time, disc playback automatically stops.)



RECORDING CD/VIDEO-CD SOURCES



Automatic tape-editing

This convenient feature can be used to program tracks on a disc (or discs) for recording to tape. By only memorizing the tape's total possible recording time, the unit will automatically program tracks or help you to program tracks so they will fit onto the tape with the least amount of unrecorded space remaining at each end of the tape.

* Tracks on a Video-CD cannot be programmed by this method.

To record a disc with the order of tracks unchanged

- 1 Press the CD input selector button and load a disc to be recorded.
- 2 Select the disc by pressing the DISC SKIP button.
- 3 Load a tape into the deck 2 cassette compartment.
- 4 When recording with the Dolby NR system, press the DOLBY NR button so that "D B" lights up on the display. If not, turn it off.
 - * For details, refer to the "Dolby B Type Noise Reduction" on page 31.
- 5 If the reverse mode "C" is not selected, press the reverse MODE selector button to select it.
- 6 Press the TAPE button on the remote control transmitter to select the length of the tape to be used. Whenever pressed, C-46, C-54, C-60 and C-90 appear on the display in turn, and next it returns to the normal display mode.

(off) → C-46 → C-54 → C-60 → C-90

When using tapes other than C-46, C-54, C-60 or C-90

When C-46, C-54, C-60 or C-90 is appearing on the display, input the tape length by using the track number input buttons on the remote control transmitter

(Examples)

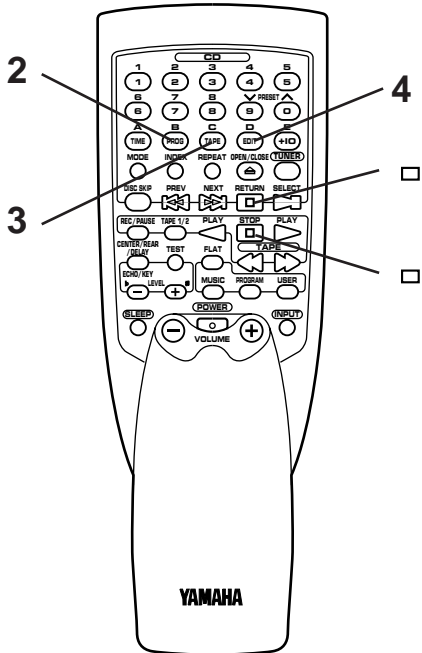
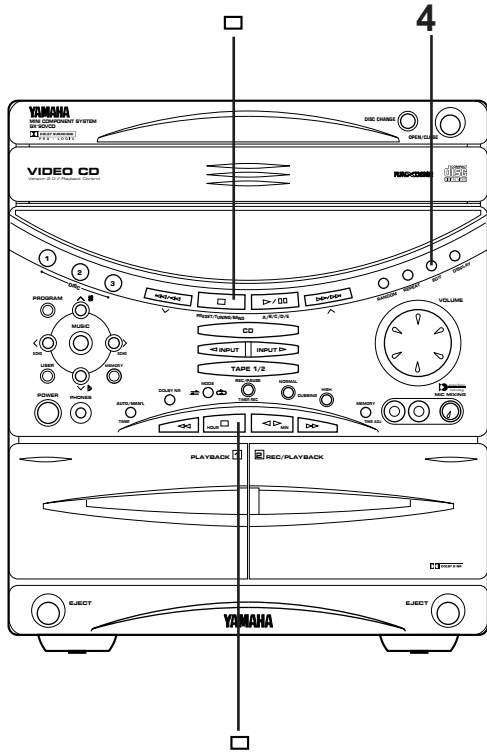
C-62: Press "6" and then "2".

C-30: Press "3" and then "0", or press "+10" three times and then "0".

- 7 Press the EDIT button. ("EDIT" appears on the display.) The following internal operations are carried out before recording is automatically started.
 - * If the tape has not rewound to the end, it is rewound to the end rapidly before recording starts.
- 1) Tracks on the disc are automatically divided between side A and side B. You can check the process by watching the display.
 - 2) The end part of the tape on which recording cannot be done is wound.
 - 3) Disc playback and recording starts. Recording is carried out on both side A and B of the tape.



RECORDING CD/VIDEO-CD SOURCES



Notes

- When this Video-CD player is in the all disc play mode, if the tape's total possible recording time is longer than the total playing time of the selected disc, tracks on another disc are recorded continuously. In this case, as many as three discs can be recorded automatically.
- The Video-CD player's repeat play mode will be canceled during this recording mode.

To cancel tape-editing function

Before recording, press the stop button of the Video-CD player or the tape deck.

To stop recording

Press the stop button of the tape deck.
(At this time, disc playback automatically stops.)

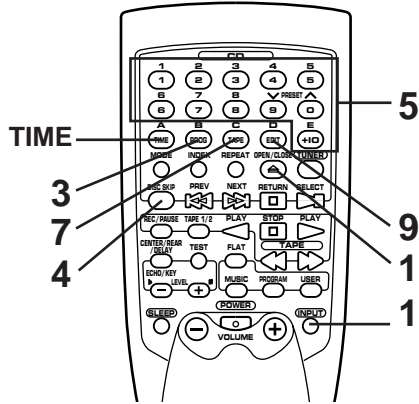
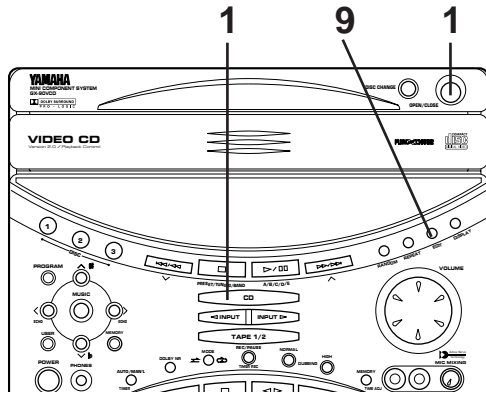
To make this unit program tracks on a disc automatically so that the least amount of unrecorded space remains on the tape

- 1 Follow steps 1–6 on the previous page.
- 2 Press the PROG button.
- 3 Press the TAPE button.
“AP- A> ” will light up during programming for side A, and “AP- B> ” will light up during programming for side B.

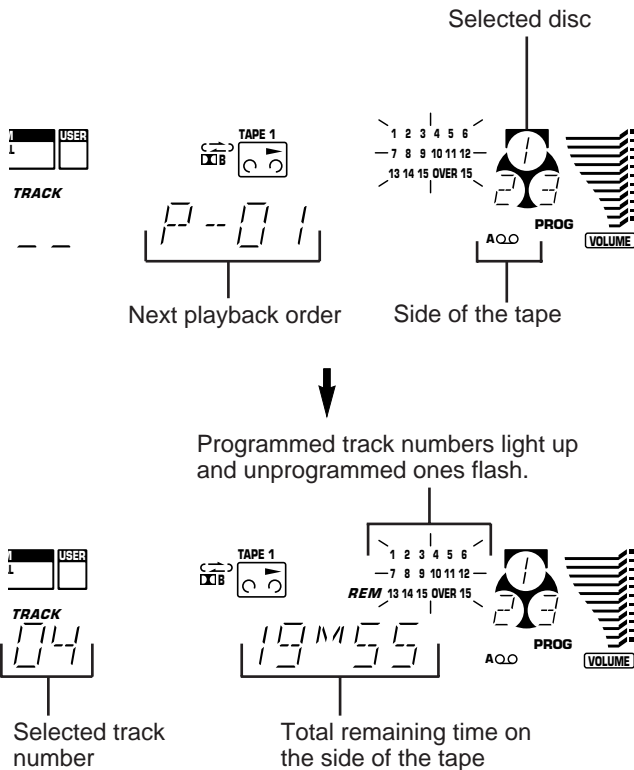
* After “AP- B> ” goes out from the display, you can check the programmed contents for side A and B respectively.
To check, cancel or correct program data, refer to page 22.
- 4 Press the EDIT button. (“EDIT” appears on the display.)
The recording is automatically started.



RECORDING CD/VIDEO-CD SOURCES



Display information during programming



To record programmed tracks from one or more discs

- 1 Press the CD input selector button and load a disc (or discs) on the disc table.
- 2 Follow steps 3–6 on page 38.
- 3 Press the PROG button.
 - * “PROG” and “P-01” will light up on the display, and all track numbers on the selected disc will begin flashing.
- 4 If necessary, select a desired disc by pressing the DISC SKIP button.
- 5 Select the desired track number by pressing the track number input buttons.
- 6 Repeat steps 4 and 5 to program more selections for the side A of the tape. You can select the same track again.
 - * Pressing the TIME button displays the total remaining time on the side of the tape for about 1 second, and then it is replaced by the display of the next playback order.
 - * If “TM OVER” appears on the display, the track number just selected cannot be programmed because there is not enough time remaining on the side A of the tape. However, at this time, if any other track number is flashing continuously on the display, you can program it instead of the unprogrammable one.
- 7 After you finish the programming for the side A, press the TAPE button.
 - * “PU SET” appears on the display, then you can begin programming for side B.
 - * After this step is done, you can check the programmed contents for side A and side B alternately by pressing the TAPE button at any time before you press the EDIT button in step 9.
- 8 Repeat steps 4 and 5 to program selections for the side B of the tape. You can select the same track again.
 - * If “TM OVER” appears on the display, the track number just selected cannot be programmed because there is not enough time remaining on the side B of the tape. However, at this time, if any other track number is flashing continuously on the display, you can program it instead of the unprogrammable one.
- 9 Press the EDIT button. (“EDIT” appears on the display.) The recording is automatically started.

Notes on tape-editing

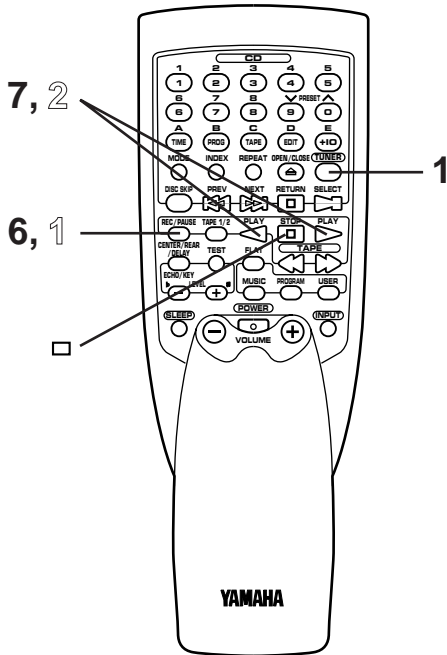
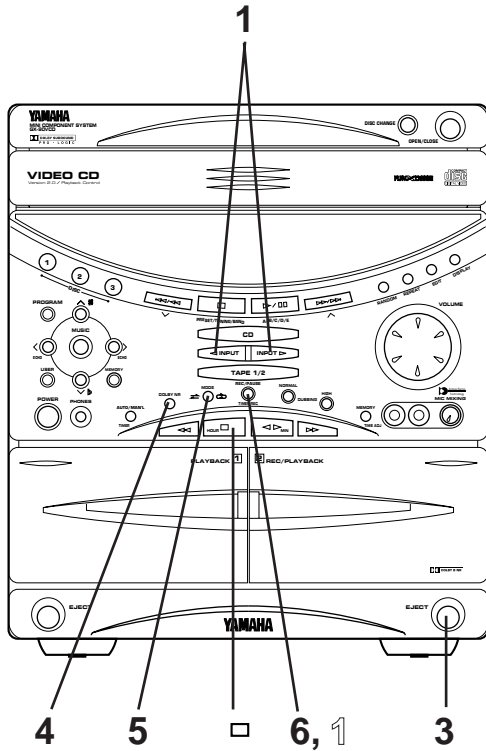
- If programs are made selecting tracks from more than one disc, during recording, the DISC CHANGE button on the Video-CD player is disabled.
- To check, cancel or correct program data, refer to page 22.
- The maximum number of tracks that can be programmed is 20.
- This function can be used to program up to track number 15. If the disc has more than 15 tracks, track number 16 and thereafter will not be programmed.



OTHER RECORDINGS

General information

- When recording important selections, be sure to make a preliminary test to ensure that the desired source material is being properly recorded with good sound quality.
- The automatic recording level control circuit automatically controls the level of the input signal used for recording.
- Adjusting the VOLUME control has no effect on the recorded sound.
If, however, the built-in graphic equalizer and/or sound field processor is used, its effect is recorded along with the source.
* Music with an equalizer effect is suitable for listening to inside a car etc.
- For the tape deck, the deck which can be used for recording is deck 2 only. When recording, be sure to load a tape into the deck 2 cassette compartment.



Recording from the built-in tuner

- 1 Press the INPUT selector \triangleright or \triangleleft button once or more so that "TUNER" appears on the display.
- 2 Tune to the desired station. (Refer to the "TUNING OPERATION" on page 28 and 29.)
- 3 Load a tape into the deck 2 cassette compartment.
- 4 When recording with the Dolby NR system, press the DOLBY NR button so that " \square B" lights up on the display.
If not, turn it off.
* For details, refer to the "Dolby B Type Noise Reduction" on page 31.
- 5 Select the reverse mode " \rightleftharpoons " to record on only one side, or " \rightleftarrows " for continuous recording on both sides by pressing the reverse MODE selector button.
- 6 Press the REC/PAUSE button.
* "REC" lights up on the display.
- 7 Press the play \triangleright button on the remote control transmitter to record on side A, or the play \triangleleft button to record on side B.
* For continuous recording on both sides, begin on side A. Recording stops automatically at the end of side B.

To stop recording temporarily

- 1 Press the REC/PAUSE button.
- 2 To resume recording, press the play button.

To stop recording

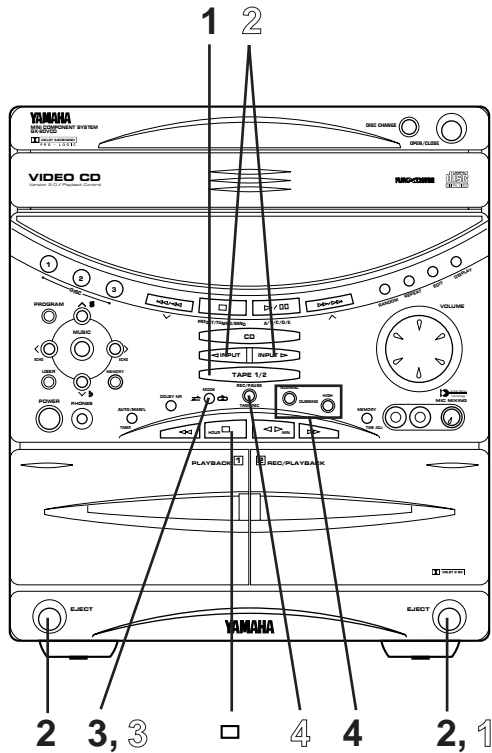
Press the stop \square button.

To reduce beats during recording

While recording an AM (long wave) broadcast, you may hear a bleep caused by beat frequencies. In such a case, pressing the TUNER input selector button on the remote control transmitter once or more will reduce or remove beats. (Whenever the TUNER input selector button is pressed, "B.C-1" and "B.C-2" appears on the display alternately. Select either of them in which you find that beats are more reduced.)



OTHER RECORDINGS



Dubbing

- During dubbing, adjusting the VOLUME control and using the built-in graphic equalizer and the sound field processor have no effect on the recorded sound.
- Try to use the same tape formula and length for the recording tape as for the master tape.

- 1 Press the TAPE 1/2 input selector button.
- 2 Load a prerecorded tape into the deck 1 cassette compartment. Insert a blank tape into the deck 2 cassette compartment.
- 3 Select the reverse mode “” to record on only one side, or “” for continuous recording on both sides by pressing the reverse MODE selector button.
- 4 Press the DUBBING button.
 - * Press “NORMAL” to dub at normal speed, and “HIGH” to dub at about twice the normal speed.
 - * Dubbing will begin from side A regardless of the side now selected.

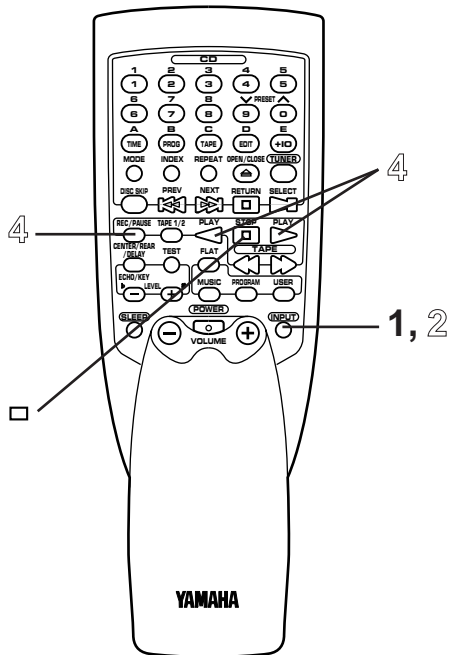
To stop dubbing

Press the stop button.

- * Tape 1 and tape 2 will stop at the same time.

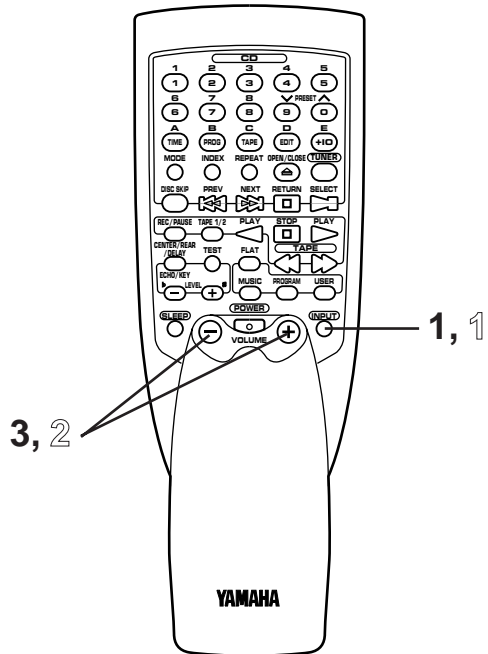
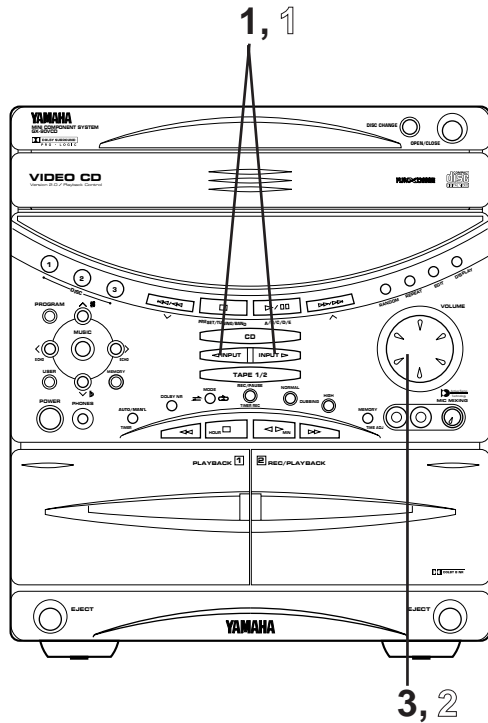
Note

Only tapes originally encoded with Dolby NR will be dubbed onto tapes with Dolby NR encoding. Even if the Dolby NR is on, it will have no effect on the recording of tape 2 during dubbing. However, the playback tonal quality of tape 1 will change according to whether the Dolby NR button is on or off.



Erasing recorded tapes

- 1 Load the tape to be erased into the deck 2 cassette compartment.
- 2 Press the INPUT selector or button once or more and select an input source position of external unit (MD/AUX, VCR or LD/TV).
 - * Make sure that there is no sound output from the selected external unit.
- 3 Select the reverse mode “” to erase only one side or “” to erase both sides by pressing the reverse MODE selector button.
- 4 Press the REC/PAUSE button, then press the play button on the remote control transmitter to erase side A of the tape, or the play button to erase side B.



To listen to or watch a source on an external unit connected with this system

- 1 Press the INPUT selector \triangleright or \triangleleft button once or more and select the position of input source (MD/AUX, VCR or LD/TV) you will play back confirming it on the display.
 - * The names of input source positions correspond with the names of terminals to connect with external units on the rear of the main unit.
- 2 Play back the source.
(For a video source, turn the monitor TV on.)
- 3 Adjust the volume to a desired level by using the VOLUME control.
If you prefer, use the graphic equalizer and/or the sound field processor built into this system.

To record a source to tape

Not only a source played back on this system, but also a source played back on an external unit can be recorded by the built-in tape deck and/or a VCR, DAT, etc. connected with this system.

* If you make a recording on the built-in tape deck, read "General information" on page 41 before starting recording.

- 1 Select the source to be recorded by the INPUT selector \triangleright or \triangleleft button.
- 2 Play back the source and then turn the VOLUME control up to confirm the input source.
- 3 Begin recording on the built-in tape deck or a VCR etc. connected with this system.
 - * To make a recording on the built-in tape deck, follow steps 3–7 on page 41.
To stop recording or to stop recording temporarily, also refer to page 41.

Note

If the built-in graphic equalizer and/or sound field processor is used, its effect is recorded along with the source when you make recording on the following recording units.

- The built-in tape deck.
- The external recording unit connected to the MD/AUX terminals on the rear of the main unit.

However, the effect of the graphic equalizer and/or sound field processor cannot be recorded when you make recording on the external recording unit connected to the VCR terminals on the rear of the main unit.

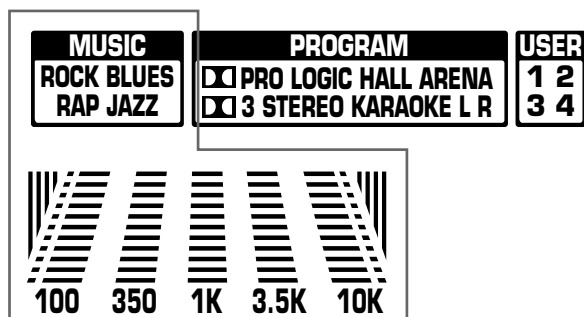
USING GRAPHIC EQUALIZER

The built-in graphic equalizer presents you with the pleasure of listening to music with various sound effects.

This system provides 4 preset equalizer modes as listed right.

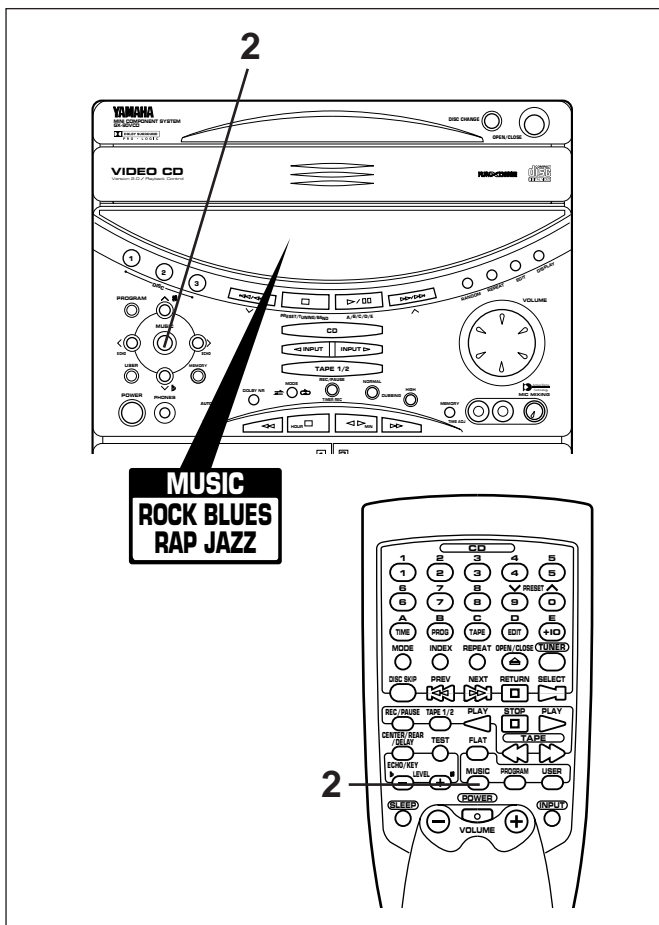
You can enjoy listening to music with a desired sound effect by selecting one of these modes.

In addition, the built-in 5 band graphic equalizer allows you to adjust the equalizer pattern to create an effect for your desired sound taste.



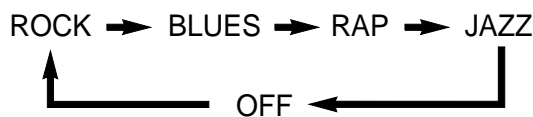
Preset graphic equalizer modes (MUSIC)

Mode	Feature
ROCK	High and low frequencies are emphasized. This mode is suitable for reproducing dynamic and powerful sounds of rock music etc.
BLUES	Low and medium frequencies are moderately emphasized. This mode is suitable for music with a blue feeling.
RAP	Low and mid-high frequencies are emphasized so that vocals become well-modulated. This mode is suitable for rap music etc.
JAZZ	Medium frequencies for vocals, piano, sax, etc. are emphasized. High and low frequencies are also emphasized moderately.



Listening to the music with a preset equalizer effect

- 1 Play back a source. (For source playback, refer to page 18–34.)
- 2 Press the **MUSIC** button once or more so that the name of a desired mode appears on the preset equalizer mode indicator.
 - * Whenever you press the **MUSIC** button, the preset mode changes and is displayed as follows.



* The equalizer pattern of the selected mode is shown on the graphic equalizer level indicators.

Note

An equalizer effect is also be recorded along with a source when recording on the built-in tape deck.

Adjusting the graphic equalizer for your desired sound taste

The 5 band graphic equalizer allows you to adjust the level for each frequency band.

* Make adjustment by monitoring the equalizer level indicators on the display.

- 1 Play back a source. (For source playback, refer to page 18–34.)
- 2 Press the equalizer control < or > button once or more to select the frequency band to which you will adjust the level.
 - * The selected frequency band is shown on the display.
 - * The scale bar of the selected frequency band on the graphic equalizer level indicators will flash.
- 3 Press the equalizer control ^ or v button once or more to adjust the level.
- 4 In the same way, make adjustment for other frequency band.

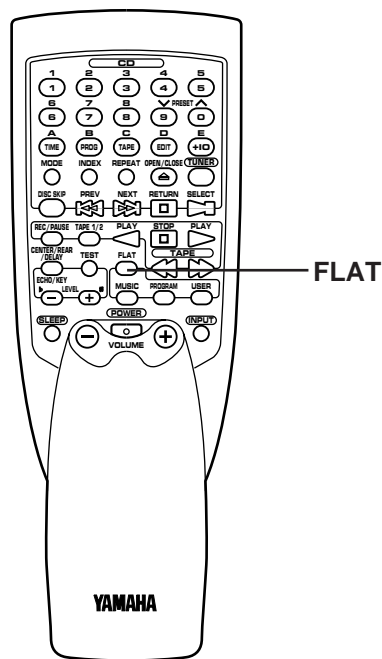
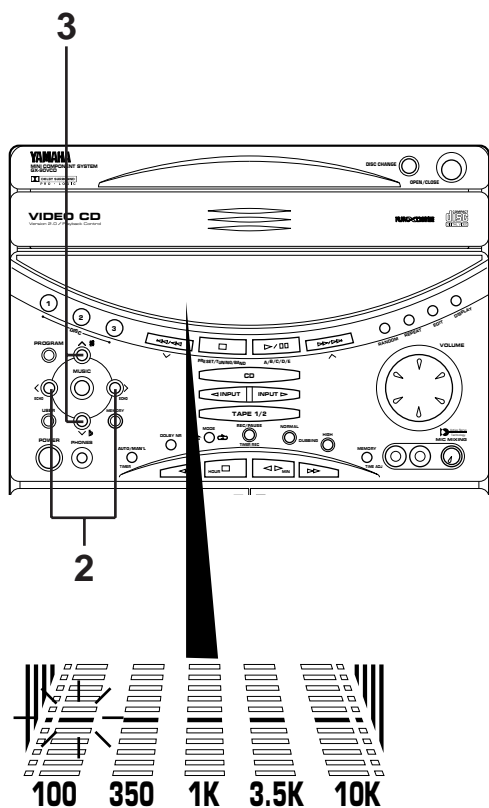
Note

If the KARAOKE (including L and R ONLY) program is selected, cancel it or select another sound field program.

Turning the equalizer to “flat” (the state with no equalization applied)

By one of the following methods, the settings of preset graphic equalizer mode (MUSIC) and sound field program (PROGRAM) are turned off and the equalizer pattern is turned to “flat”.

- Press the FLAT button on the remote control transmitter.
 - * Pressing the FLAT button once more will restore the state before the equalizer was turned to “flat”.
- Press the MUSIC button and the PROGRAM button on the front panel at the same time.
 - * There is no way to restore the state before the equalizer was turned to “flat”.



USING SOUND FIELD PROCESSOR

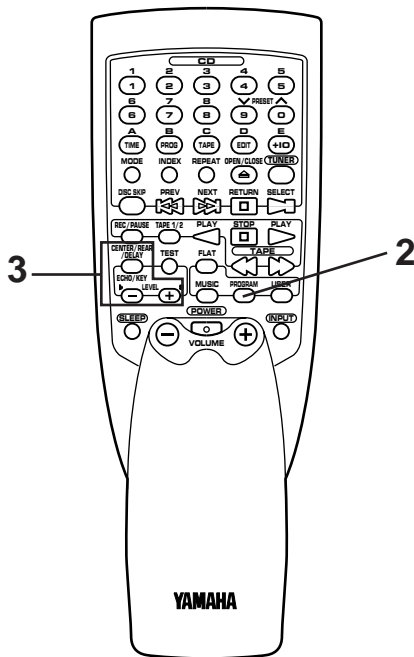
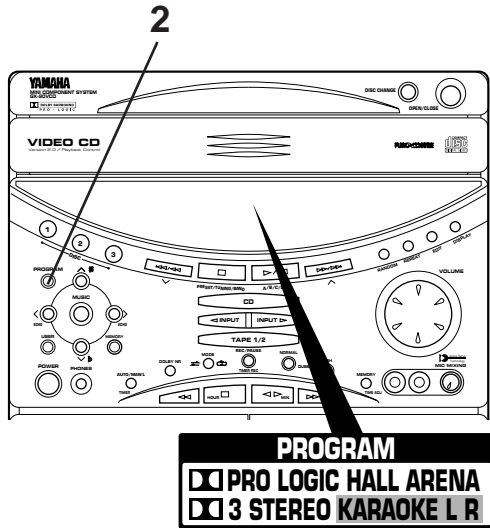
The Sound Field Processor built into this system presents you with the ambience of an actual concert hall etc. by adding effects as sonic reflections or reverbations that create the sound environment of a hall etc. This system provides preset sound field programs shown below. You can enjoy an excellent audio sound field by selecting one of them, and adding desired adjustments.

This system incorporates a Dolby Pro Logic Surround decoder for multi-channel sound reproduction of Dolby Surround encoded video sources. The operation of the Dolby Pro Logic Surround decoder can be controlled by selecting a corresponding sound field program.



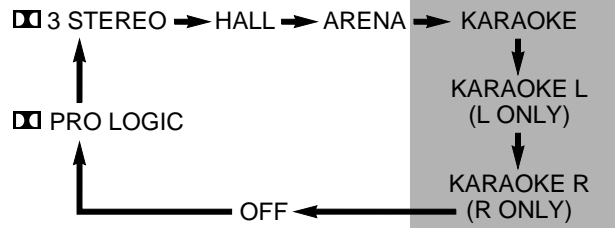
Brief Overview of Sound Field Programs

PROGRAM	FEATURE
<input checked="" type="checkbox"/> PRO LOGIC	This program is used for playback of sources encoded with Dolby Surround. Sounds are reproduced as movie creators designed by using five speakers. You can experience the dramatic realism and impact of a movie theater.
<input checked="" type="checkbox"/> 3 STEREO	This program is effective not only for playback of sources encoded with Dolby Surround, but also for sources not encoded with Dolby Surround or TV programs with 2-channel stereo sound. With this program, 2-channel stereo sound is converted into 3-channels (left front, center and right front), so the dialogs are emphasized on the center position by the use of the center speaker. As no sound is output from the rear speakers, this program is also effective in a simple Audio/Video system without rear speakers.
HALL	In this program, the center will appear to be deep behind the front speakers, creating an expansive large hall ambience. Orchestra and opera music are suited for this sound field.
ARENA	This program simulates the sound environment of a big hall with long reverberation time and many reflections of high frequencies.
KARAOKE (KARAOKE L) (KARAOKE R)	These are audio output modes useful for singing Karaoke. (Refer to page 51 for details.)



Listening to the music with a sound field effect

- 1 Play back a source. (For source playback, refer to page 18–34.)
- 2 Press the PROGRAM button once or more so that the name of a desired program appears on the sound field program indicator.
 - * Whenever you press the PROGRAM button, the program changes and is displayed as follows.

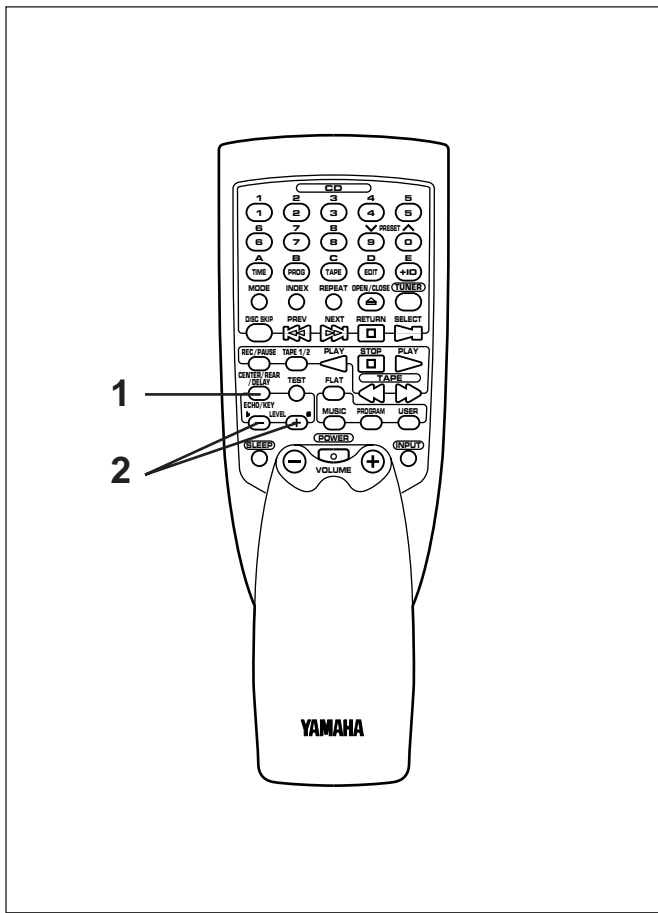


* Programs on the shaded areas are audio output modes useful for singing Karaoke. (Refer to page 51 for details.)

- 3 If desired, adjust the delay time and the output level of each speaker. (For details, refer to the corresponding descriptions on page 48–49.)

Notes

- When HALL or ARENA is selected, no sound is heard from the center speaker.
- When a monaural sound source is played with DOLBY PRO LOGIC or DOLBY 3 STEREO, no sound is heard from the front speakers and the rear speakers. Sound is heard only from the center speaker. For DOLBY PRO LOGIC only, however, if the center channel mode is in “PHANTOM”, the front speakers output the sound of the center channel.
- A sound field effect is also be recorded along with a source when recording on the built-in tape deck.



Adjusting CENTER LEVEL

If desired, you can adjust the sound output level of the center speaker even if the output level is already set in "SPEAKER BALANCE ADJUSTMENT" on page 16–17.

Control range : +10 to –21

- 1** Press the CENTER/REAR/DELAY selector button once or more so that "CENT" appears on the display.
- 2** By continuously pressing the LEVEL control + or – button, the level value changes continuously.

Notes

- This adjustment can be made only when the sound field program DOLBY PRO LOGIC or DOLBY 3 STEREO is selected.
- Once the output level is adjusted, the level value will be the same in the DOLBY PRO LOGIC and DOLBY 3 STEREO programs.

Adjusting REAR LEVEL

If desired, you can adjust the sound output level of the rear speakers even if the output level is already set in "SPEAKER BALANCE ADJUSTMENT" on page 16–17.

Control range : +10 to –21

- 1** Press the CENTER/REAR/DELAY selector button once or more so that "REAR" appears on the display.
- 2** By continuously pressing the LEVEL control + or – button, the level value changes continuously.

Notes

- This adjustment can be made when a sound field program except DOLBY 3 STEREO is selected.
- Adjustment can be made to DOLBY PRO LOGIC, HALL and ARENA individually.

Adjusting DELAY TIME

You can adjust the time difference between the beginning of the source sound and the beginning of the effect sound. This adjustment can be made to all programs (except DOLBY 3 STEREO) individually.

By applying more or less delay, sound effects, background noise, and ambient noise coming at you from the rear speakers can be enhanced or subdued for extra effect.

Control range

- PRO LOGIC : 15, 20, 25, 30 milliseconds
- HALL, ARENA : 15, 20, 25, 30, 40, 50 milliseconds

- 1 Press the CENTER/REAR/DELAY selector button once or more so that "DELAY" appears on the display.

DEL 20ms

- 2 By continuously pressing the LEVEL control + or - button, the value changes continuously. The value stops changing momentarily at the preset point.

DEL 25ms
Adjustable

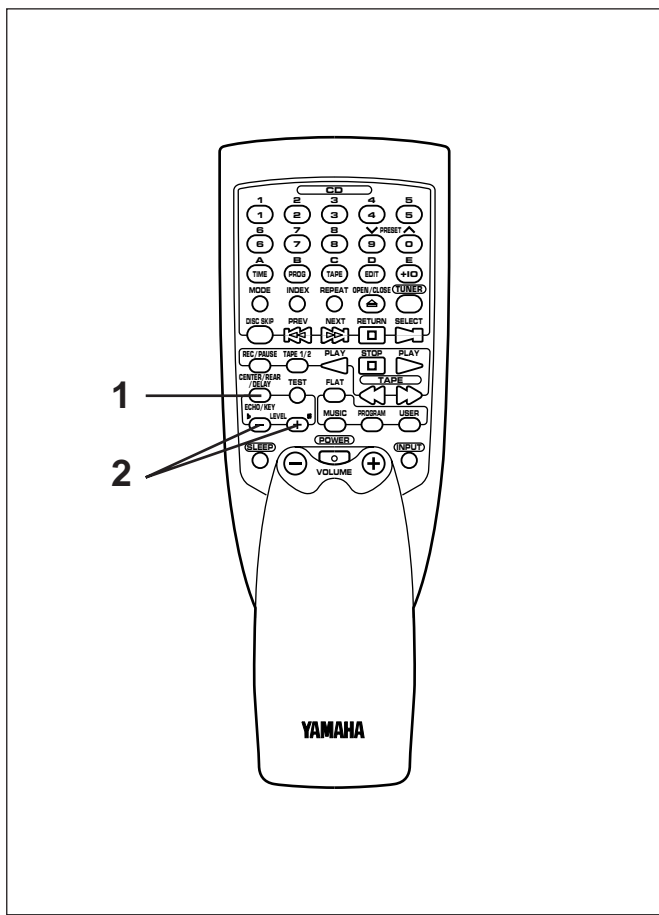
Notes

- When DOLBY 3 STEREO is selected, this adjustment cannot be made.
- Adding too much delay will cause an unnatural effect with some sources.
- When the LEVEL control button is pressed, sound is momentarily interrupted.

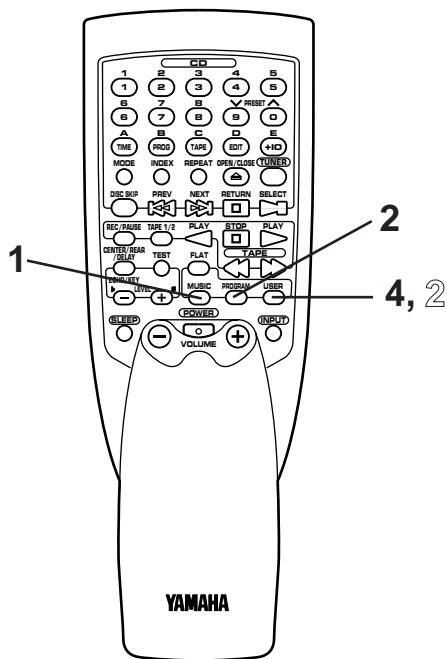
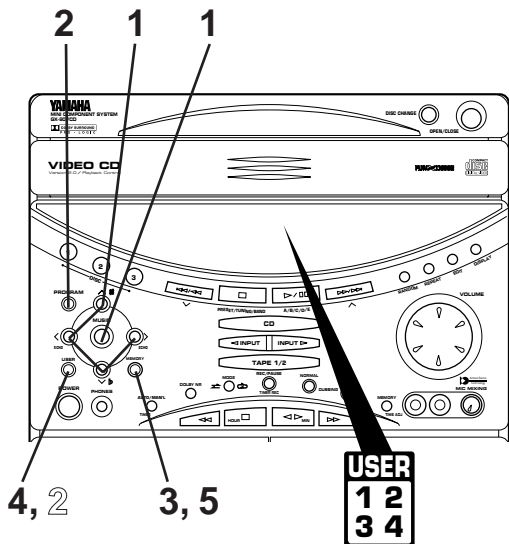
Note

The values of the delay time, center level and rear level you set the last time will remain memorized even when the power of this unit is off.

However, if the power cord is kept disconnected for more than one week, these values will be automatically changed back to the original factory settings.



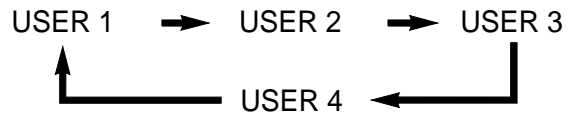
STORING YOUR OWN PROGRAMS



Your favorite pair of any equalizer mode (or an equalizer pattern of your own adjusting) and any sound field program can be stored as a user program. Up to 4 pairs can be stored as desired.

To store

- 1 Select a desired equalizer mode by pressing the **MUSIC** button.
* If desired, adjust the equalizer as you prefer by using the equalizer control buttons.
- 2 Select a desired sound field program by pressing the **PROGRAM** button.
- 3 Press the user program **MEMORY** button.
* "1" will flash on the user program number indicator and the **MEMORY** indicator will flash for about 5 seconds.
- 4 Select the user program number (1, 2, 3 or 4) to which you will store the selected modes by pressing the **USER** button once or more before "1" stops flashing.
* Whenever you press the **USER** button, the user program number changes and is displayed as follows.



- 5 Press the user program **MEMORY** button before the number selected in step 4 stops flashing.

* In the same way, store other pairs to other three user positions.

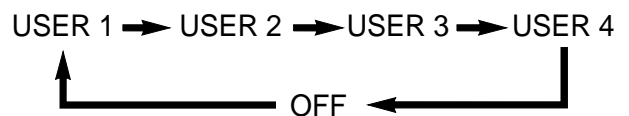
* It is also a good idea to store only an equalizer pattern of your own adjusting (without storing any sound field program).

Notes

- A new program can be stored in place of the former one.
- In step 4 or 5, if the user program number indicator stops flashing before operation, return to step 3.

To recall a user program

- 1 Play back a source. (For source playback, refer to page 18–34.)
- 2 Press the **USER** button once or more so that the user program number you want to recall lights up.
* Whenever you press the **USER** button, the user program number changes and is displayed as follows.



Singing karaoke

This system allows you to enjoy singing karaoke by using not only a source for karaoke use but also any normal audio source.

- 1 Connect one or two microphones to the MIC jack(s) on the front panel.
- 2 Play back a source. (For source playback, refer to page 18–34.)
- 3 If necessary, select a karaoke mode (KARAOKE, KARAOKE L or KARAOKE R) by pressing the PROGRAM button once or more so that the corresponding name appears on the sound field program indicator.
For descriptions of the karaoke modes, see the list below.
- 4 If desired, adjust the level of echo effect and key level of the source currently played back (For details, see the next page.)
- 5 While singing, adjust the mixing level of singing voice by turning the MIC MIXING level control.

To cancel the karaoke mode

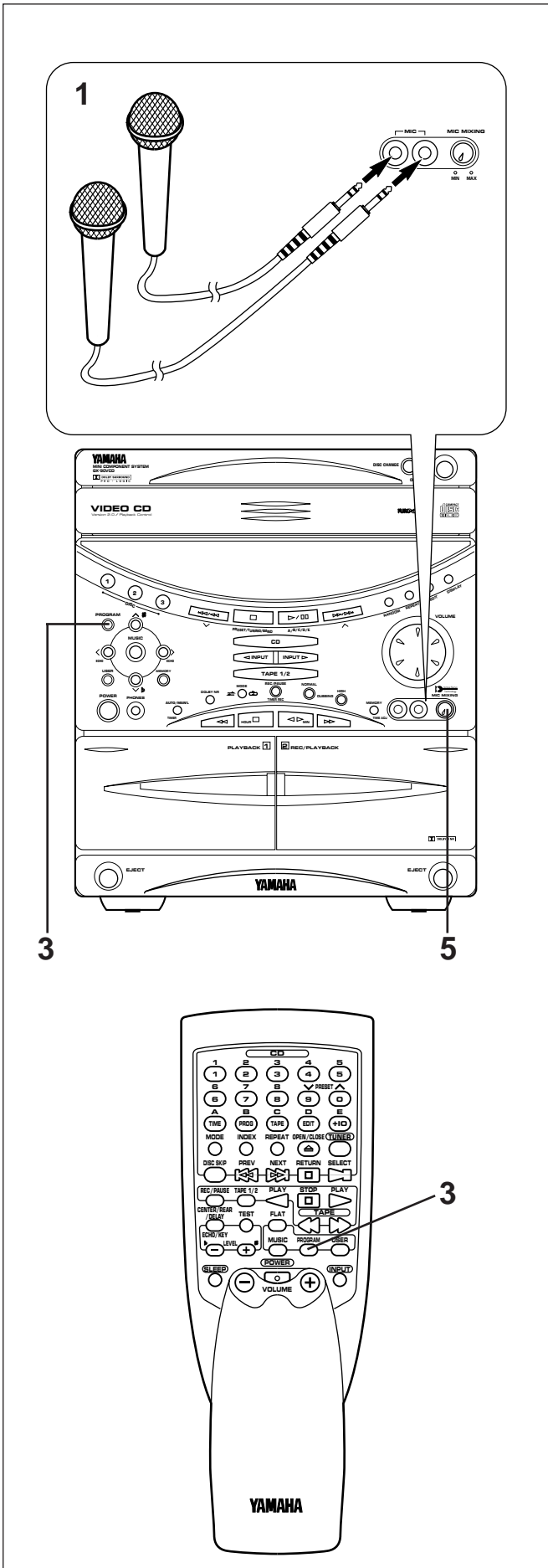
Press the PROGRAM button so that “KARAOKE”, “KARAOKE L” or “KARAOKE R” disappears from the sound field program indicator.

Karaoke modes (PROGRAM)

	Mode	Feature
For a normal source	KARAOKE	Medium frequencies of the source sound (vocals etc.) are attenuated. Select this mode when you sing karaoke using a normal audio source with vocals. Note There may be a case that vocals cannot only be attenuated effectively according to a source.
For a multisound source	KARAOKE L	Only signals on the left channel of the source are output from the left and right speakers. When using a karaoke source which contains both background music and original vocals on the right channel and background music only on the left channel, selecting this mode is suitable for singing karaoke.
	KARAOKE R	Only signals on the right channel of the source are output from the left and right speakers. When using a karaoke source which contains both background music and original vocals on the left channel and background music only on the right channel, selecting this mode is suitable for singing karaoke.

Note

When using a multisound source for Karaoke use, make sure to select the KARAOKE L or KARAOKE R mode. If the KARAOKE mode is selected, depending on a source, sound may become unnatural.



Adjusting the level of echo effect

You can adjust the level of echo effect applied to the sound input from the microphone(s).

Control range: MIN, 1–9, MAX

On the front panel:

Press the ECHO > button once or more to increase the level.

Press the ECHO < button once or more to decrease the level.

On the remote control transmitter:

1 Press the ECHO/KEY selector button once or more so that “ECHO” appears on the display.

2 Press the LEVEL + button to increase the level.
Press the LEVEL – button to decrease the level.

Notes


- When using the front panel buttons, this adjustment can be made only when a Karaoke mode (KARAOKE, KARAOKE L or KARAOKE R) is selected. However, when using the remote control transmitter, this adjustment can be made not only when a Karaoke mode is selected, but also when no sound field program is selected.
- Echo effect is available even when a Karaoke mode is not selected.

Adjusting key level of the source currently played back

Control range: –4 to 4

On the front panel:

Press the  button once or more to increase the level.

Press the  button once or more to decrease the level.

On the remote control transmitter:

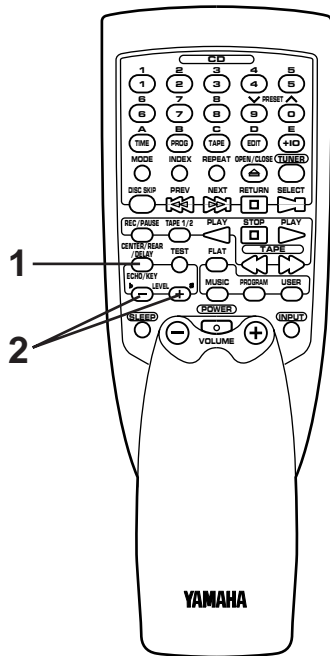
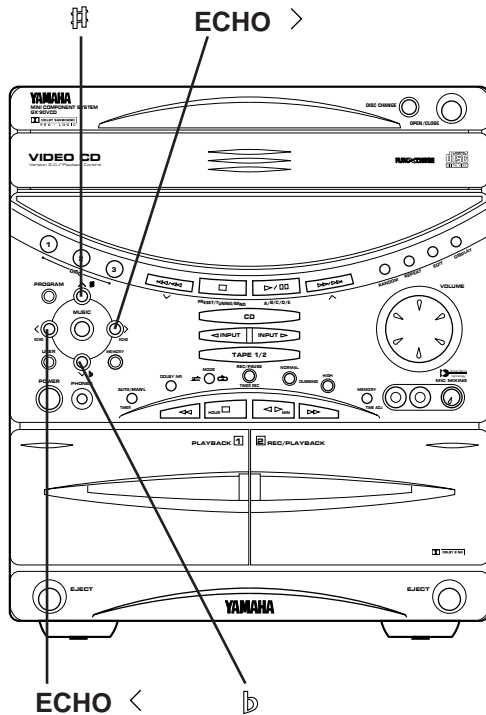
1 Press the ECHO/KEY selector button once or more so that “KEY” appears on the display.

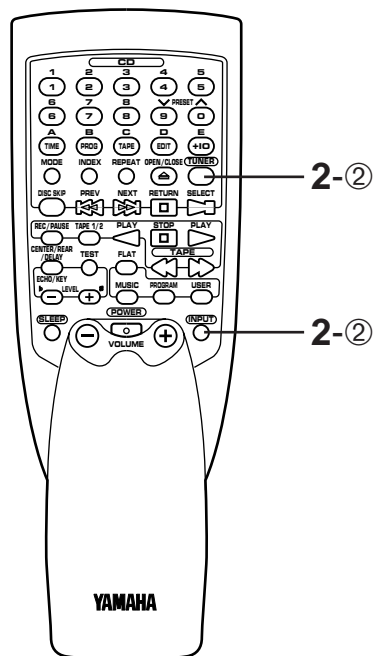
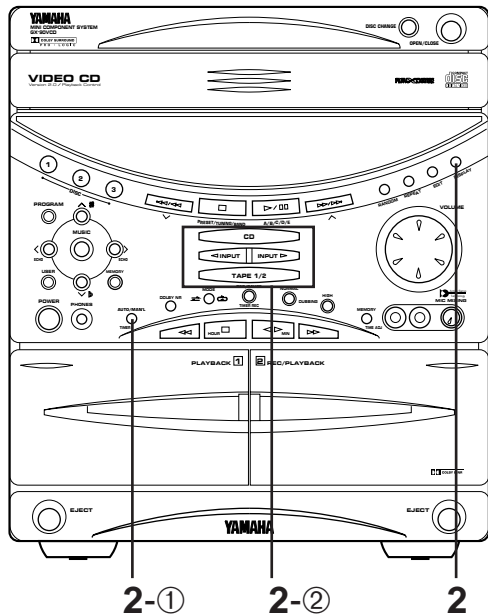
2 Press the LEVEL + button to increase the level.
Press the LEVEL – button to decrease the level.

Notes

- When the currently selected Karaoke mode is canceled, the key level returns to ±0.
- When using the front panel buttons, this adjustment can be made only when the KARAOKE L or KARAOKE R mode is selected. However, when using the remote control transmitter, this adjustment can be made not only when the KARAOKE L or KARAOKE R mode is selected, but also when no sound field program is selected.

If the key level is set to a position other than “±0” when no sound field program is selected, depending on a source, sound image may become unsteady.





Timer play

By using the built-in timer, you can set the time when the unit turns on and a source begins playing automatically, and the time when the unit turns off automatically.

- 1 Prepare the source to be played.

For tuner:

Tune in to the station you will listen to.

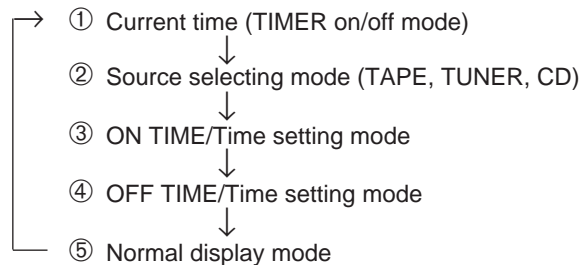
For tape deck:

Load a tape into the cassette compartment. (If tapes are loaded in both the compartments, tape 1 takes priority of tape 2, and is played back by the timer play.)

For Video-CD player:

Load a disc on the disc table. If more than one disc are loaded on the disc table, select the disc by using the DISC selector buttons or the DISC SKIP button.

- 2 Press the DISPLAY button. Whenever the DISPLAY button is pressed, the display mode changes as follows. At each mode, make a setting for the timer play, referring to the setting procedure described below.

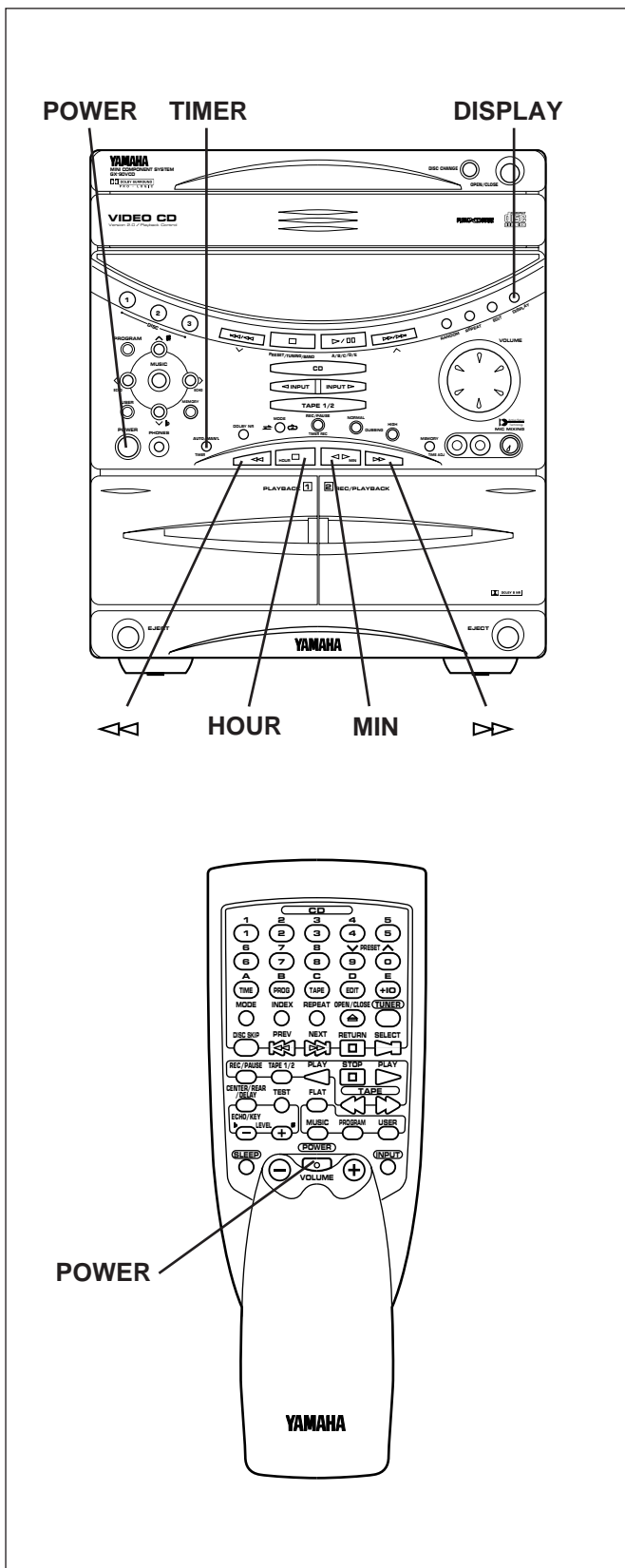


* The display mode will be changed to the next mode after about 8 seconds elapse automatically. If the mode is changed before the setting is completed, call the mode again by pressing the DISPLAY button once or more.

Setting procedure:

- ① **At the display of current time**
Check to be sure that the current time is correct, and press the TIMER button so that "TIMER" lights up on the display.
- ② **At source selecting mode**
Select the source (TAPE, TUNER or CD) to be played by pressing the corresponding input selector button.
* If "TUNER" is selected, soon it is changed to the frequency display mode. In this mode, you can select the station to listen to with the timer play by using the PRESET/TUNING/BAND selector button, A/B/C/D/E button and ^ / v buttons.

HOW TO USE THE BUILT-IN TIMER



③ **At ON TIME/time setting mode**
 ["ON TIME" appears on the display, and soon it is changed to a time setting mode.]
 Set to the time when you want to begin the timer play by using the HOUR button and the MIN button.

④ **At OFF TIME/time setting mode**
 ["OFF TIME" appears on the display, and soon it is changed to a time setting mode.]
 If necessary, set to the time when you want to finish the timer play (to turn this unit off) by using the HOUR button and the MIN button. Even if you do not set the time, it has already been set so that the timer play finishes after 1 hour.

* The TIMER button functions also in the time (ON TIME or OFF TIME) setting mode. (However, it also turns off the power.)

3 If you will not use this unit until the timer play begins, turn the power off by pressing the POWER switch or the TIMER button.

Note

If a timer play setting is made and the power is not turned off, the source set for the timer play will begin playing when the time comes in place of the source played at that time.

To cancel the timer play setting

After the timer play is finished, press the DISPLAY button to call the current time. While the current time is displayed, press the TIMER button so that "TIMER" goes out from the display.

If it is not canceled, the system will be turned on at the same time every day, so it can be used as an alarm. However, if you are planning to go out at that time, cancel the timer play setting.

* Unless the AC supply lead is unplugged or there is a power failure for more than 5 minutes, the time set on the timer will be retained until it is reset.

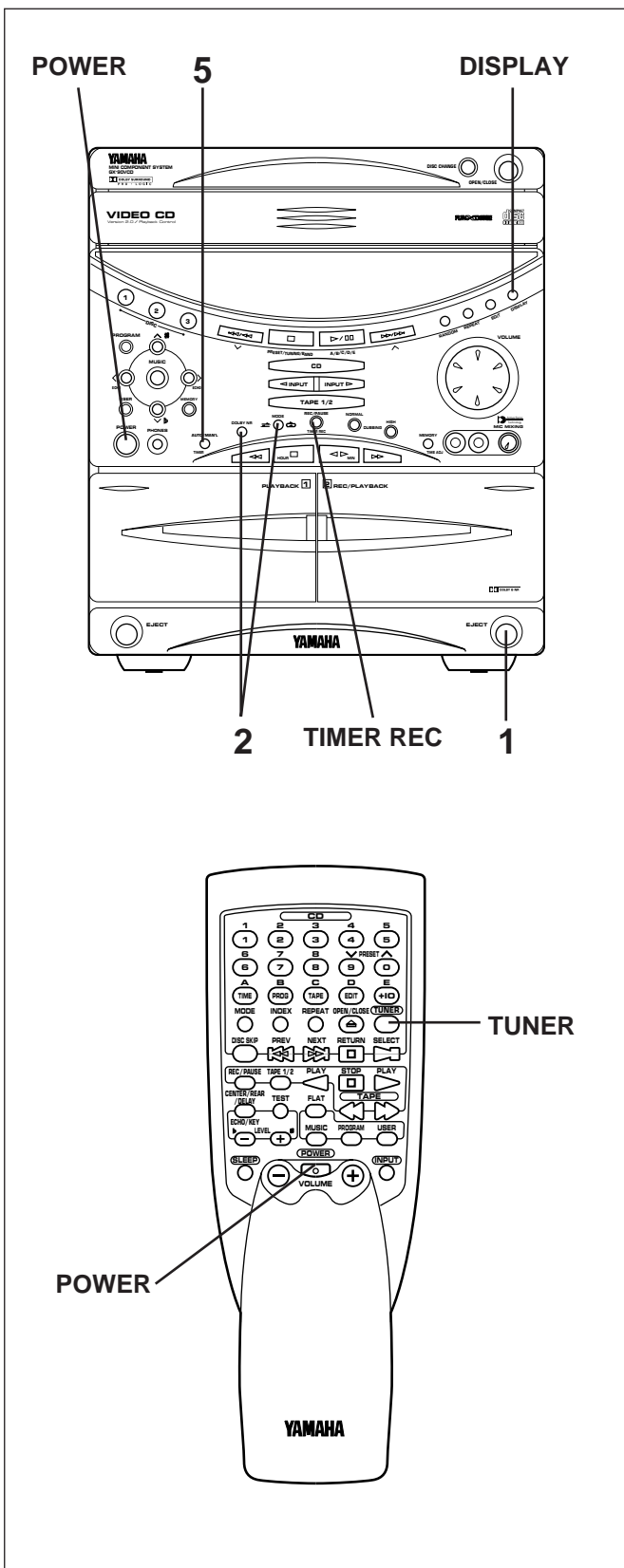
How to make time setting in the ON TIME or OFF TIME mode

For the hour:

Press the HOUR button to change the hour to a higher value. Press and hold to change continuously. To change the hour to a lower value, press the ◀ button.

For the minute:

Use the MIN button and operate it in the same way as you did to change the hour. To change the minute to a lower value, press the ▶ button.



Timer recording (To record a tuner program)

- 1 Load a blank tape into the deck 2 cassette compartment.
- 2 If desired, change the setting of the reverse mode and use the Dolby NR system.
- 3 Tune in to the station of which program you want to record.
- 4 Follow step 2 of the "Timer play" on page 53 and 54.
 - * In step ②, select "TUNER" position, and then press the TIMER REC button. ("REC" will flash on the display.)
 - * In step ③, set the time when you want to begin the timer recording.
 - * In step ④, set the time when you want to finish the timer recording.

- 5 Press the TIMER button.
(The power will be turned off automatically.)
 - * If a normal display mode (the state which had been selected before you began setting the timer recording) is restored before you press the TIMER button, select and follow either of the two methods below.
 - Press the DISPLAY button, and then press the TIMER button. (The power is still on.)
 - Press the POWER switch to turn the power off, and then press the TIMER button. (The power is turned off.)

To confirm the timer time setting

Press the DISPLAY button.

To cancel the setting of timer recording

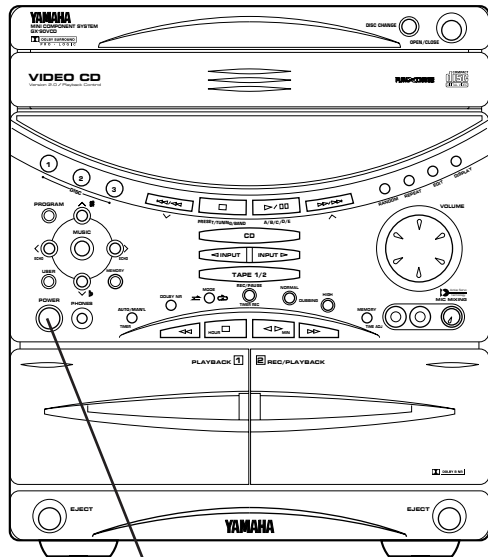
Press the DISPLAY button once or more so that "REC" flashes on the display. While "REC" is flashing, press the TIMER REC button.

- * Unless the AC supply lead is unplugged or there is a power failure for more than 5 minutes, the time set on the timer will be retained until it is reset.

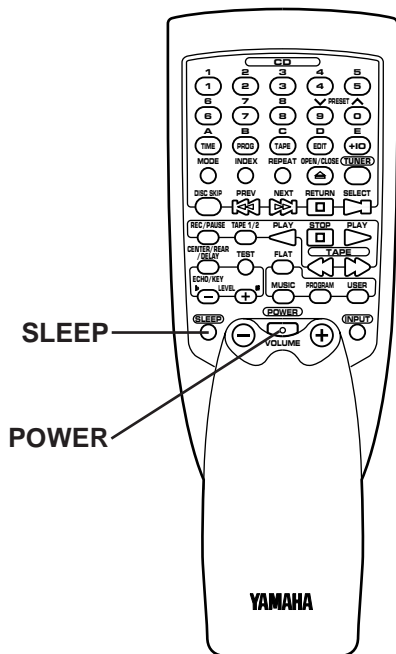
Note

When the timer recording is finished, the timer setting is automatically canceled to avoid repeating timer recording of the same setting.

HOW TO USE THE BUILT-IN TIMER



POWER



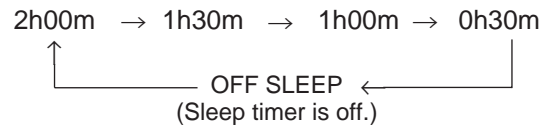
SLEEP

POWER

Sleep timer operation

This unit can be turned off automatically.

- 1 Play the desired sound source.
- 2 Press the SLEEP button. "SLEEP" appears on the display, and soon it is replaced by "2h00m".
- 3 Press the SLEEP button repeatedly until the desired sleep time appears on the display. The display will change as described below. [Time is displayed by the hour (h) and the minute (m).]



- * The original display mode will resume about 4 seconds after the selection is made.
- * The SLEEP indicator will light up to indicate that the sleep timer is on.

- 4 The unit will turn off automatically when the selected sleep time passes.

To confirm the sleep time setting

Press the SLEEP button once. "SLEEP" appears on the display, and soon it is replaced by the remaining time of the selected sleep time.

To change the sleep time

While the SLEEP indicator is being illuminated, press the SLEEP button repeatedly until the desired time appears.

To stop the sleep timer operation

Press the POWER switch, or press the SLEEP button repeatedly until "OFF SLEEP" appears on the display. (The SLEEP indicator will go out.)

Using the timer and the sleep timer at the same time

- 1 Prepare timer play. (See page 53 and 54.)
 - * Do not turn the power of this unit off after the timer setting is finished.

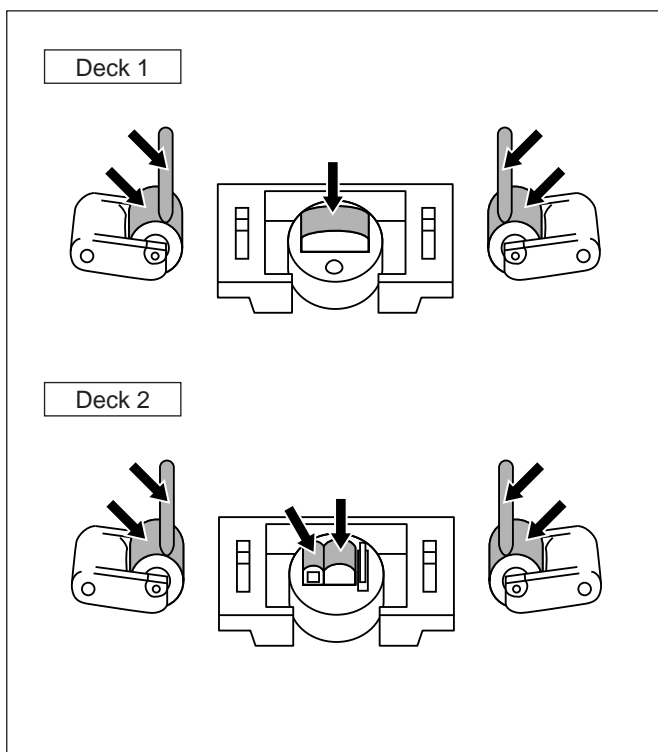
- 2 Press the SLEEP button and set the sleep time.

When the sleep timer operation finishes, the timer begins functioning to turn the source on at the preset time.

Note

Do not make the timer time setting so that the timer will start during sleep timer operation. (Since sleep timer operation has priority, the timer will not operate.)

MAINTENANCE



Internal care

- Dirty heads, capstans and pinch rollers can cause poor sound and tape jams. Clean these parts with a cotton swab moistened with commercially available head/pinch roller cleaner or isopropyl alcohol, or with a commercially available cleaning tape.
- After long use, the deck's heads and capstans may become magnetized, causing poor sound. Demagnetize these parts once every 30 hours of playing/recording time by using a commercially available tape head demagnetizer. Read the demagnetizer's instructions carefully before use.

External care

- Periodically clean the surfaces of this system, especially the top panel of the main unit to prevent the ventilation holes from being blocked with dust etc.
- Do not use chemically treated cleaning cloths or other chemicals. (See "Precautions".)

TROUBLESHOOTING

If your unit fails to operate normally, check the following points to determine whether the fault can be corrected by the simple measures suggested. If it cannot, or if the fault is not listed in the SYMPTOM column, disconnect the power cord and contact your authorized YAMAHA dealer or service center for help.

	SYMPTOM	CAUSE	REMEDY
GENERAL	No power even if the POWER switch is pressed.	AC supply lead is not plugged in.	Plug in the AC supply lead.
	No sound from one speaker	Loose speaker connections.	Connect properly.
	No sound from speakers.	Internal protection circuit is functioning.	Unplug the AC supply lead from the wall AC outlet, and then plug in again.
	No sound from the rear speakers.	One rear speaker connection is loose or bad.	Connect it properly.
		The sound output level to the rear speakers is set to minimum.	Raise the sound output level to the rear speakers.
		No sound field program is selected.	Select the appropriate program.
	No sound from the center speaker.	The sound output level to the center speaker is set to minimum.	Raise the sound output level to the center speaker.
		The center channel mode is in PHANTOM mode.	Select NORMAL mode.
		Incorrect sound field program selection. No sound field program is selected.	Select the appropriate program.
	No sound (or no picture) from an external unit connected with this system.	Incorrect cord connections.	Connect the cords properly. If the problem persists, the cords may be defective.
Input source selection is not proper.		Make a proper input source selection.	
Can't set timer.	Current time is not set.	Set current time.	
This unit will not operate properly.	The internal microcomputer has been frozen by an external electric shock (lightning, excessive static electricity, etc.) or power supply with low voltage.	Unplug the AC supply lead from the wall AC outlet, and then plug in again after about one minute.	

TROUBLESHOOTING

	SYMPTOM	CAUSE	REMEDY
TUNER	Excessive static in FM broadcasts.	Interference from starting motor of nearby car.	Position the FM antenna as high and as far away from nearby roads as possible. Connect using a coaxial cable.
		Interference from thermostat of nearby electrical appliance.	
	Noise increases during stereo broadcasts.	Antenna input is too weak due to obstructions or excessive distance from broadcasting station.	Check antenna connections. Install a multi-element type FM antenna if possible.
	Stereo broadcasts are noisy and STEREO indicator blinks on and off.	Insufficient antenna input.	Install an antenna appropriate for the electric field strength of your area.
	Cannot select preset stations.	Preset memory has been erased.	Reprogram memory presets.
	Buzzing or static during AM broadcasts.	Interference from source such as lightning, fluorescent lights, electric motors or thermostat of nearby electrical appliance.	Problem is difficult to eliminate but can be lessened by grounding AM loop antenna.
		TV or microprocessor is being used nearby.	Move away from TV or microprocessor.
AM broadcast sensitivity is poor.	Radio signal is weak or antenna is not properly connected.	Properly connect AM loop antenna. Change orientation of AM loop antenna. Install an external AM antenna.	
VIDEO-CD PLAYER	A disc cannot be played back normally, or there is a noise during playback.	A nonstandardized disc is played back.	Play back another disc.
	Playback will not begin even if disc is loaded.	Disc is upside down.	Load disc label side up.
		Disc is dirty.	Clean disc.
	No sound (or no picture).	Input selector setting is incorrect.	Press the CD input selector button.
	Sound stops suddenly (always at same spot).	Disc is dirty.	Clean disc.
Volume is set too high.		Lower volume.	
A picture is disturbed or unstable.	The setting of the TV MODE switch on the rear panel is improper.	Set the TV MODE switch to another proper position.	
TAPE DECK	Tape won't move during playback or recording.	Slack tape wrapped around pinch roller.	Take up slack with a pencil before using.
	Can't record.	Erase prevention tab is broken off.	Replace tape or cover erase prevention hole with cellophane tape.
		Head is dirty.	Clean heads.
	Sound is distorted or fades out.	Head is dirty.	Clean heads.
		Head has become magnetized.	Demagnetize heads with head eraser.
		Tape is worn.	Replace tape.
	Poor sound quality.	Tape encoded with Dolby NR is played back with this unit's Dolby NR system off.	Press the Dolby NR button to turn it on.
	Stereo balance is poor.	Head is dirty.	Clean heads.
	Excessive noise.	Head is dirty.	Clean heads.
		Head has become magnetized.	Demagnetize heads with head eraser.
		Tape is worn.	Replace tape.
	Tape travel stops in middle of playback or recording.	Slack tape coming out of cassette shell.	Take up slack by turning reels with a pencil.
		Tape is creased or torn.	Replace with new tape.
Endless tape is being used.		Don't use endless tapes.	
Can't find the beginning of desired selections on tape.	Silent gaps between selections are too short.	The function of searching for the beginning of desired selections won't operate unless the silent gaps between selections are at least four seconds long.	
	Excessively soft passages in middle of selections.		
	Conversation etc. is recorded.		
REMOTE CONTROL	Remote control doesn't work.	Batteries are dead.	Replace batteries.
		Remote control is too far away or is being used at incorrect angle.	Use within 6 m and 60° radius.
		Direct sunlight or lighting (of an inverter type of fluorescent lamp etc.) is striking the remote control sensor of the main unit.	Change position of the main unit.
	TV functions strangely when the remote control is used.	Remote control is being used near TV set with a remote control sensor.	Relocate this unit away from the TV or cover TV's remote control sensor.

SPECIFICATIONS

As a part of policy of continuous improvement, YAMAHA reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units.

■ Amplifier section

Minimum RMS Output Power per Channel

Front L, R

6 ohms, 1 kHz, 1% THD 65W+65W

6 ohms, 1 kHz, 10% THD 75W+75W

Center

8 ohms, 1 kHz, 1% THD 20W

Rear

8 ohms, 1 kHz, 1% THD 20W

Input Sensitivity/Impedance

MD/AUX 300 mV/23 k-ohms

Mic Input Sensitivity/Impedance

MIC 0.5 mV/4.7 k-ohms

Headphone Output Impedance

..... 68 ohms

Total Harmonic Distortion (1 kHz)

MD/AUX to SP OUT (32.5W/6 ohms)..... 0.08%

Signal-to-Noise Ratio (IHF-A Network)

MD/AUX (Input Shorted)..... 75 dB

Graphic Equalizer Characteristics

(100 Hz, 350 Hz, 1 kHz, 3.5 kHz, 10 kHz) ±10 dB

■ Video section

Video Signal Level 1 Vp-p/75 ohms

Maximum Input Level 1.5 Vp-p or more

Signal-to-Noise Ratio 50 dB or more

Monitor Out Frequency Response 5 Hz to 10 MHz, -3 dB

■ Tuner section

Tuning Range

FM 87.5 to 108.0 MHz

AM

[General model] 530 - 1,710 kHz

[China and Singapore models]..... 531 - 1,611 kHz

Usable Sensitivity

FM (75 ohms)

(30 dB S/N Quieting, 1 kHz, 100% mod.) 1.5 μV (14.8 dBf)

AM 280 μV/m

■ Video-CD player section

Type 3 DISC Carousel Auto-changer

Signal Readout

..... Non-contact, 3-beam semi-conductor laser pick-up

D/A Converter 18-bit DAC

Filter 8-time oversampling digital filter

Wow and Flutter Below measurable limits

■ Tape deck section

Type Auto Reverse stereo double Cassette Deck

Deck 1: Playback only

Deck 2: Playback/Recording

Heads PB, REC/PB : Hard Permalloy

Erase : Double Gap Ferrite

Motors DC servo motor x 2

Wow and Flutter ±0.19%, W.PEAK

0.09%, W.RMS

Fast Winding Time (C-60 Tape) About 110 seconds

Frequency Response (-20 dB)

Type I (Normal)..... 30 - 15,000 Hz ±3 dB

Type II (High) 30 - 16,000 Hz ±3 dB

Signal-to-Noise Ratio 58 dB (Dolby NR OFF)

66 dB (Dolby B NR ON)

Harmonic Distortion No more than 0.8%

Channel Separation (Input Shorted 1 kHz)

..... More than 40 dB

Crosstalk (Input Shorted 125 Hz)..... More than 55 dB

SPECIFICATIONS

■ Speaker section

Type	
Front	3-Way Active Servo Processing Speaker System (Magnetic-Shielding Type)
Center	Full Range Speaker System (Magnetic-Shielding Type)
Rear	Full Range Speaker System
Speakers	
Front.....	13 cm (5-1/8") woofer 5 cm (1-15/16") tweeter 2 cm (13/16") super tweeter
Center.....	9 cm (3-9/16") full range speaker
Rear	8 cm (3-1/8") full range speaker
Frequency Range	
Front.....	60 – 20,000 Hz
Center	100 – 20,000 Hz
Rear	110 – 20,000 Hz
Sound Pressure Level	
Front.....	87.0 dB
Center	85.0 dB
Rear	85.0 dB
Maximum Power Handling Capacity	
Front.....	90W
Center	27W
Rear	13.5W
Impedance	
Front	6 ohms
Center	8 ohms
Rear	4 ohms

■ General

Power Supply	
[Singapore model]	AC 230V, 50 Hz
[China model]	AC 220V, 50 Hz
[General model]	AC 110/120/220/240V, 60/50 Hz
Power consumption	190W
Dimensions (W x H x D)	
GX-90VCD	280 x 320 x 360 mm (11" x 12-5/8" x 14-3/16")
NX-GX70	200 x 320 x 243 mm (7-7/8" x 12-5/8" x 9-9/16")
NX-C70	280 x 123 x 140 mm (11" x 4-13/16" x 5-1/2")
NX-E70	200 x 115 x 105 mm (7-7/8" x 4-1/2" x 4-1/8")
Weight	
GX-90VCD	10.8 kg (23 lbs. 12 oz.)
NX-GX70	3.5 kg (7 lbs. 11 oz.) x 2
NX-C70	1.5 kg (3 lbs. 5 oz.)
NX-E70	0.8 kg (1 lbs. 12 oz.) x 2

YAMAHA

YAMAHA ELECTRONICS CORPORATION, USA 6660 ORANGETHORPE AVE., BUENA PARK, CALIF. 90620, U.S.A.
YAMAHA CANADA MUSIC LTD. 135 MILNER AVE., SCARBOROUGH, ONTARIO M1S 3R1, CANADA
YAMAHA ELECTRONIK EUROPA G.m.b.H. SIEMENSSTR. 22-34, 25462 RELLINGEN BEI HAMBURG, F.R. OF GERMANY
YAMAHA ELECTRONIQUE FRANCE S.A. RUE AMBROISE CROIZAT BP70 CROISSY-BEAUBOURG 77312 MARNE-LA-VALLEE CEDEX02, FRANCE
YAMAHA ELECTRONICS (UK) LTD. YAMAHA HOUSE, 200 RICKMANSWORTH ROAD WATFORD, HERTS WD1 7JS, ENGLAND
YAMAHA SCANDINAVIA A.B. J A WETTERGRENS GATA 1, BOX 30053, 400 43 VÄSTRA FRÖLUNDA, SWEDEN
YAMAHA MUSIC AUSTRALIA PTY, LTD. 17-33 MARKET ST., SOUTH MELBOURNE, 3205 VIC., AUSTRALIA

YAMAHA CORPORATION
VV45510