YAMAHA CC-5

Natural Sound Mini Component System
Active Servo Processing Speaker System
20 FM/10 AM Station Automatic Storing Capability
Double Cassette Tape Deck with Automatic Reverse Function
Tape "a" and "b" Continuous Playback Capability
Automatic Synchronized Recording with CD Playback
Automatic CD Editing Function for Recording to Tape
2-Way Speed Dubbing
Dolby B/C Noise Reduction System
3-Mode Sound Processor
Quick and Easy Direct Playback Function
Multi-Use Timer/Sleep Timer
Remote Control Capability

Thank you for selecting this YAMAHA mini component system.
This system is composed of TCD-CC5, A-CC5, K-CC5 and NS-CC5.

Active Servo
Technology

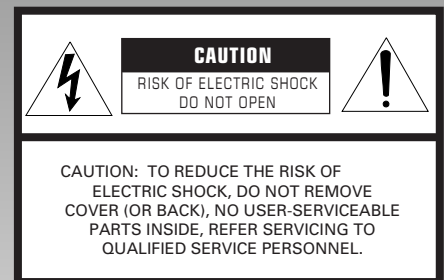## OWNER'S MANUAL

CONTENTS

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

Model:
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 UNIT TO RAIN OR MOISTURE.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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

• Explanation of Graphical Symbols

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

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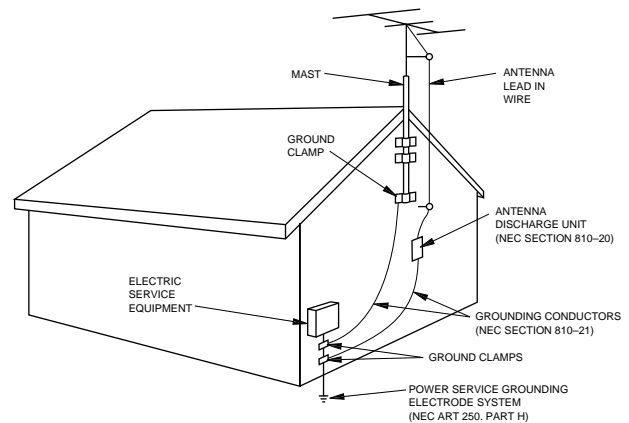literature accompanying the
appliance.

SAFETY INSTRUCTIONS

1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.

2 Retain Instructions – The safety and operating instructions should be retained for future reference.

3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.

4 Follow Instructions – All operating and other instructions should be followed.

5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.

6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.

7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.

8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.

10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.

13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.

15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:

A. The power-supply cord or the plug has been damaged; or

B. Objects have fallen, or liquid has been spilled into the unit; or

C. The unit has been exposed to rain; or

D. The unit does not appear to operate normally or exhibits a marked change in performance; or

E. The unit has been dropped, or the cabinet damaged.

16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

17 Power Lines – An outdoor antenna should be located away from power lines.

18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.

19 Outdoor Antenna Grounding – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING

ANTENNA LEAD IN WIRE

MAST

GROUND CLAMP

ANTENNA DISCHARGE UNIT (NEC SECTION 810–20)

ELECTRIC SERVICE EQUIPMENT

GROUNDING CONDUCTORS (NEC SECTION 810–21)

GROUND CLAMPS

POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250. PART H)

NEC – NATIONAL ELECTRICAL CODE

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

We Want You Listening For A Lifetime

YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing. Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.

SPECIAL NOTES FOR FCC COMPOSITE DEVICE

This device is a composite system. The digital device component may not cause harmful interference.

SUPPLIED ACCESSORIES

After unpacking, check that the following parts are contained.
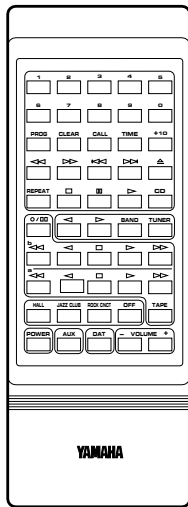
Remote control transmitter	Indoor FM antenna
	Speaker cords
MW/LW(AM) loop antenna	Batteries (size AA, UM/SUM-3, R6, HP-7)
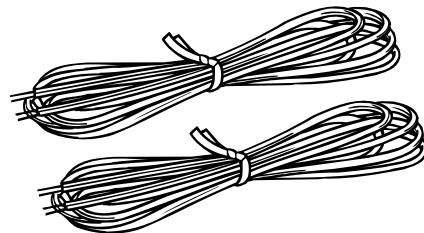
PRECAUTIONS: READ THIS BEFORE OPERATING YOUR UNIT

■ To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.

■ This unit is equipped with the newly developed Active Servo Processing Speaker System. It is not designed for use with conventional speakers. Therefore, **do not attempt to connect other speakers than the provided speaker system**.

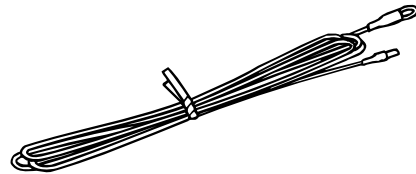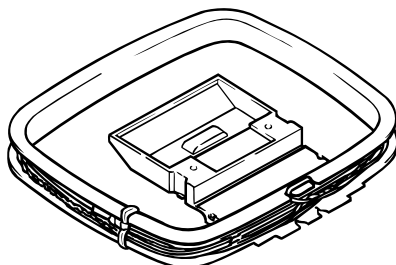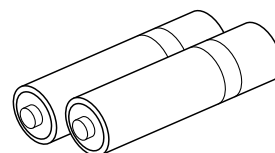■ Choose the installation location of this unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep it away from sources of hum such as transformers and electric motors.

■ 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

■ Do not place CD or other objects on top of this unit.

■ 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 disconnect 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 product 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.

■ 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.
Follow the procedure below to eliminate condensation.

   ● **CD 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 cassette 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.

■ The sound level at a given volume setting depends on a combination of speaker efficiency, location and may 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.

STANDBY mode
While the power is on, pressing the POWER switch (or the POWER button on the remote control transmitter) switches the unit to the STANDBY mode. (In this mode, the indicator above the POWER switch illuminates.) In this mode, main voltage is still present inside the unit. If you want to switch off the unit completely, disconnect the AC power plug from the wall socket.

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.

If this unit's operation freezes or display indications are incorrect
First disconnect the AC supply lead from the wall AC outlet, and then press the RESET button on the rear of this unit at least for one minute. This operation "resets" the internal microcomputer which controls this unit. However, this operation will also erase all memorized broadcasting stations. To store stations again, follow the methods described on page 19–20.

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.

DANGER
Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

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 compact disc player is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

Laser Diode Properties
● Material: GaAIAs
● 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.

ACTIVE SERVO TECHNOLOGY
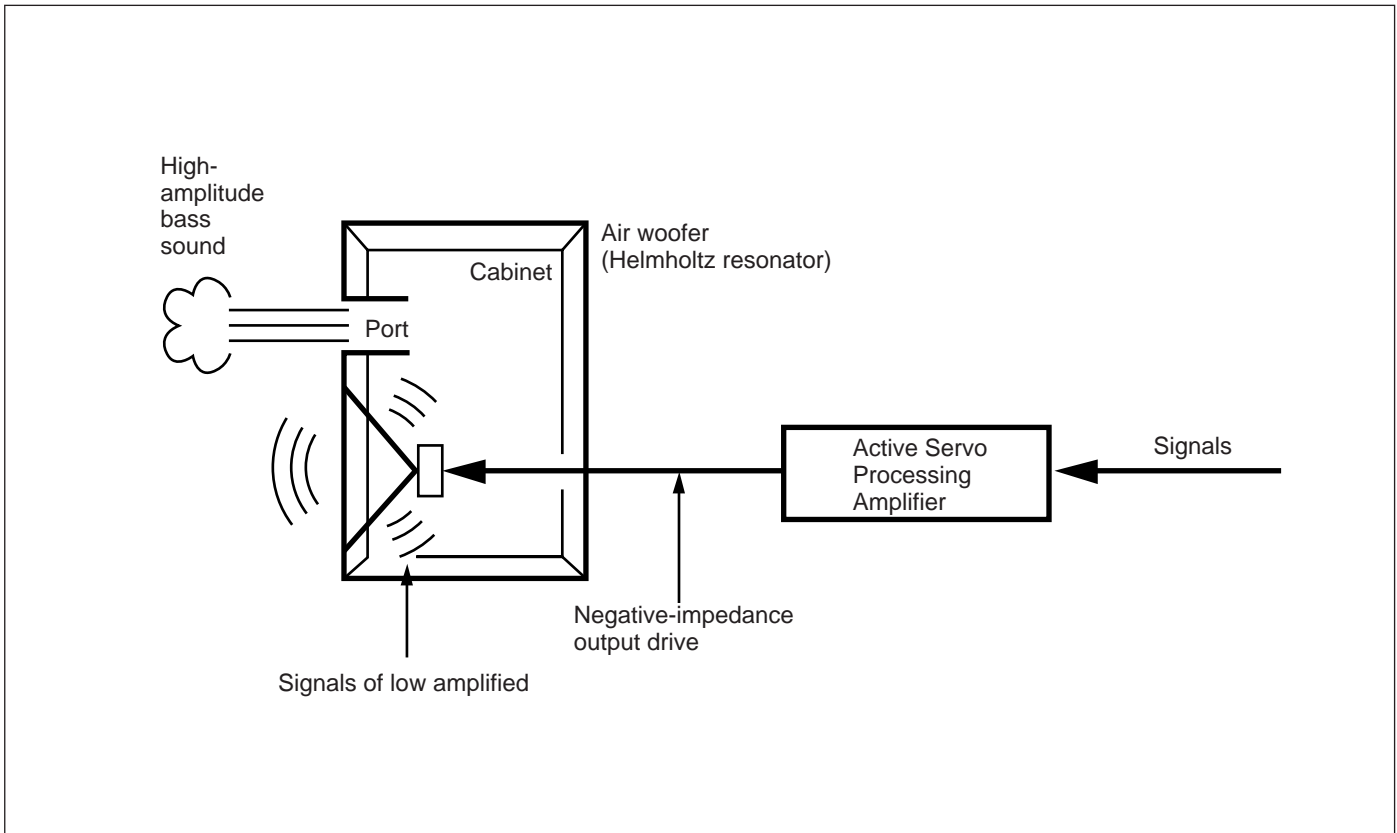
The theory of the Active Servo Technology is based upon two major factors, the Helmholtz resonator and negative-impedance drive. Active Servo Processing speakers reproduce the bass frequencies through an "air woofer", which is a small port or opening in the speaker's cabinet. This opening is used instead of, and performs the functions of, a woofer in a conventionally designed speaker system. Thus, signals of low amplitude within the cabinet can, according to the Helmholtz resonance theory, be output from this opening as waves of great amplitude if the design is such that the size of the opening and the volume of the cabinet are in the correct proportion to satisfy a certain ratio.
In order to accomplish this, moreover, the amplitudes within the cabinet must be both precise and of sufficient power because these amplitudes must overcome the "load" presented by the air that exists within the cabinet.

Thus it is this problem that is resolved through the employment of a design in which the amplifier functions to supply the signals. If the electrical resistance of the voice coil is reduced to zero, the movement of the speaker unit would become linear with respect to signal voltage, and, to accomplish this, a special negative-impedance output-drive amplifier for subtracting output impedance of the amplifier is used.
By employing negative-impedance drive circuits, the amplifier is able to generate precise, low-amplitude low-frequency waves with superior damping characteristics, and these waves are then radiated from the cabinet opening as high-amplitude signals. The system can, therefore, by employing the negative-impedance output drive amplifier and a speaker cabinet with the Helmholtz resonator, reproduce an extremely wide range of frequencies (28 Hz – 20 kHz) with amazing sound quality and less distortion.
The features described above, then, are combined to be the fundamental structure of the Active Servo Technology.
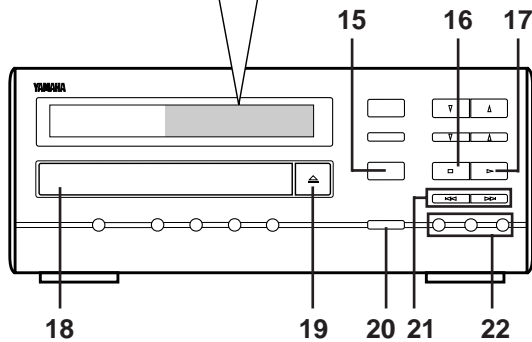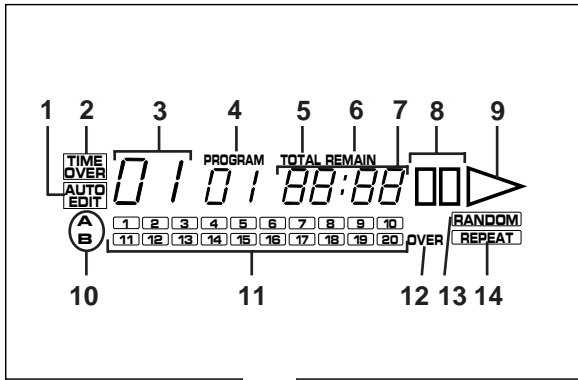
CD Player Section

1. **AUTO EDIT** Indicator
2. **TIME OVER** Indicator
3. Track Number Indicator
4. **PROGRAM** Indicator
5. **TOTAL** Time Indicator
6. **REMAIN**ING Time Indicator
7. Minutes and Seconds Indicator
8. Pause Indicator: ▯▯
9. Play Indicator: ▷
10. Tape Side Indicators
11. Music Schedule Indicator
12. Music Schedule **OVER** Indicator
13. **RANDOM** Play Indicator
14. **REPEAT** Indicator

15. **RANDOM** Play Button
16. Stop Button: ▢
17. Play Button: ▷
18. Disc Table
19. Open/Close Button: ⏏
20. **EDIT** Button
21. Skip Buttons: ◁◁ / ▷▷
22. Auto Tape Edit Buttons
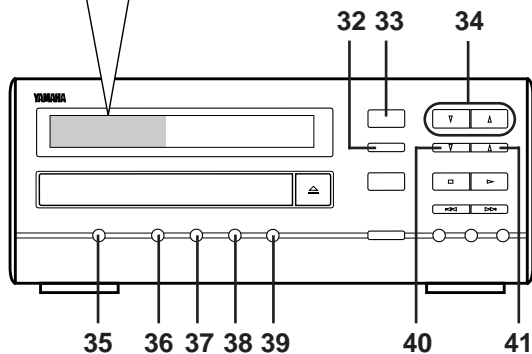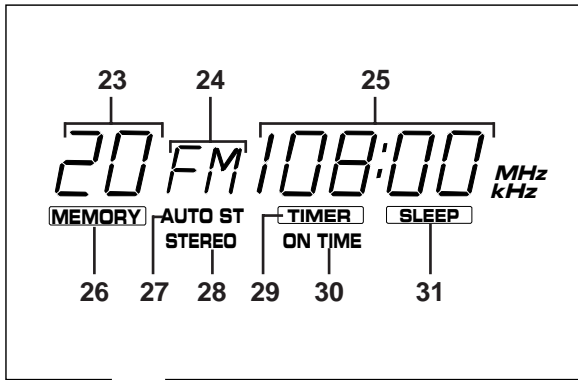
Tuner/Timer Section

23. Preset Number Indicator
24. Band Indicator
25. Station Frequency Indicator
26. **MEMORY** Indicator
27. **AUTO ST** Indicator
28. **FM STEREO** Indicator
29. **TIMER** Set Indicator
30. **ON TIME** Indicator
31. **SLEEP** Indicator

32. **AUTO MEMORY** Button
33. **BAND** Selector Button
34. **TUNER PRESET** Buttons: ▽ / △
35. **DISPLAY** Button
36. **TIMER** Button
37. **SLEEP** Button
38. **MEMORY**/**TIME ADJ**UST Button
39. **FM MODE**/**CLEAR** Button
40. **TUNING** Down/**HOUR** Button: ▽
41. **TUNING** Up/**MINUTE** Button: △
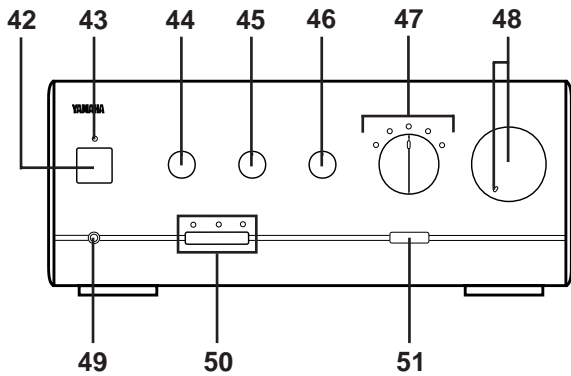
Amplifier Section

42. POWER Switch
43. STANDBY Indicator
44. BASS Tone Control
45. TREBLE Tone Control
46. BALANCE Control
47. INPUT Selector and Indicators
48. VOLUME Control/Indicator
49. PHONES Jack
50. SOUND PROCESSOR Program Selector and Indicators
51. Remote Control Sensor

Tape Deck Section

■ **Controls for Tape "a"**

52. Tape "a" Cassette Compartment
53. EJECT Button
54. Fast Wind Button: ◁◁
55. Play Button and Indicator: ◁
56. Stop Button: □
57. Play Button and Indicator: ▷
58. Fast Wind Button: ▷▷

■ **Controls for Tape "b"**

59. Fast Wind Button: ◁◁
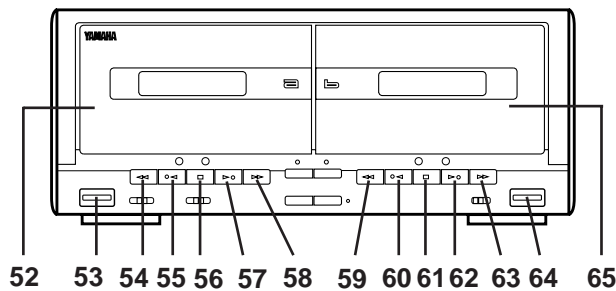**60.** Play Button and Indicator: ◁
61. Stop Button: □
62. Play Button and Indicator: ▷
63. Fast Wind Button: ▷▷
64. EJECT Button
65. Tape "b" Cassette Compartment

■ **Common Controls for Tape "a" and "b"**

66. REVERSE MODE Switch
67. DOLBY NR Switch
68. DUBBING Buttons and Indicators
69. PAUSE Button
70. REC Button
71. Record Indicator
72. TIMER Switch
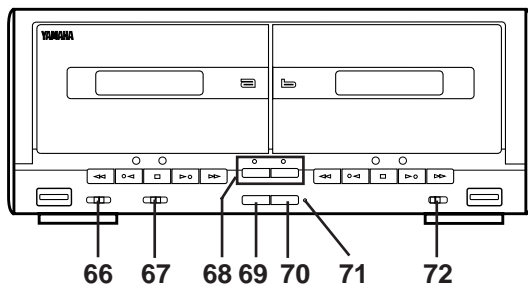
Rear Panel of Tuner/CD Player Section

1. System Control Connector
2. Antenna Terminals
3. **RESET** Button
4. **FREQUENCY STEP** Switch (General model only)

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.

7 (U.S.A., Canada and General models)

DAT
L
R
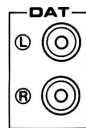
8 (U.K., Australia and Europe models)

PHONO
GND
R

Rear Panel of Amplifier Section

5. System Control Sockets
6. **SPEAKERS** Terminals
7. **DAT** Terminals
8. **PHONO** Terminals and **GND** Terminal
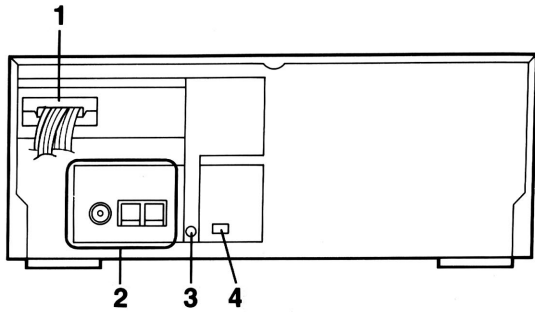9. **AUX** Terminals
10. **VOLTAGE SELECTOR** (General model only)
11. AC Supply Lead

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.
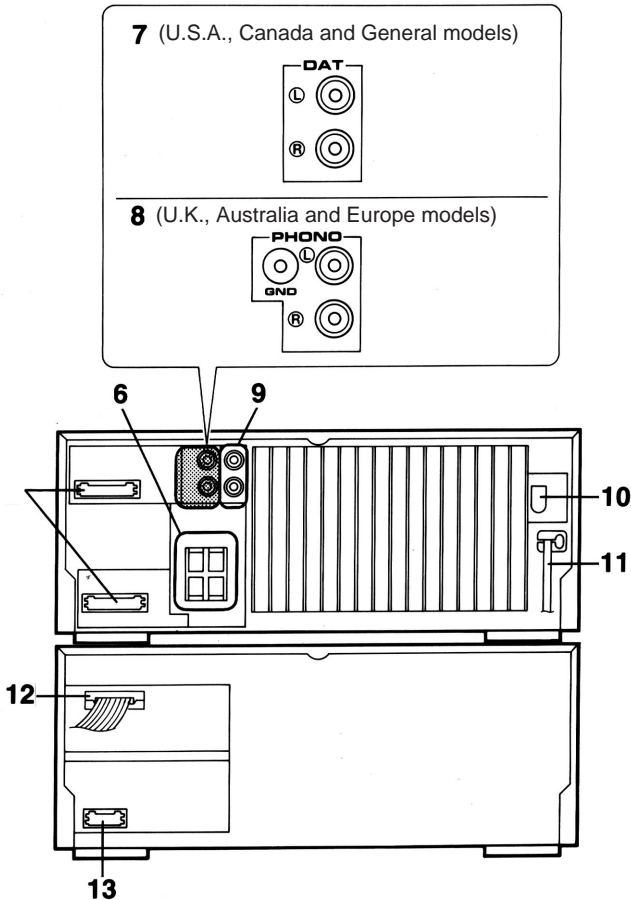
Rear Panel of Tape Deck Section

12. System Control Connector
13. System Control Socket

Speaker Section

14. AST Port
15. Speaker Terminals
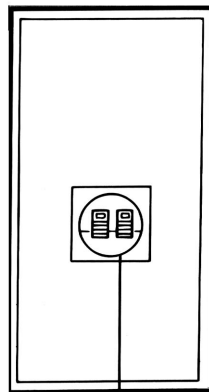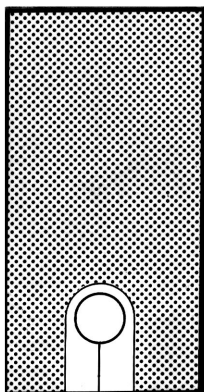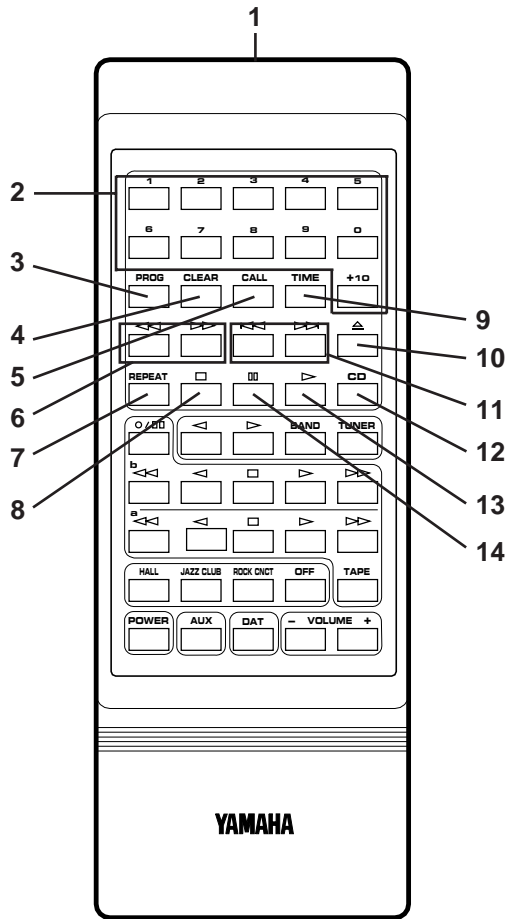
Names of controls

■ **CD Control Buttons**

1. Remote Control Transmitter Window
2. Track Number Input Buttons
3. **PROG**RAM Button
4. **CLEAR** Button
5. **CALL** Button
6. Search Buttons: ◁◁ / ▷▷
7. **REPEAT** Button
8. Stop Button: □
9. **TIME** Display Selector Button
10. Open/Close Button: ⏏
11. Skip Buttons: ◁◁ / ▷▷
12. **CD** Call Button
13. Play Button: ▷
14. Pause Button: ▯▯
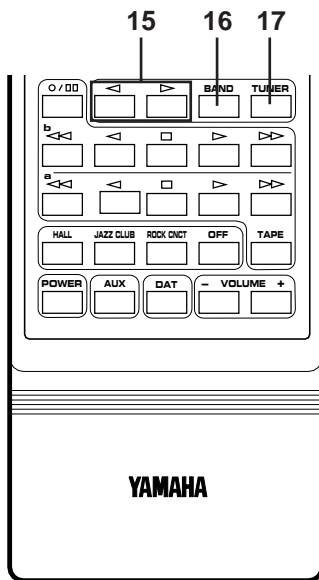
■ **Tuner Control Buttons**

15. Tuning Up/Down Buttons
16. **BAND** Selector Button
17. **TUNER** Call Button
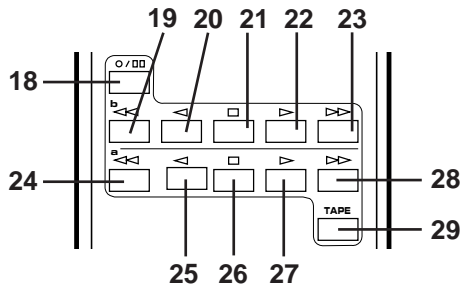
■ Tape Control Buttons

18. Record/Pause Button: ○/▯▯

Tape "b"
19. Fast Wind Button: ◁◁
20. Play Button: ◁
21. Stop Button: □
22. Play Button: ▷
23. Fast Wind Button: ▷▷

Tape "a"
24. Fast Wind Button: ◁◁
25. Play Button: ◁
26. Stop Button: □
27. Play Button: ▷
28. Fast Wind Button: ▷▷

29. TAPE Call Button
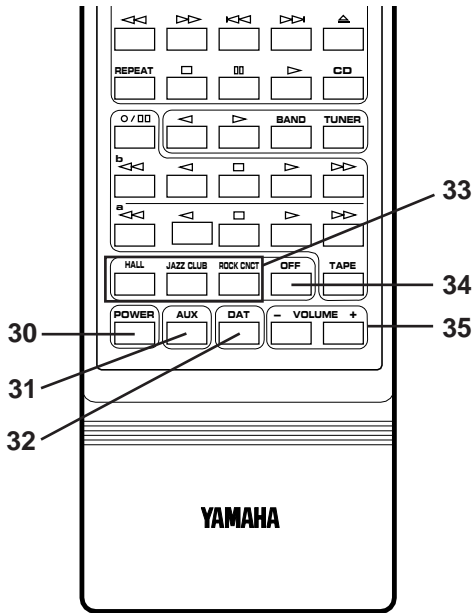
30. POWER Switch
31. AUX Call Button
32. DAT Call Button (or **PHONO** Call Button for U.K., Australia and Europe models)
33. Sound Processor Program Selectors
34. Sound Processor **OFF** Button
35. VOLUME Down (**–**)/Up (**+**) Buttons
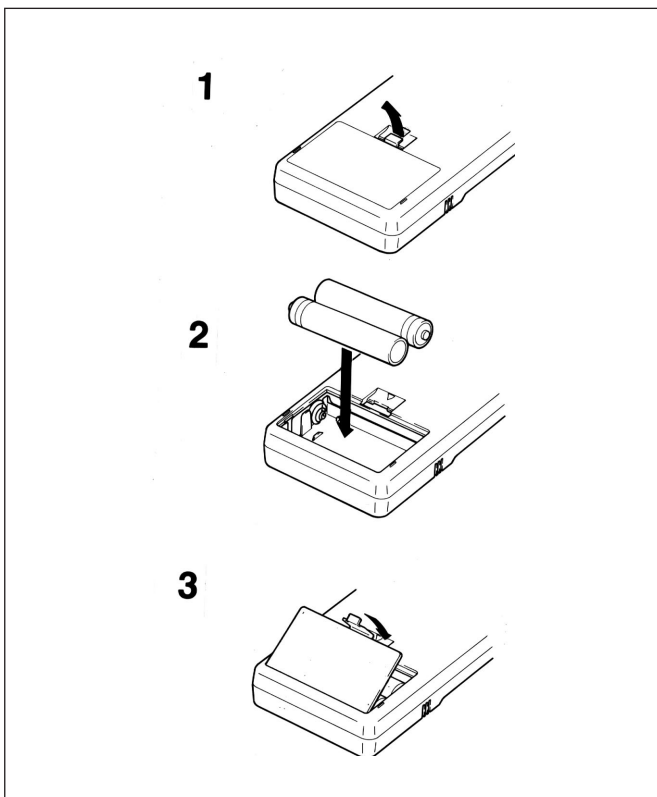
Loading the batteries for the remote control transmitter

1 Remove the battery compartment cover.

2 Insert 2 "AA" size batteries (UM/SUM-3, R6, HP-7 or equivalent) into the battery compartment.
  * Placing the batteries the wrong way round will cause malfunction.

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.

0.2 m – 6 m
(8" – 20')

15°   15°
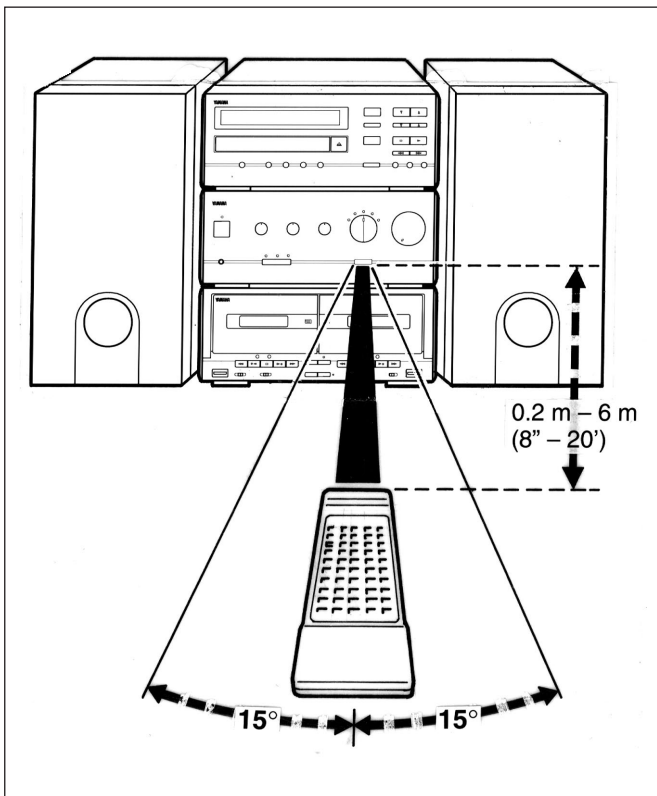
Proper use of the remote control transmitter

Aim (within the range of 30° 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. Change the lighting or the direction of the unit.
* 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.

A

Tuner/CD player
Left speaker   Right speaker

Amplifier   Deck

B

Left speaker   Tuner/CD player   Right speaker
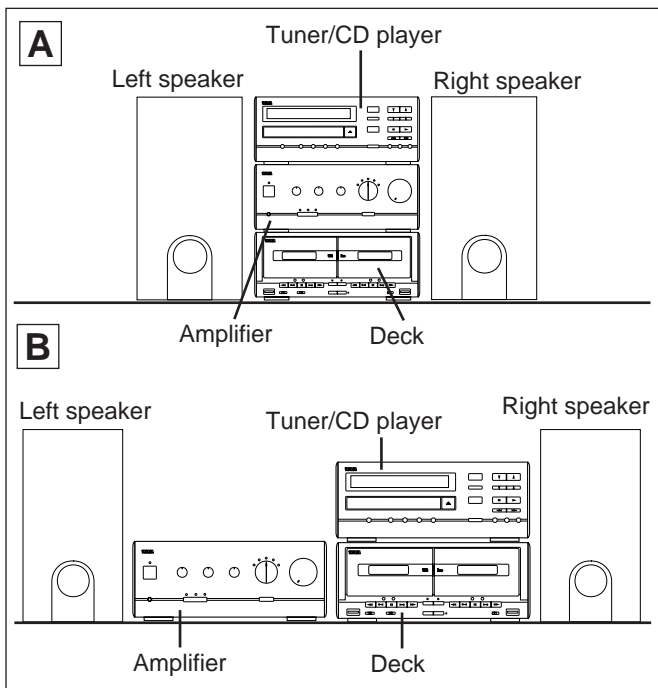
Amplifier   Deck

Placing the system

Place this system in either the way of A or B figured at left.
A: Be sure to place the Tuner/CD player on the top, the Deck at the bottom and the Amplifier between them.
B: Be sure to place the Tuner/CD player on the Deck, and the Amplifier at the left of them.

Notes
- If the system is put in a rack, allow a space of a least 3 cm (1-3/16") above and 10 cm (4") at the back of the unit.
- Disconnect the AC supply lead from the AC outlet before connecting or disconnecting any component.
- Be careful not to let the connection cords touch the radiator plates on the rear of the amplifier.

(1)

ANT

(2)

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 MW/LW (AM) loop antenna

Connect the MW/LW (AM) loop antenna wire to the corresponding terminals. Position the MW/LW (AM) loop antenna for optimum reception. Place the MW/LW (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 MW/LW (AM) loop antenna, try reversing the connection (right to left).
- Do not place the MW/LW (AM) loop antenna on the unit. It will result in noise generation, since the unit is equipped with digital electronics. Place the MW/LW (AM) loop antenna away from the unit.

(3)   15 m (49 feet)   (4)

7.5 m (25 feet)

Earth rod

ANT

FM
75Ω   GND   AM

or

(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 MW/LW (AM) antenna

Use an external MW/LW (AM) antenna if you need better reception. Consult your dealer.

Note
When using an external MW/LW (AM) antenna, be sure to keep the wire of the MW/LW (AM) loop antenna connected.

E-10

Altavoz derecho

Altavoz izquierdo
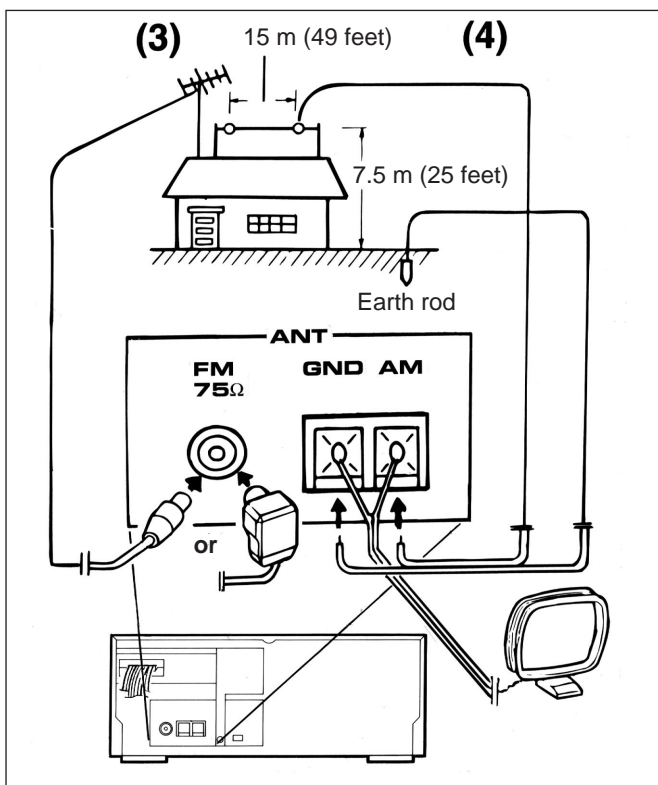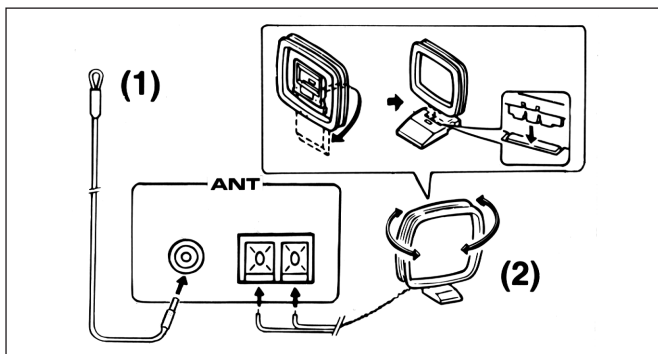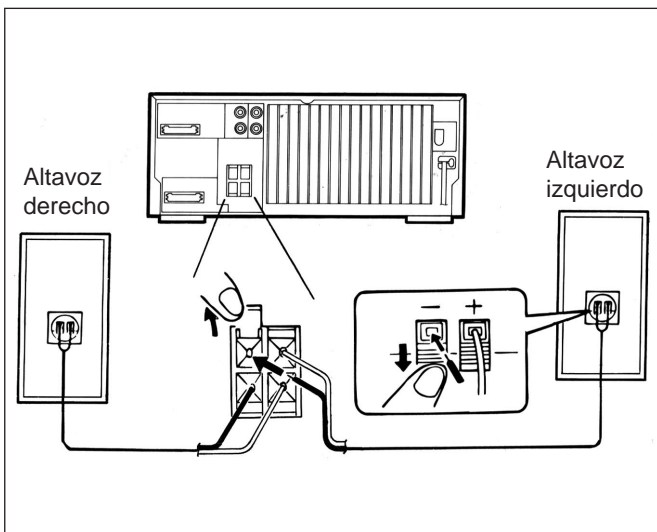
Speaker connection

Connect each speaker wire to the SPEAKERS terminals as shown. (Black wire with white line → plus (+) terminal, black wire → minus (–) terminal)

Cautions
- Do not let the bare speaker wires touch each other as this could damage the amplifier and/or speakers.
- When connecting the speakers to the unit, be sure to connect the speaker wires properly. Do not mistake the right channel for the left channel and the plus (+) terminal for the minus (–) terminal.
- Do not connect these SPEAKERS terminals to speakers other than the provided speaker system.
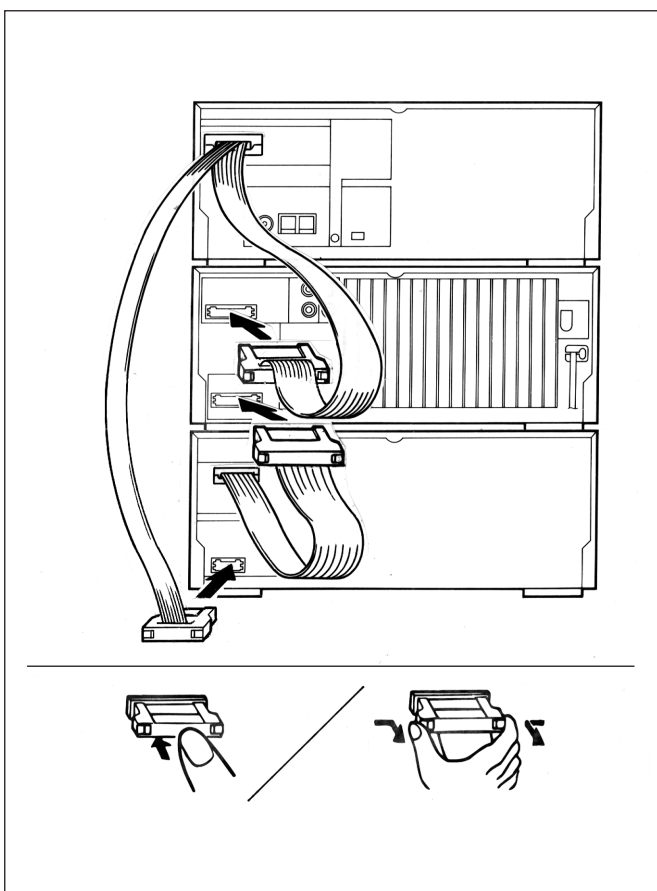
System connection

- Connect the red connector to the red socket.
- Connect the white connector to the white socket.
- Connect the black connector to the black socket.

How to disconnect the system connector
Grasp both sides of the connector to disconnect the connector.
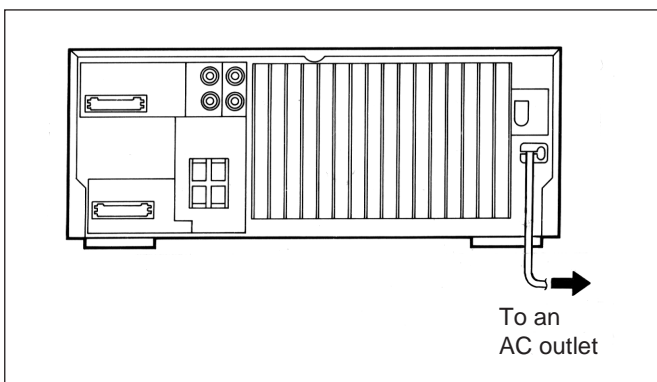
Connecting the AC supply lead

- After connecting the speakers and system connectors, 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.

To an AC outlet

E-11

SETTING THE CLOCK

1

DISPLAY

2

TUNING

HOUR   MINUTE

AM 10:00

MEMORY   FM MODE

E ADJ   CLEAR

Changes.

3

TUNING

HOUR   MINUTE

AM 10:30

MEMORY   FM MODE

E ADJ   CLEAR

Changes.

4

TUNING

HOUR   MINUTE

AM 10:30

MEMORY   FM MODE

TIME ADJ   CLEAR

Europe model uses an "00:00" 24-hour display.
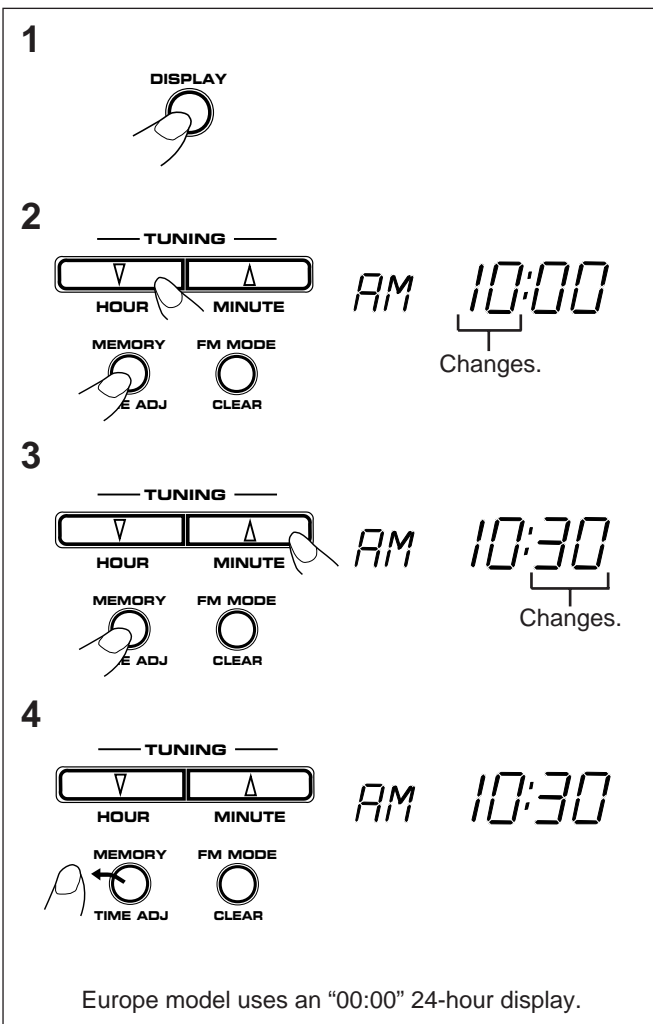
1 While the station frequency indicator on the tuner or the "ON TIME" indicator is lit, press the DISPLAY button to display the time.

2 While pressing the TIME ADJUST button, 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.

3 While pressing the TIME ADJUST button, press the MINUTE button and set the desired time.
* Press the MINUTE button once to advance the time by 1 minute. Press and hold to advance continuously.
* The hour setting will not advance even if minutes advance from "59" to "00".

4 Release the TIME ADJUST button to start the clock at the correct time.
* The clock starts operating from "0" seconds. (Seconds are not displayed.)

In the event of a power failure or when the AC supply lead is disconnected.
The clock display will go out.
When the AC power supply is resumed, the clock display will flash on and off to indicate that the time must be reset.

COMPACT DISC OPERATION
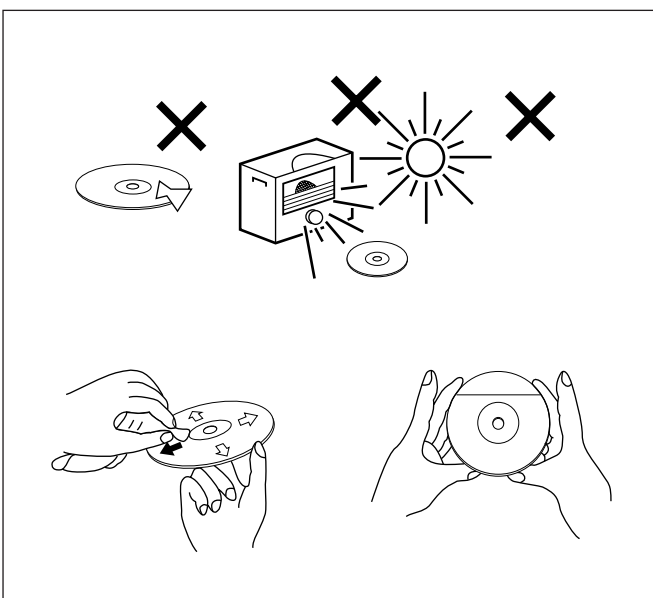
Care of compact discs

Compact discs are fairly resistant to damage, however mistracking can occur due to an accumulation of dirt on the disc surface.
Follow the guidelines below for maximum enjoyment from your CD collection and player.
● Do not write on either side of the disc, particularly the non-label side. Signals are read from the non-label side. Do not mark this surface.
● Keep your discs away from direct sunlight, heat and excessive moisture.
● Always hold the CDs by the edges. Fingerprints, dirt or water on the CDs can cause noise or mistracking. If a CD is dirty or does not play properly, clean it with a soft, dry cloth, wiping straight out from the centre, along the radius.

POWER

2,4

5

1

2,4

1

5,2

POWER
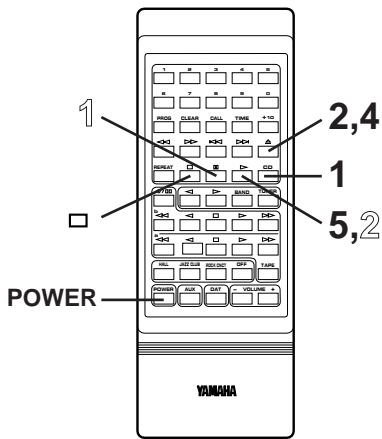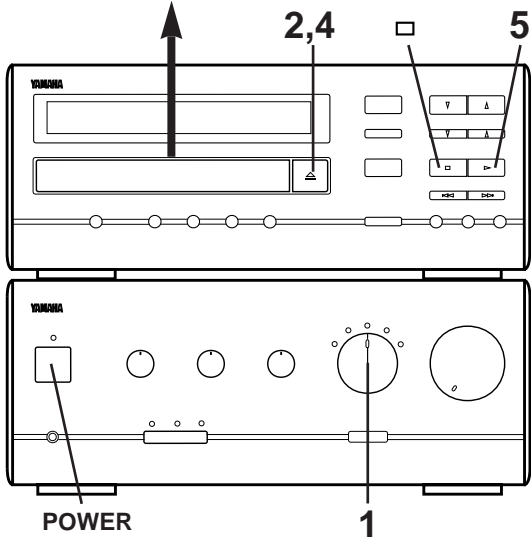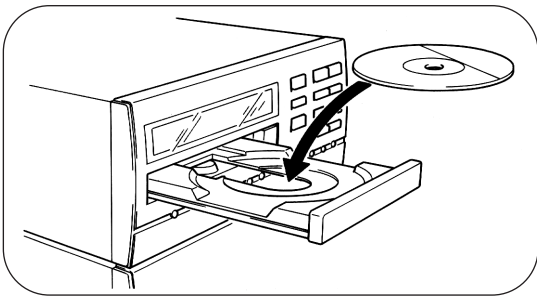
CD playback

1 Select the CD position.

2 Press the open/close button to open the disc table.

3 Place a disc on the table, label side up.
  * 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 will be displayed for several seconds.
  * The music schedule will be displayed only for the number of tracks on the disc.
  * If the compact disc contains more than 21 tracks, the "OVER" indicator will light up on the music schedule.

Total number of tracks   Total playing time   Remaining playing time for first track
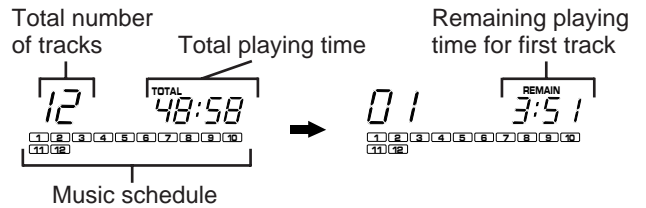
Music schedule

5 Press the play button to start playback from track 1.
  * The "▷" indicator will appear and playback will begin. As the playback of each track on the music schedule is finished, that track number will go out.

Direct playback
If a compact disc is already in the disc table, just press the play button to automatically turn on the power and start playback.

To interrupt playback

1 Press the pause button.
  * The " ▯▯ " indicator will light up.

2 Press the play button to resume playback from the same point.

To stop playback
Press the stop " ☐ " button.

To switch the unit off after use
Set the unit to the STANDBY mode by pressing POWER switch. (The indicators will go off except for the STANDBY indicator and the current time display.)

Precautions

● If the disc is damaged, dirty or loaded upside down, the display will show error signs as follows:
 * "no disc" is displayed.
 * The total track number or "01" is not displayed.
  Clean, replace or load the disc properly.
● If TV or radio interference occurs during CD operation, move the unit away from the TV or radio.
● Subjecting the unit to shock or vibration can cause mistracking.
● Playing some compact discs at high volume can cause mistracking. In this case, listen at lower volume.
● Do not push the disc table while it is moving.
● Press the open/close button if your finger, a disc or other object is caught by the table. (The table closing operation will stop after 4 seconds even if the open/close button is not pressed. At this time, "Er 0:00" appears in the display.)
● 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 compact discs is recommended to be 5°C (41°F) – 35°C (95°F).

Direct-selection play

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

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

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

B. 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
A track number higher than the number of tracks on the disc cannot be selected. Also, if a higher track number is selected while the disc table is open, play will begin from track 1 when the disc table is closed.
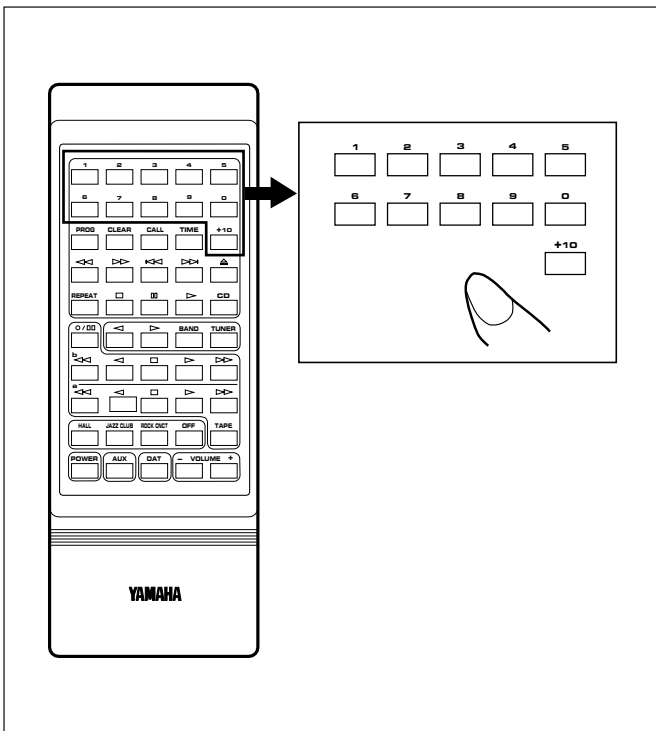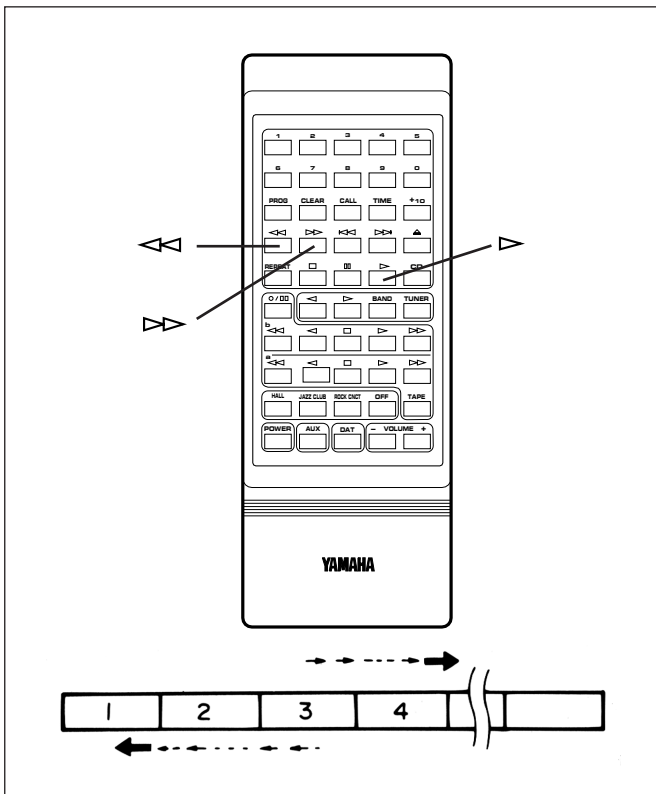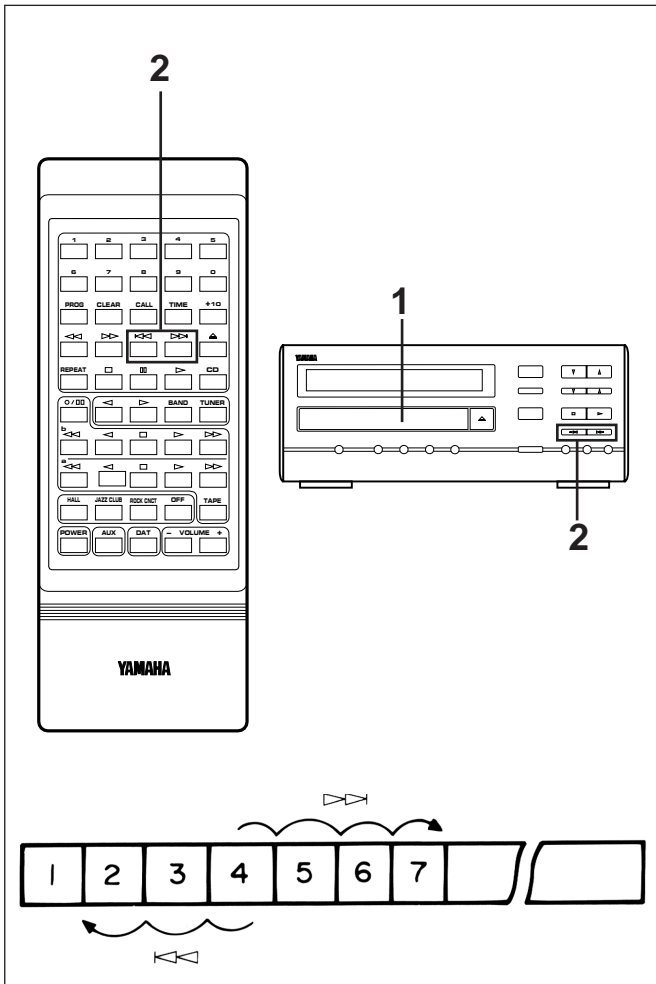
Skip search

The beginning of any track can be found automatically.

1 Load a disc and begin playback.

2 Press the ▷▷▷ button to forward or ◁◁◁ button to reverse through the CD.
* The "▷" indicator flashes while searching for the track beginning.
* If the ▷▷▷ button or ◁◁◁ button is pressed repeatedly during playback, playback will begin from the beginning of the track shown in the track number indicator.
* This function can also be performed while the unit is stopped. Press the play button when your desired track number appears in the track number display. Playback will begin from the beginning of the track.

Note
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 ▷▷ button to advance play rapidly, and the ◁◁ button to reverse play rapidly.
* The sound can be heard (although slightly garbled) during manual search in either direction. This is convenient for locating a precise position within a track, or for reviewing the contents quickly.
* Manual search proceeds at twice the normal playback speed for several seconds, and then the speed will become faster.

Notes
● Manual search can also be performed while disc play is paused.
● Manual search is not possible during random play.
● If the end of the disc is reached while searching, the "End" indicator lights and CD operation is paused. Press the stop button to stop CD operation.

Playback order   Total playing time

Music schedule
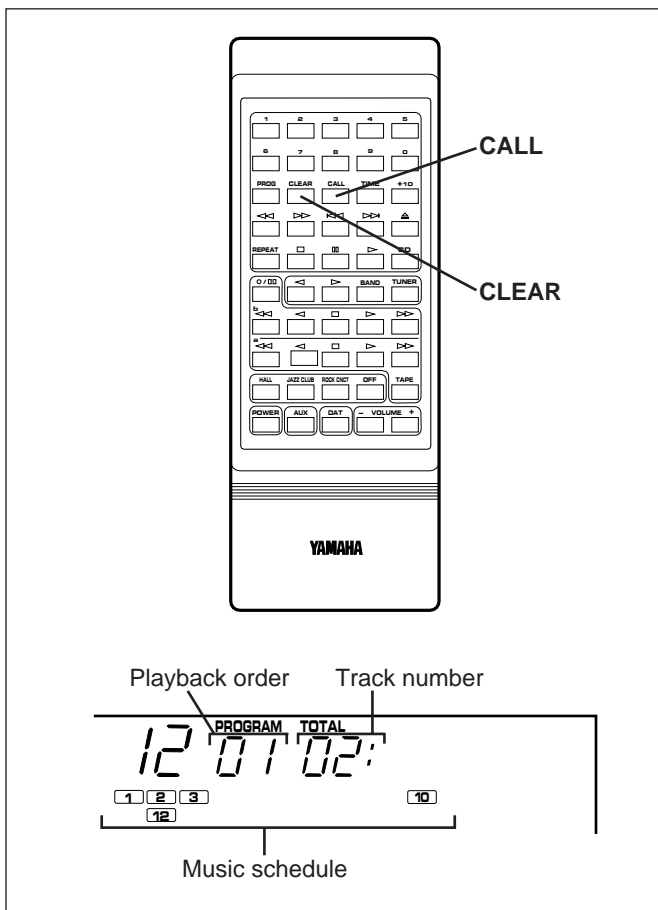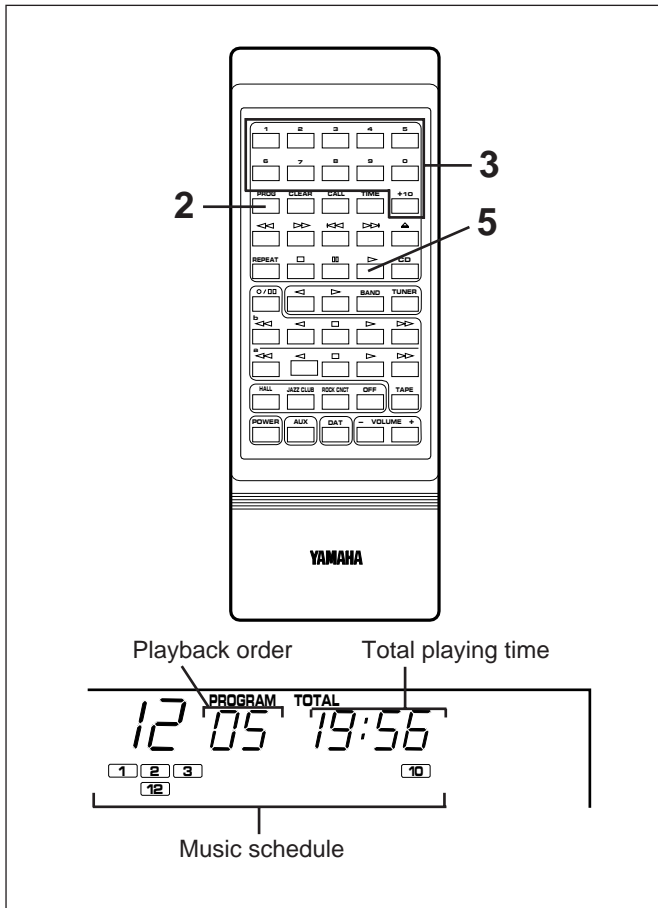
Program play

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

1 Load a disc and close the disc table.

2 When in the stop mode, press the PROGRAM button to prepare for programming.
   * The "PROGRAM" indicator will flash.

3 Use the track number input buttons to select the desired track number.
   * The selected track number will be displayed.
   * The programmed playback order and the total play time of the programmed tracks will be automatically displayed, and only those track numbers will appear in the music schedule.

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

4 Repeat step 3 for any other track. Up to 20 tracks can be programmed.

5 Press the play button to start playback of programmed selections.

Notes
● 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.

To check the program data

Press the CALL button while the disc is stopped to review the order of the programmed sequence before playback begins.
* While the playback order and track numbers are displayed, the track numbers on the music schedule will also flash on and off in the same order.

Press the CALL button during playback or pause to check the number of the next track to be played.

To cancel the programmed sequence

Press the CLEAR button while the disc is stopped and the "PROGRAM" indicator is lit.
* To cancel the last programmed track during programming, press the CLEAR button when the "PROGRAM" indicator is flashing.

Notes
● Opening the disc table automatically cancels the programmed sequence.
● Programming and cancelling are not possible during playback or pause.

Playback order   Track number

Music schedule
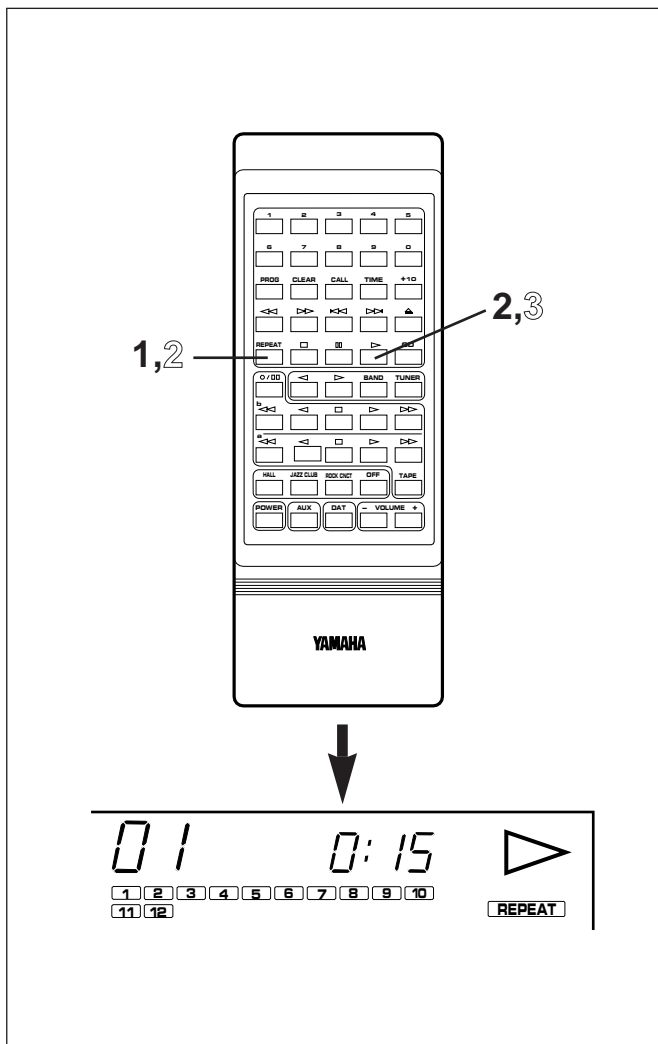
Repeat play

An entire disc, a single track or a programmed sequence can be continuously repeated.

To repeat an entire disc

1 Press the REPEAT button.
   * The "REPEAT" indicator will light up.

2 Press the play button.

To repeat a programmed sequence

1 Program a sequence of up to 20 tracks.
   (Refer to the "Program play" on the previous page for the programming method.)

2 Press the REPEAT button.
   * The "REPEAT" indicator will light up.

3 Press the play button.

To repeat a single track

1 Program a single track.
   (Refer to the "Program play" on the previous page for the programming method.)

2 Press the REPEAT button.
   * The "REPEAT" indicator will light up.

3 Press the play button.

To cancel the repeat play

Press the REPEAT button again.
(The "REPEAT" indicator goes out.)
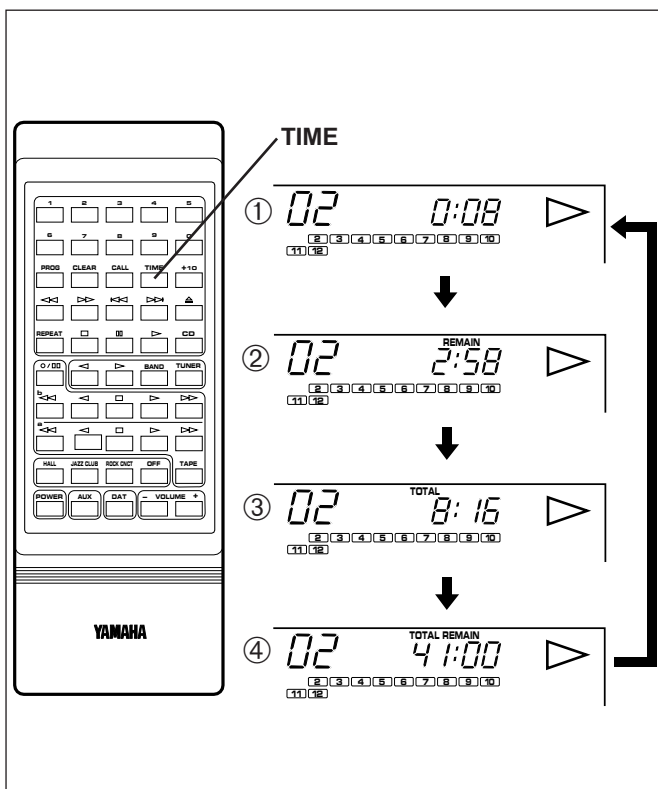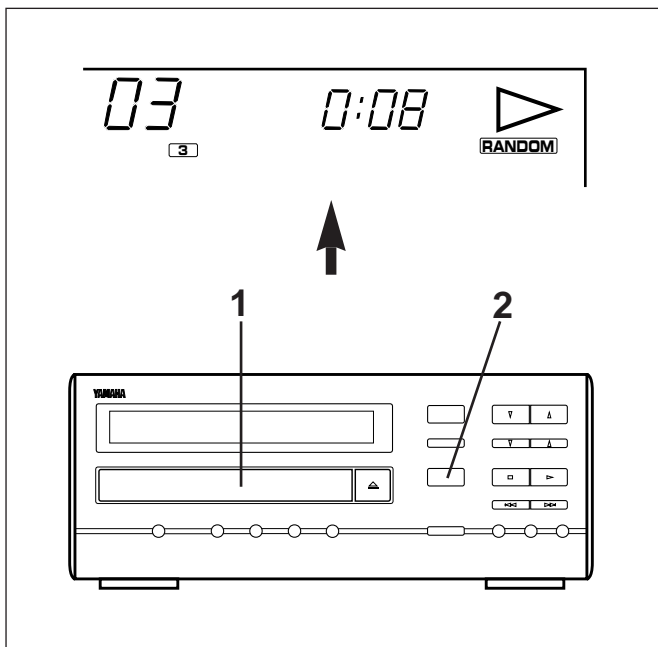
Random play

The tracks on the disc can be played in a random order.

1 Load a disc and close the disc table.

2 Press the RANDOM button to begin random play.
* The "RANDOM" indicator will light up.
* As the tracks to be played are selected, the track numbers "[1]", "[2]", "[3]" ... "[20]" in the music schedule will flash on and off and the track number display will change accordingly.

To cancel the random play
Press the play button. The "RANDOM" indicator goes out.

Notes
● When using random play or repeat play, be sure to press the stop button, or switch off the power when you have finished listening. Otherwise, the CD(s) will be played endlessly.
● While programmed tracks are being played, random play is not possible.

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 each track 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 up to the current track will be displayed.
* 8 minutes and 16 seconds have passed since the beginning of the first track.
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 elapsed play time for each track will be displayed, and the display cannot be switched.
● When a disc that has 21 or more tracks is used, "--:--" will be displayed in the following cases:
* When an attempt is made to display a track number 21 or higher by using the ▷▷▷ button when the disc is stopped.
* When an attempt is made to display the remaining time while a track whose number is 21 or higher is being played back.
* When you program a track number 21 or higher .
* When the total play time exceeds 100 minutes.
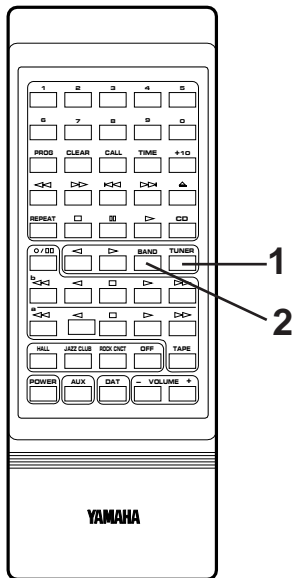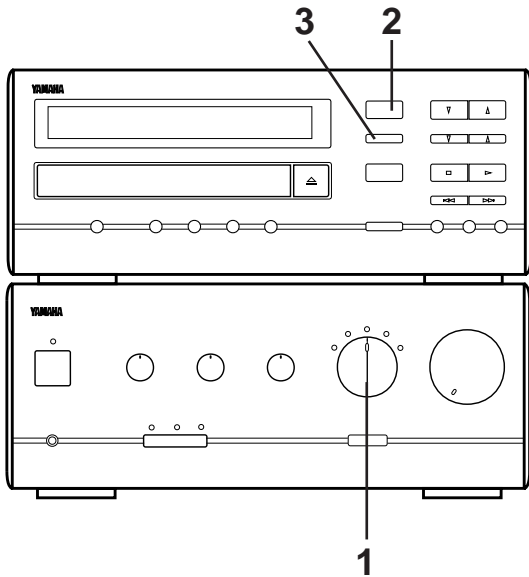
You can store up to 30 stations (20 FM stations and 10 AM (LW or MW) stations) and recall them together with their FM reception mode (stereo or mono), at the push of a button.

Auto scan memory

By this method, the unit will store stations with strong signals automatically (for FM and AM (LW or MW) respectively).

1 Select the TUNER position.

2 Select the desired frequency band. [FM or AM (LW or MW)]

3 Press the AUTO MEMO button.
* The "MEMORY" indicator will flash.
* After auto scan memory is finished, the "MEMORY" indicator goes out, and you can hear the broadcast station which was stored last into memory.
* If fewer than 20 FM stations or 10 AM (LW or MW) stations have been stored in memory, auto scan memory will stop at the highest frequency and this unit will turn into receiving mode.
* If auto scan memory is performed again though broadcasting stations have been already stored, the previous contents are erased.

Note
The auto scan memory function may be affected by radio interference generated by electric equipment. For example, home computers, facsimiles, etc.
If you have difficulty using the auto scan memory, move the unit away from electric equipment and adjust the position of the antenna to minimize the interference. If you cannot minimize the interference, please use the manual memory function as described below.

"AM" is for U.S.A., Canada, Australia and General models.
"MW/LW" is for U.K. and Europe models.

3,5   **2**   **4**
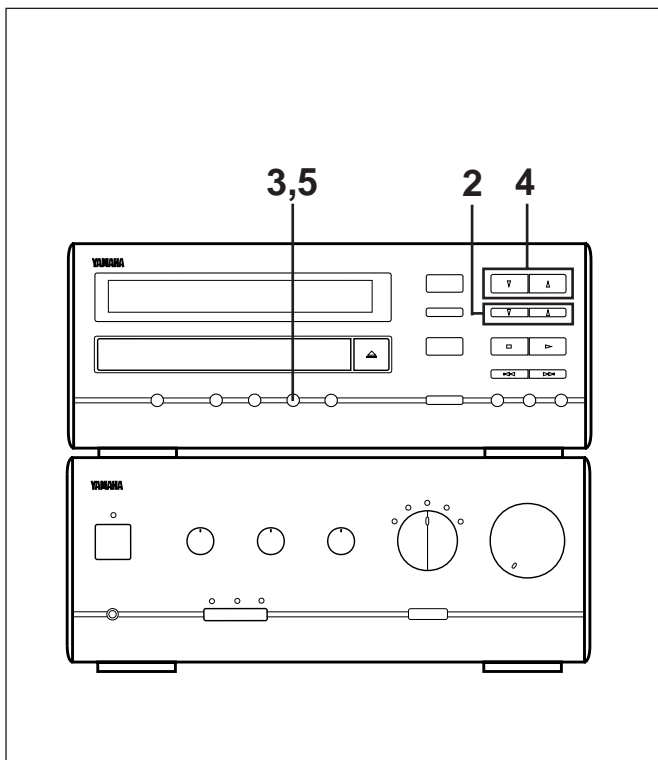
Manual memory

When auto scan memory does not function due to a weak signal, frequencies are deviated due to a strong signal, or you want to change the memory contents, perform the following operation.

1 Perform steps 1 – 2 of the "Auto scan memory" section.

2 Use the TUNING (∇ or Δ) button to tune into the desired station.

   Auto tuning
When the TUNING (∇ or Δ) button is pressed for more than 0.5 second and then released, the tuning stops at the first receivable broadcast station.

   Manual tuning
Press the TUNING (∇ or Δ) button repeatedly to adjust the frequency display to the frequency of the desired station.

3 Press the MEMORY button, so that the display's "MEMORY" indicator flashes.

4 Press the TUNER PRESET (∇ or Δ) button until the preset number to be programmed appears in the display.

5 Press the MEMORY button to store that station in the selected station preset number memory.
  * 20 FM stations can be preset (preset channels 1 through 20).
  * 10 AM (LW or MW) stations can be preset (preset channels 1 through 10).
    (There are no presets 11 through 20 for AM (LW or MW) stations.)

6 Repeat steps 1 – 5 to set the other preset stations, or to change a preset station.
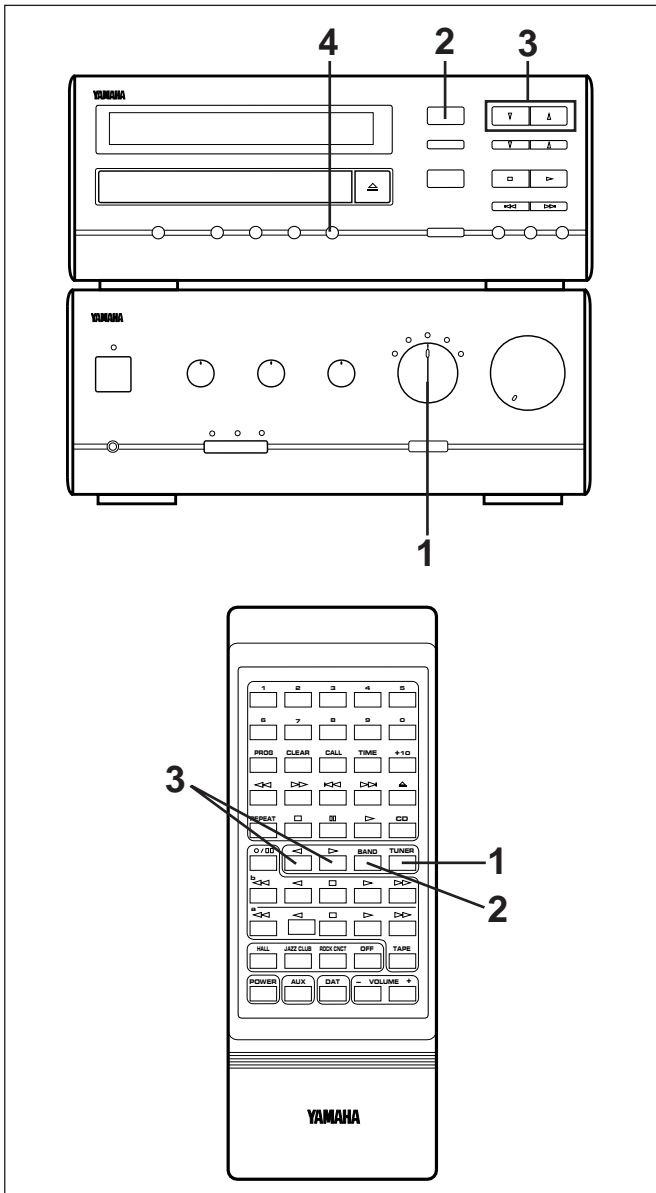
To recall a memorized station

1 Select the TUNER position.

2 Select the desired frequency band. [FM or AM (LW or MW)]

3 Press the TUNER PRESET (∇ or Δ) button to recall the desired preset station number. The caption FM or AM (LW or MW) and a frequency will appear in the display.

4 To set to FM stereo mode, press the FM MODE button so that the "STEREO" indicator on the display lights up. If the reception is poor, press the FM MODE button so that the "STEREO" indicator goes out.
  * The "AUTO ST" indicator lights up when an FM broadcast is in stereo.
  * Please note that when the unit is being tuned in the FM stereo mode, interim station noise as well as weak stations are suppressed. Only in the FM monaural mode, weak and noisy stations can be received.

To switch the unit off after use

Set the unit to the STANDBY mode by pressing the POWER switch. (The indicators will go off except for the STANDBY indicator and the current time display.)

Notes
* Memory recalls the last station received even after changing the BAND selector button or setting the unit to the STANDBY mode.
* After a power failure that lasts for some time, the contents of the memory will be lost. When power is restored, store your selections in memory again.
  (For power failures of just a few hours, the contents of the memory will not be lost.)
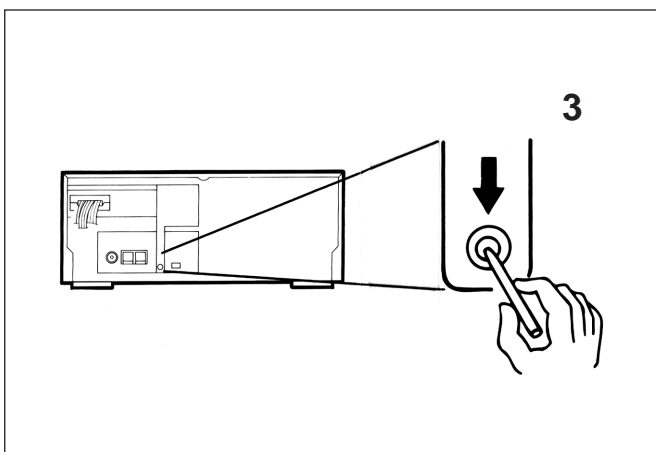
To clear all memorized stations

To clear all the memory contents or when the display is incorrect:

1 Set the unit to the STANDBY mode.

2 Disconnect the AC supply lead from the AC outlet.

3 Press the RESET button for at least 60 seconds.

Detection hole

Tab

3
(a)

3
(b)

4

2(a) **5** **6**(a)   **6**(b) **2**(b)
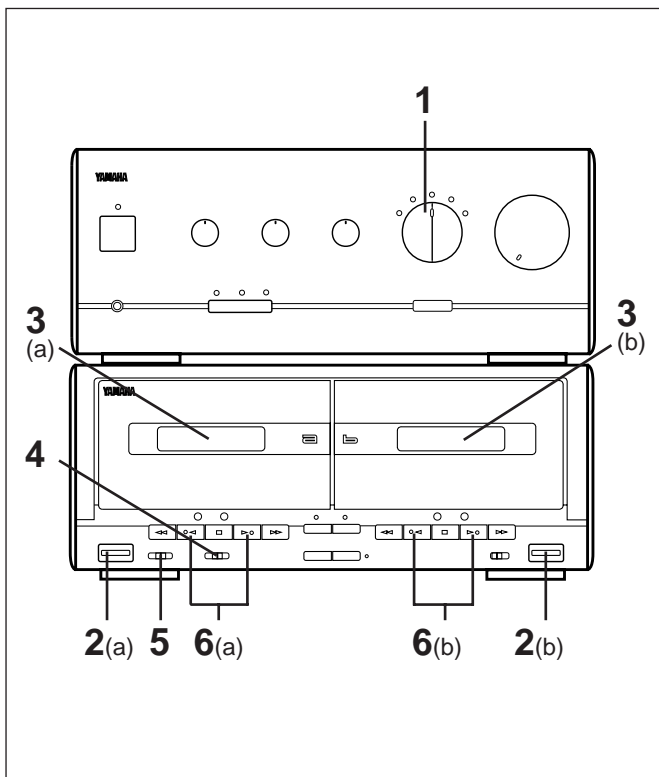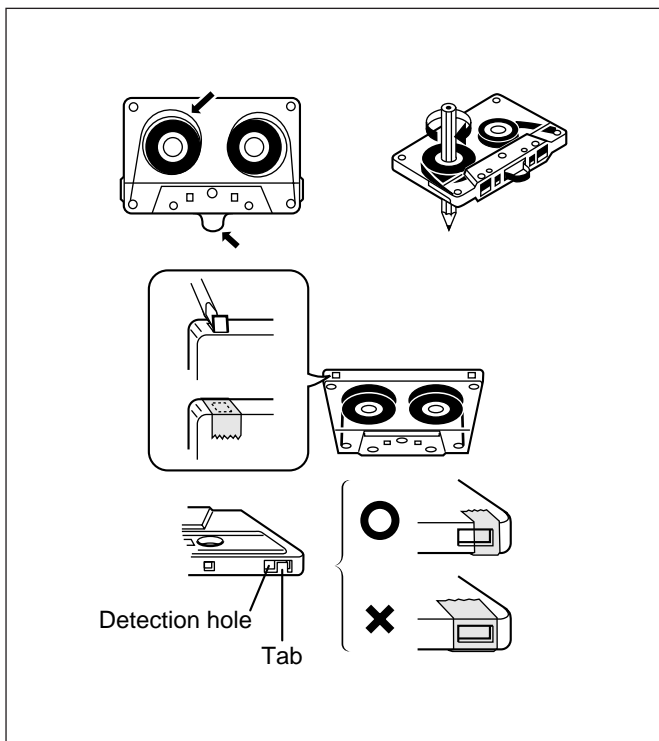
General information

- Do not use C-120 tapes, tapes with internal reels or poor-quality tapes, since they can cause malfunctions.
- Before loading a tape into the cassette compartment, tighten the slack tape 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.
  Tape "a": Playback only.
  Tape "b": 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 playback metal tapes as well as normal or chrome tapes, however recording cannot be done on metal tapes only.
- 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.

Tape "a" or tape "b" playback

1 Select the TAPE position.

2 Open the tape "a" or tape "b" cassette compartment by pushing the EJECT button.

3 Load the cassette into the tape "a" or tape "b" cassette compartment.

4 Set the DOLBY NR switch to B or C if the tape has been recorded with Dolby noise reduction, and to OFF if Dolby NR was not used.
  * For selection of the Dolby B or C position, refer to the "Dolby B and C Type Noise Reduction" on page 24.

5 Set the REVERSE MODE switch as desired.

The REVERSE MODE switch can be operated before or during playback, and changes tape playback as follows:

	⇄	⊃	↻
▷※	Side A only	Side A → Side B	Side A → Side B Continuous play
※◁	Side B only	Side B only	Side B → Side A Continuous play

6 Press the play ▷ button to listen to side A, or the play ◁ button for side B.

E-22

Direct playback
If a cassette tape is already in the cassette compartment, just press the play button to automatically turn on the power and start playback.

Note
While the INPUT selector is rotating to select the TAPE position before playback starts, do not press the EJECT button.

To stop playback
Press the stop ▢ button.

Note
When removing the cassette tape, press the stop ▢ button, and then open the cassette compartment.

To switch the unit off after use
Set the unit to the STANDBY mode by pressing the POWER switch. (The indicators will go off except for the STANDBY indicator and the current time display.)

Winding the tape

1 First press the stop ▢ button.

2 Next press the ◁◁ or ▷▷ button to wind the tape.

3 Press the stop ▢ button to stop.

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 ◁◁ or ▷▷ button in the direction opposite from that of current playback.
- To listen to the next selection, press the ◁◁ or ▷▷ button in the same direction as that of current playback.

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 3 seconds between selections.
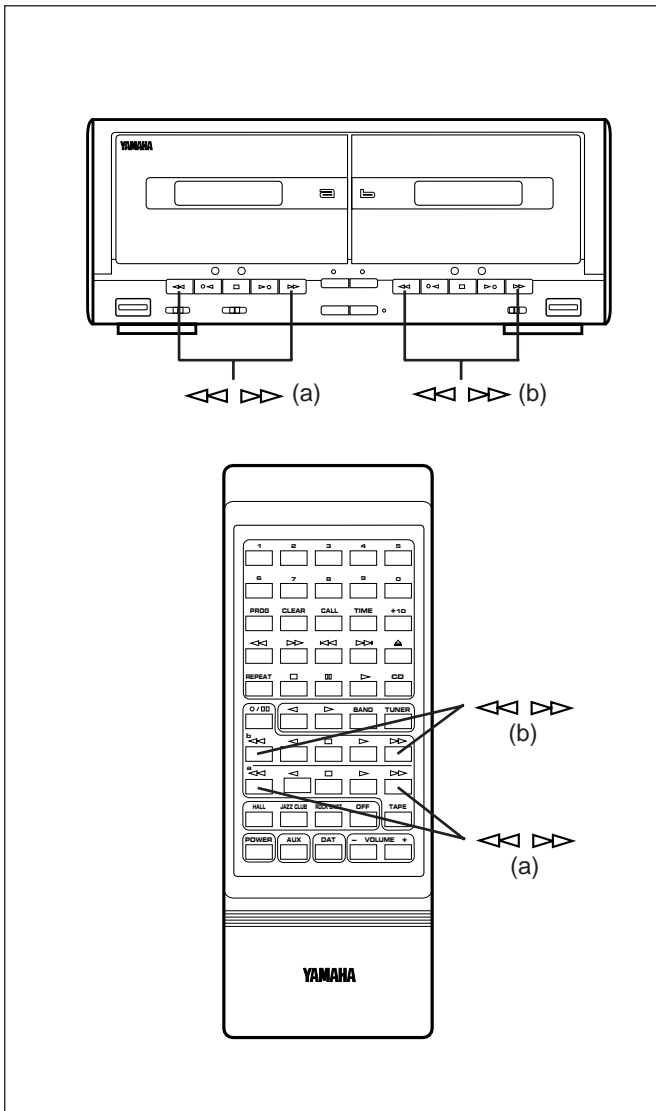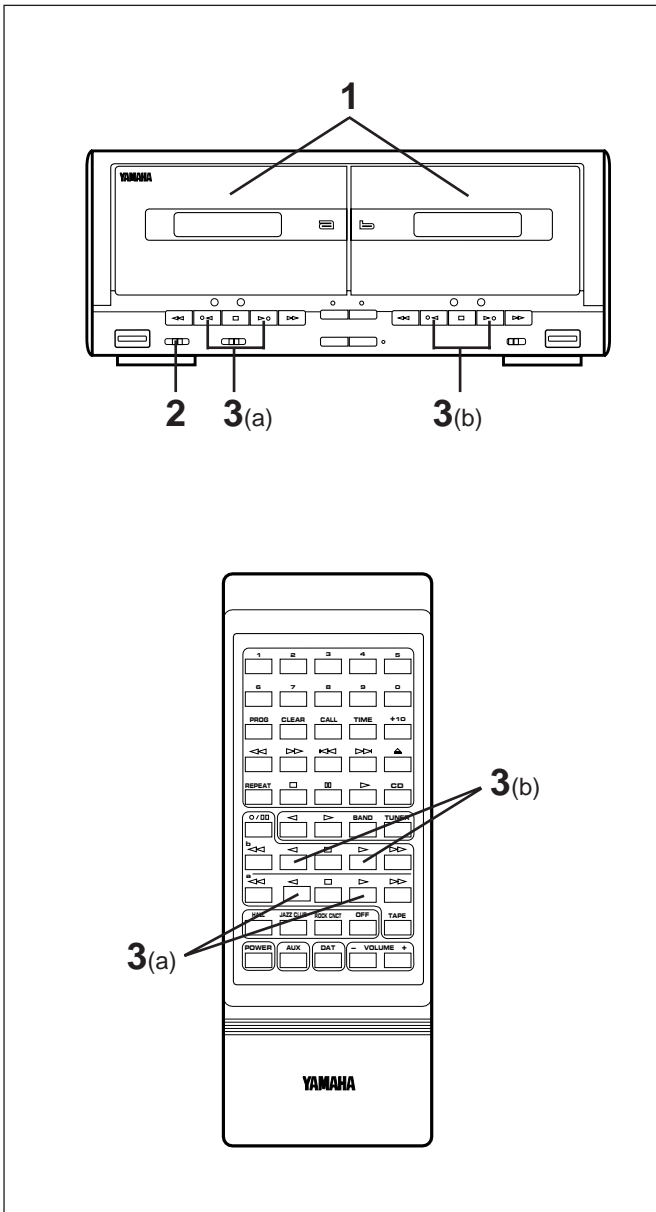
Continuous playback

1 Load the tapes into the tape "a" and tape "b" cassette compartments.

2 Set the REVERSE MODE switch as desired.

The REVERSE MODE switch can be operated before or during playback, and changes tape playback as follows:

	⊂⊃	⟳
<Tape "a"> (▷☀)	Tape "a" Side A → B → Tape "b" Side A → B	Tape "a" Side A → B → Tape "b" Side A → B Continuous play
<Tape "a"> (☀◁)	Tape "a" Side B → Tape "b" Side A → B	Tape "a" Side B → Tape "b" Side A → B → Tape "a" Side A Continuous play

3 Press the play ▷ button to listen to side A, or the play ◁ button for side B.

Dolby B and C Type Noise Reduction
With cassette tapes, the most noticeable form of noise is high frequency hiss. To reduce this hiss noise, this unit has been equipped with a newly developed Dolby C noise reduction system in addition to its conventional Dolby B NR. Either type of noise reduction may be selected with the switch provided. Dolby B NR has a noise reduction effect of about 10 dB in the high frequency range. The corresponding figure with Dolby C NR is about 20 dB, but this is over the entire range where the human ear is most sensitive to noise (2 kHz to 8 kHz). Also, Dolby C NR has the same noise reduction effect at both high and low signal levels. In addition, Dolby C NR improves the tape's MOL (Maximum Output Level). Dolby noise reduction is a 2 part process that acts both on recording and playback; be sure that the noise reduction button is set to the same position on record and play.
* Noise in the source material cannot be reduced with the Dolby NR system.

▯▯ DOLBY NR ®

Dolby and the double D mark are trademarks of Dolby Laboratories Licensing Corp. Dolby noise reduction system manufactured under license from Dolby Laboratories Licensing Corp.
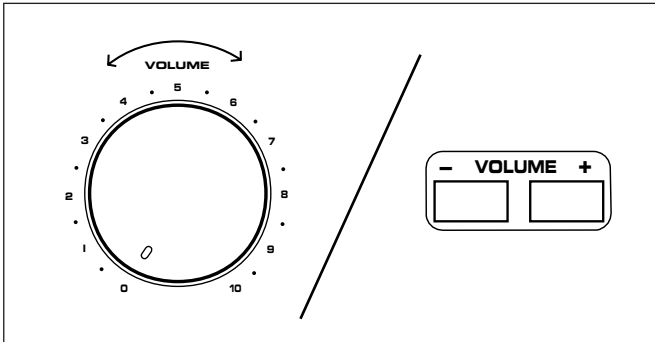
Volume

Front panel operation
Rotate the VOLUME control towards 10 to increase the volume, and towards 0 to decrease the volume.

Remote control operation
Press the VOLUME + button to increase the volume and the VOLUME – button to decrease the volume.
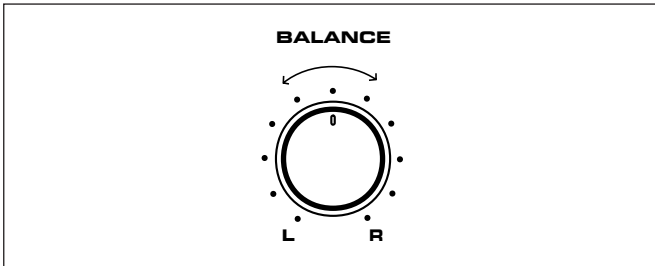
Balance

Adjust the balance of the output volume to the left and right speakers to compensate for sound imbalance caused from the speaker settings or the listening room condition.
Turn this clockwise to emphasize the right and counterclockwise for the left.
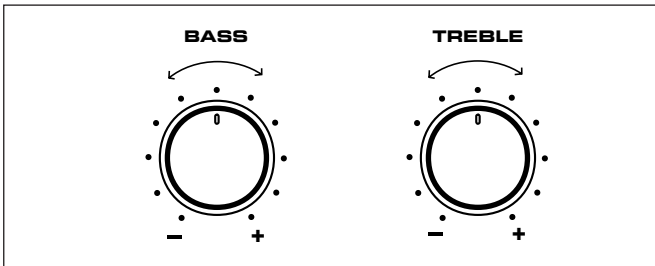
Tone

BASS : Turn this clockwise to increase (or counter-clockwise to decrease) the low frequency response.
TREBLE : Turn this clockwise to increase (or counter-clockwise to decrease) the high frequency response.
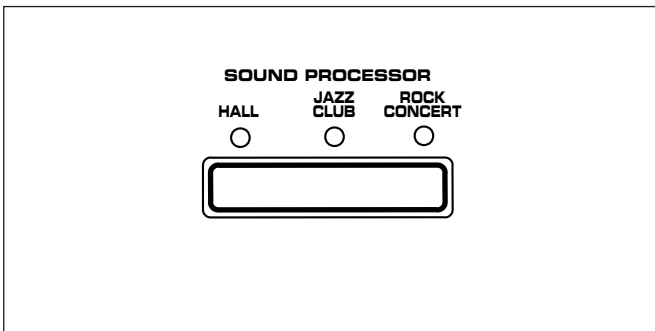
Sound processor

If desired, select your favorite sound processor program by pressing the SOUND PROCESSOR button. The indicator below the name of the selected program illuminates. (No illumination shows that the sound processor is off.) For each program feature, refer to the following explanation.

HALL	The ideal program for listening to opera or orchestra music. This program creates an expansive, large hall ambience. The apparent listening position is in the center of the hall rather than in front of the stage.
JAZZ CLUB	This program creates an ambience of intimate jazz club with a low ceiling and a stage located in a corner. You feel so close to music by this program.
ROCK CONCERT	This program suits to rock music. A big, powerful sound is reproduced lively and dynamically.

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- When recording important selections, be sure to make a preliminary test to ensure that the desired material is being properly recorded.
- The automatic recording level control circuit automatically controls the level of the input signal used for recording.

- Adjusting the VOLUME, BALANCE, TREBLE and BASS controls and selecting any SOUND PROCESSOR program have no effect on the recorded sound.
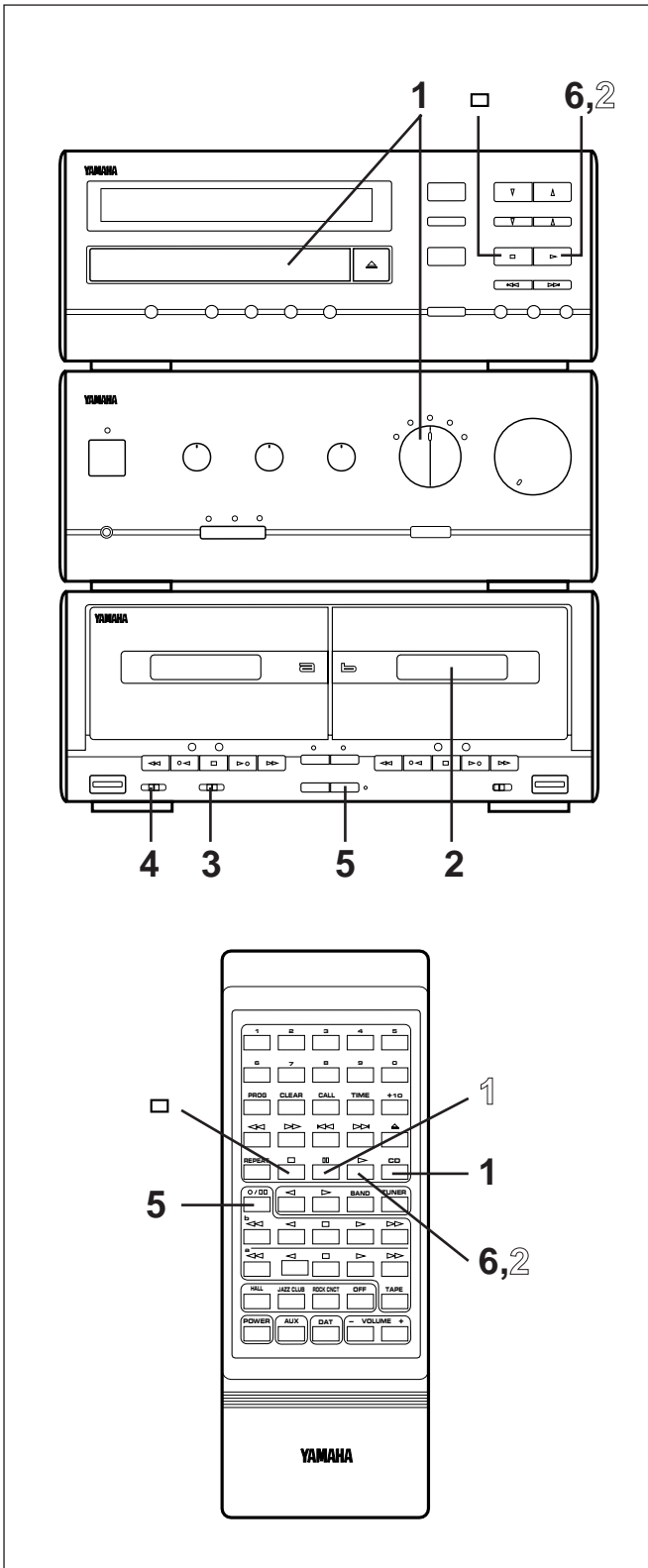
Recording from the CD player (CD Synchronized Recording System)

1 Select the CD position and load the CD to be recorded.

2 Load a tape into the tape "b" cassette compartment.
  * Wind past the beginning part of the tape on which recording can not be performed.

3 When recording with the Dolby NR system, set the DOLBY NR switch to B or C; if not, set it to OFF.
  * For selection of the Dolby B or C position, refer to the "Dolby B and C Type Noise Reduction" on page 24.

4 Set the REVERSE MODE switch to ⇄ to record on only one side, or to ⊃ for continuous recording on both sides.

5 Press the REC button.
  * The indicator next to the REC button will light up and the play indicator flash.

6 Press the play button of the CD.
  * Before CD playback begins, recording automatically begins on side A of the tape.

To stop recording temporarily

1 Press the pause button of the CD.

2 Press the play button of the CD to resume recording.

To stop recording
Press the stop ☐ button of the tape deck.
(At this time, CD playback does not stop.)
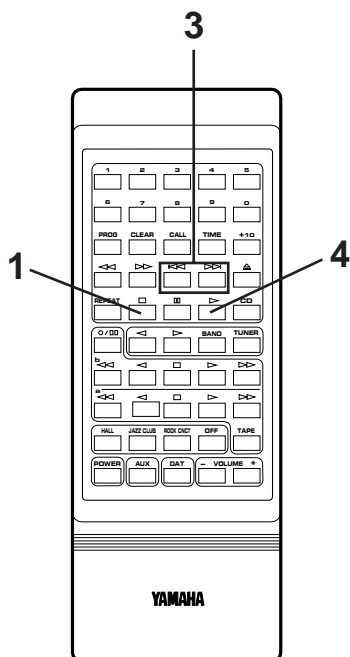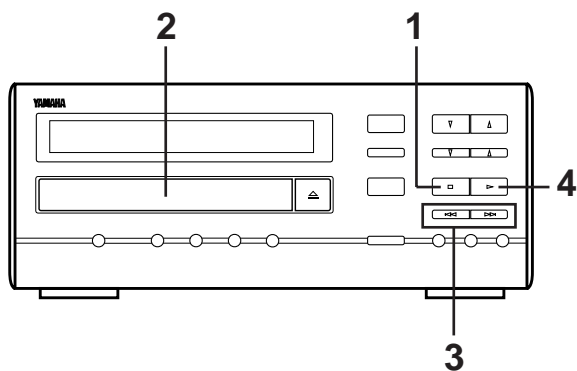
To exchange a CD for another CD while recording

1 Press the stop button of the CD during recording.
  * The tape stops after about 2 seconds and enters recording standby mode.

2 Replace the CD.

3 Choose the selection to be recorded next by using the ▷▷ or ◁◁ button.

4 Press the play button of the CD.
  * Recording begins after about 2 seconds.

Note
The CD Synchronised Recording System will function even when the CD player is set to the program play or random play mode. In this case, when more than 2 seconds elapse between tracks, the tape will stop automatically and resume recording when the beginning of the next track is found.

When recording is continuously made on both sides of the tape
Even if the recording for side A is finished halfway through a track, side B will automatically start recording from the beginning of that track. (Auto restart function)
So recording for side B will be made without cutting the beginning of a track.

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To edit tracks dividing them to side A and side B automatically (Auto editing function)

To use tapes effectively, tracks on a CD are automatically rearranged between side A and side B to best utilize the length of the tape.

When the desired tracks are selected in program selection, the tracks stored in memory are automatically divided between side A and side B.

1 Select the CD position and load the CD to be recorded.

2 Load a tape into the tape "b" cassette compartment.
  * Rewind the tape onto the left-side reel.

3 When recording with the Dolby NR system, set the DOLBY NR switch to B or C; if not, set it to OFF.
  * For selection of the Dolby B or C position, refer to the "Dolby B and C Type Noise Reduction" on page 24.

4 Set the REVERSE MODE switch to ⇆ .

5 Press the REC button.
  * The indicator beside the REC button lights up and the play indicators flash.

6 Press the C46, C60 or C90 according as the length of the tape to be used.

When using tapes other than C46, C60 or C90

Press the ▷▷⊣ or ⊢◁◁ button to adjust the time (minute by minute).
  ● Adjustable range is from C10 to C99.

It is also possible to use the track number input buttons on the remote control to set the tape length.
  ● For a tape length of C30, press the "+10", "+10", "+10" and "0". (Press each button within 3 seconds after the previous one has been pressed.)

7 Press the EDIT button.
  * Tracks on the CD are automatically divided between side A and side B.
  * The number of tracks, total time and track numbers to be recorded on side A and side B are displayed for approximately 4 seconds. (When there are tracks which can not be recorded, the "TIME OVER" indicator will light up.)

8 Press the play button of the CD.
  * CD playback and recording start approximately 9 seconds after the tape starts (after the part of the tape on which recording can not be performed is wound).

To cancel auto editing function
Before recording, press the stop ☐ button of the CD.

To stop recording
Press the stop ☐ button of the tape.
(At this time, CD playback automatically stops.)

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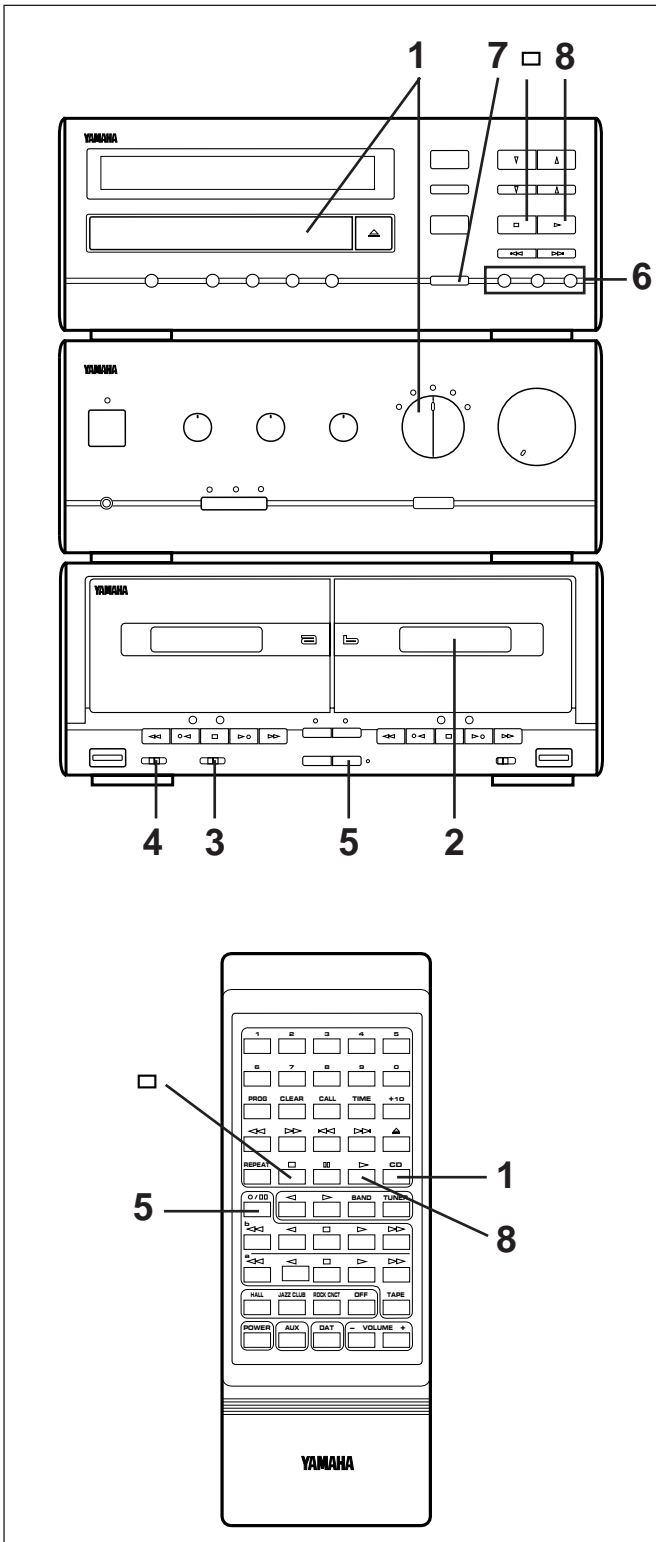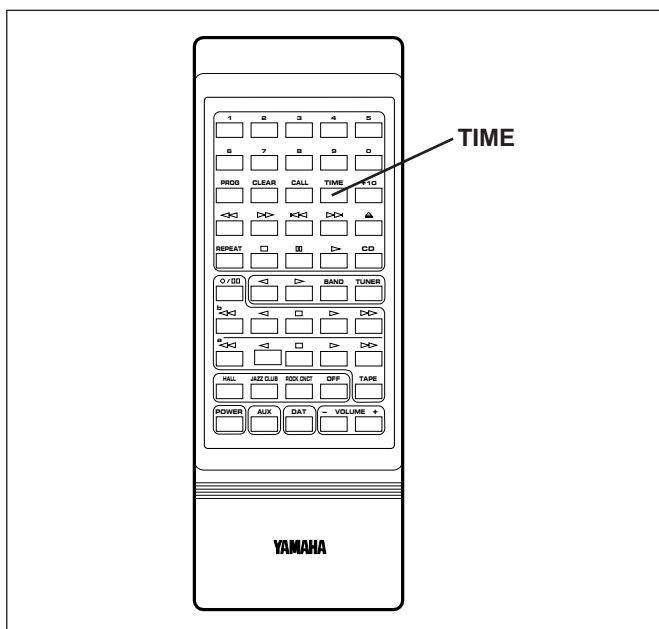
TIME

To confirm tracks to be recorded and tracks which can not be recorded

Before recording, press the TIME button. The following information will appear on the display by turns whenever the TIME button is pressed.

→ Tracks to be recorded on side A
↓
Tracks to be recorded on side B
↓
Tracks which can not be recorded on side A and side B (When all tracks can be recorded, "00 0:00" is displayed)
↓
Tracks which can be recorded on side A and side B
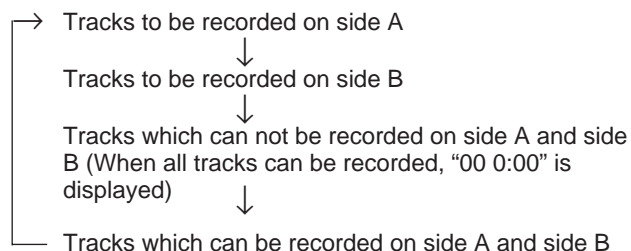
Note
Once CD playback starts, the display does not change.
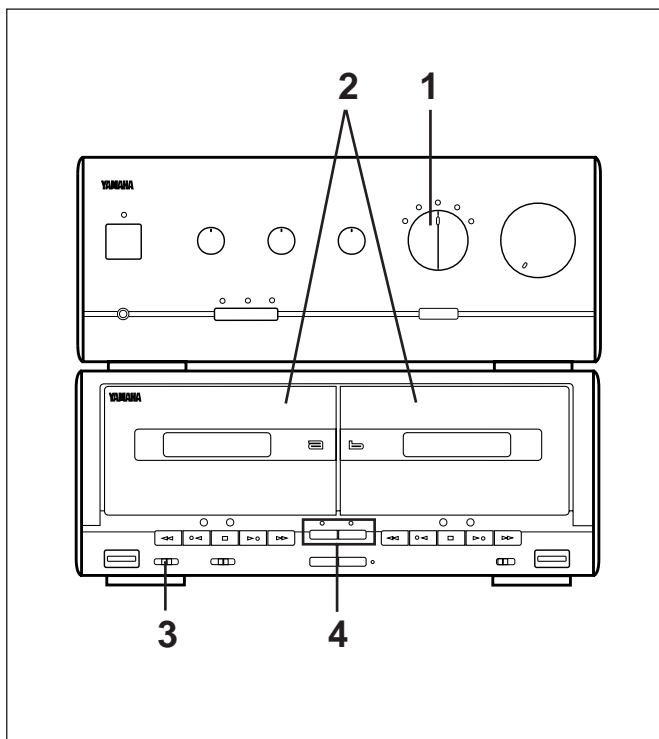
Dubbing

- During dubbing, adjusting the VOLUME, BALANCE, TREBLE and BASS controls and selecting any sound processor program 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 Select the TAPE position.

2 Load a prerecorded tape into the tape "a" cassette compartment. Insert a blank tape into the tape "b" cassette compartment.

3 Set the REVERSE MODE switch to ⇄ to record on only one side, or to ⊃ for continuous recording on both sides.

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.

To stop dubbing
Press the stop ☐ button for tape "a" or "b".
* Tape "a" and tape "b" will stop at the same time.

Note
Only tapes originally encoded with Dolby B or C NR will be dubbed onto tapes with Dolby B or C NR encoding.
The DOLBY NR switch will have no effect on the recording of tape "b" during dubbing.
However, the playback tonal quality of tape "a" will change according to the DOLBY NR switch position.

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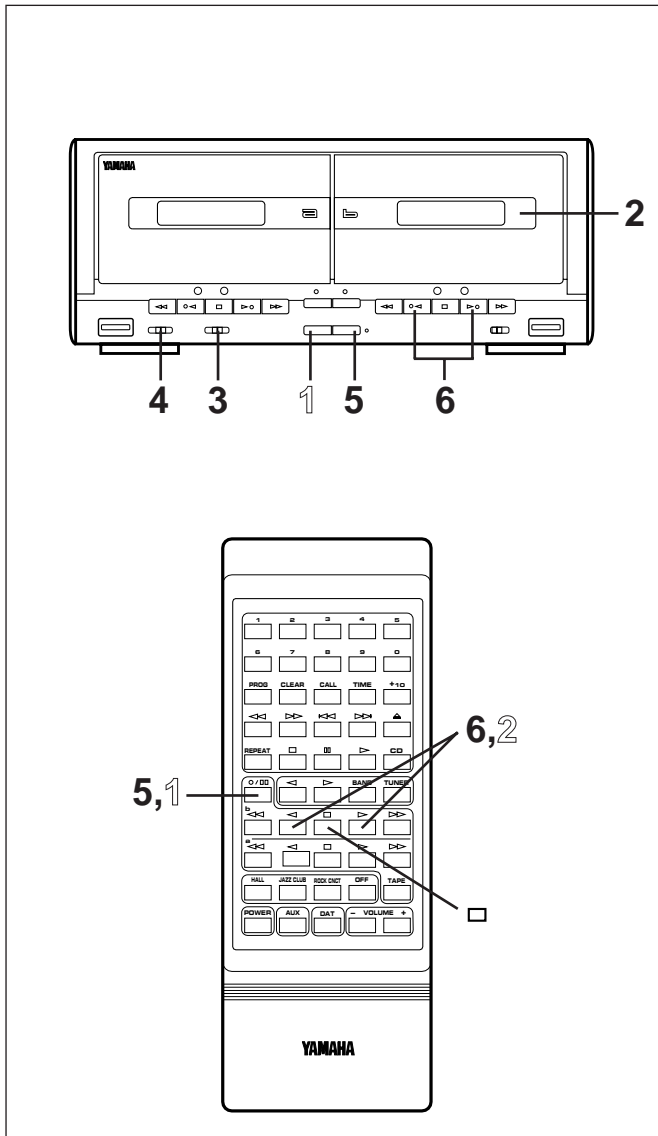
Recording from the built-in tuner

1 Tune to the desired station. (Refer to the "TUNER OPERATION" on page 19.)

2 Load a tape into the tape "b" cassette compartment.

3 When recording with the Dolby NR system, set the DOLBY NR switch to B or C; if not, set it to OFF.
  * For selection of the Dolby B or C position, refer to the "Dolby B and C Type Noise Reduction" on page 24.

4 Set the REVERSE MODE switch to ⇌ to record on only one side, or to ⊃ for continuous recording on both sides.

5 Press the REC button.
  * The indicator beside the REC button lights up and the play indicators flash.

6 Press the play ▷ button to record side A, or the play ◁ button to record side B.
  * For continuous recording of both sides, begin on side A. Recording stops automatically at the end of side B.

To stop recording temporarily

1 Press the PAUSE button.

2 To resume recording, press the play button whose indicator is flashing.

To stop recording
Press the stop □ button.

Erasing recorded tapes

1 Load the tape to be erased into the tape "b" cassette compartment.

2 Select the AUX position with the INPUT selector.

3 Set the REVERSE MODE switch to ⇌ to erase only one side and to ⊃ to erase both sides.

4 Press the REC button, then press the play ▷ button to erase side A of tape, or the play ◁ button to erase side B.

CLEAR
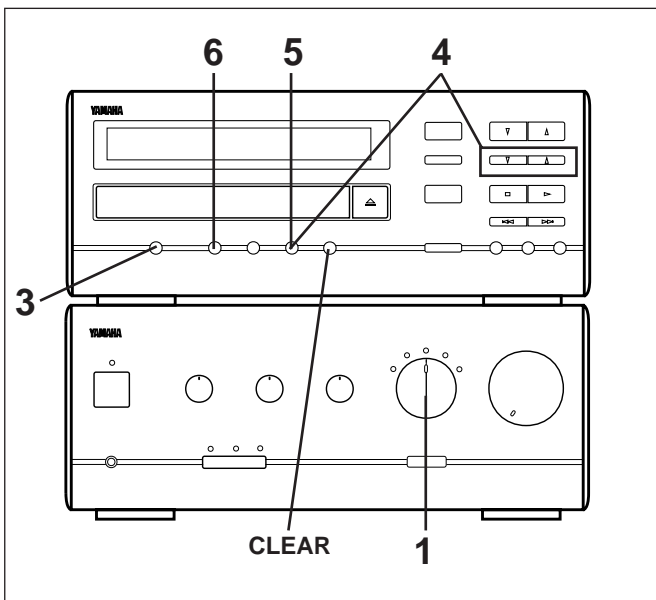
Before setting the timer clock, make sure that the current time is correct.

Timer operation

To listen to the tuner

1 Select the TUNER position.

2 Tune to the desired station. (Refer to the "TUNER OPERATION" on page 19.)

3 Press the DISPLAY button.

4 While the "TIMER" indicator is flashing, and while pressing the TIME ADJUST button, press the HOUR and MINUTE buttons to set the desired time.

5 Release the TIME ADJUST button.
* When the start time of the timer is set by mistake, press the CLEAR button and repeat step 4.

6 Press the TIMER button.
* "TIMER" appears on the display.
This sets the timer to the stand-by condition.
* The tuner turns on automatically at the desired time.

To play a compact disc

1 Select the CD position.

2 Load the disc.

3 Perform steps 3 – 6 of the "To listen to the tuner" section.
* CD playback starts automatically at the desired time.

To playback a cassette tape

1 Select the TAPE position.

2 Load a recorded cassette tape into the tape "a" or tape "b" cassette compartment.
* If tapes are loaded in both the compartments, tape "b" will be played back by the timer play.

3 Set the TIMER switch to the PLAY position.

4 Perform steps 3 – 6 of the "To listen to the tuner" section.
* Tape playback starts automatically at the desired time. (Playback of the side which corresponds to the play button which illuminated just before the timer setting was completed will commence.)

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POWER **DISPLAY**

VOLUME **2** **1**
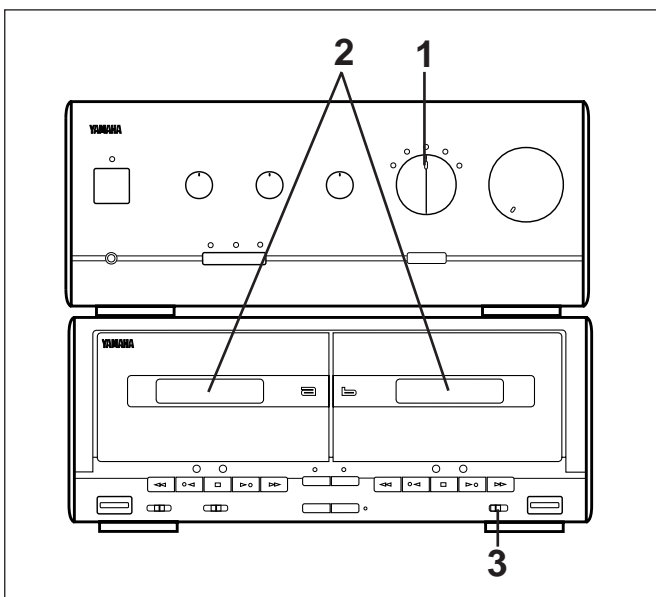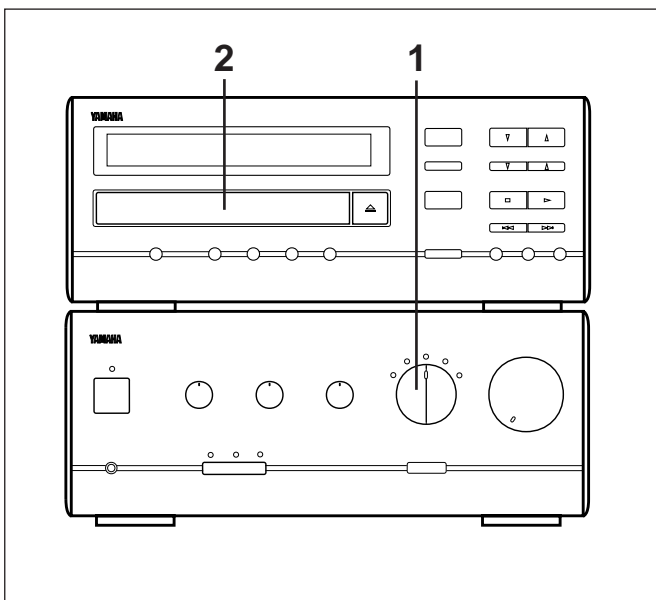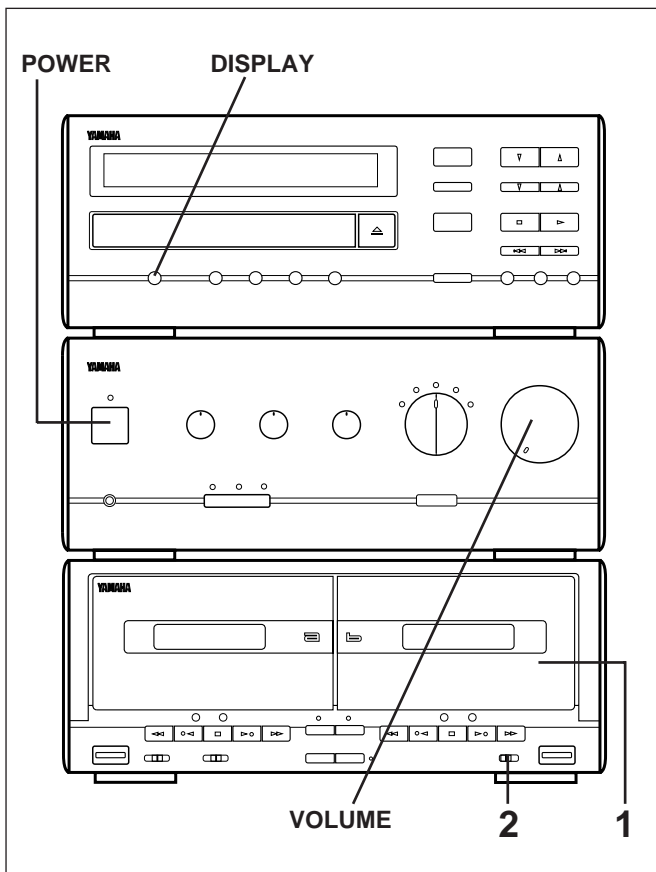
To record tuner programs

1 Load a blank cassette tape into the tape "b" cassette compartment.

2 Set the TIMER switch to the REC position.

3 Perform steps 1 – 5 of the "To listen to the tuner" section on the previous page.
  * Recording starts automatically at the desired time.

Notes
- The power will be automatically turned off 2 hours after the timer starts.
- To set the desired volume level for listening to a source with the timer, use the VOLUME control before setting the timer.
- Except when you perform recording with the timer, be sure to set the TIMER switch to the PLAY position.

To confirm the timer time setting
Press the DISPLAY button.

To cancel the timer operation
Press the POWER switch.
* The "TIMER" indicator will go out.
* Unless the AC supply lead is unplugged or there is a power failure, the time set on the timer will be retained until it is reset.

POWER   SLEEP
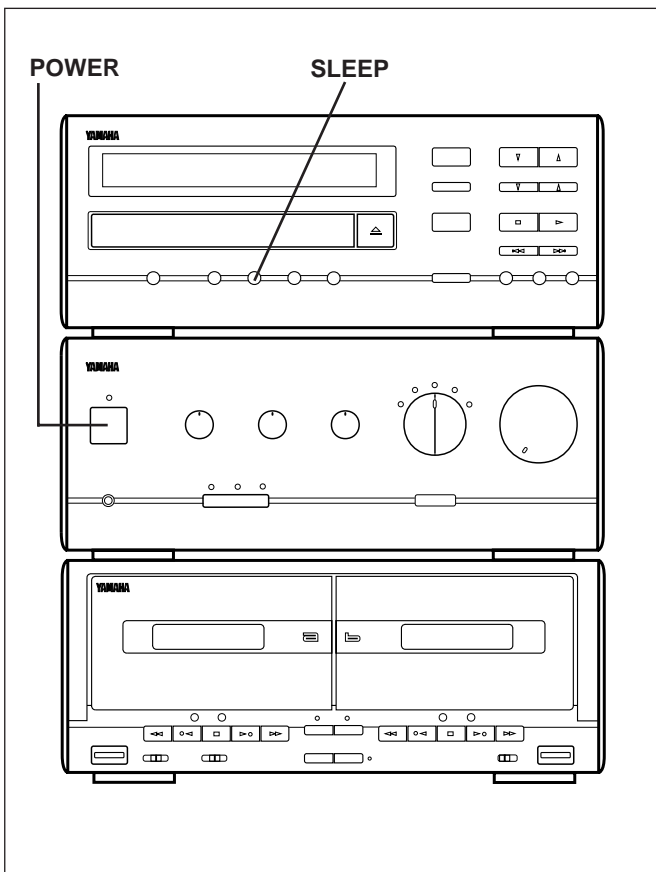
Sleep timer operation

This unit can be turned off automatically.

1 Play the desired sound source.

2 Press the SLEEP button repeatedly until the desired sleep time appears in the display. The display will change as described below. (Time is displayed by the minute.)

$$60 \rightarrow 45 \rightarrow 30 \rightarrow 15$$
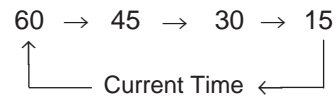
Current Time

* The original display mode will resume about 5 seconds after the selection is made.
* If the current time is selected, the power is turned off after 2 seconds.

3 The unit will turn off automatically after the preset sleep time.

To confirm the sleep time setting
Press the SLEEP button once. The remaining time of the preset sleep time appears in the display.

To change the sleep time
While the "SLEEP" indicator is on, press the SLEEP button repeatedly until the desired time to replace appears. The display will change as described below.

Remaining time of $\rightarrow$ Current time $\rightarrow$ 60
the preset sleep time

$$15 \leftarrow 30 \leftarrow 45$$
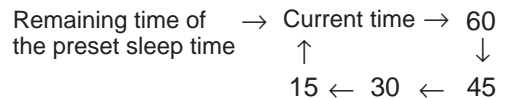
* If the current time is selected, the power is turned off after 2 seconds.

To stop the sleep timer operation
Press the POWER switch.
(The "SLEEP" indicator will go out.)

Using the timer and the sleep timer at the same time

1 Prepare timer playback. (See page 31.)

2 Press the SLEEP button and set the sleep time.
* When the sleep timer operation finishes, the timer will function to turn the source on at the preset time.

Notes
* The source set in the sleep timer operation will be turned on at the time set in the timer playback operation.
* Do not set the timer time so that the timer will start during sleep timer operation. (Since sleep timer operation has priority, the timer will not operate.)

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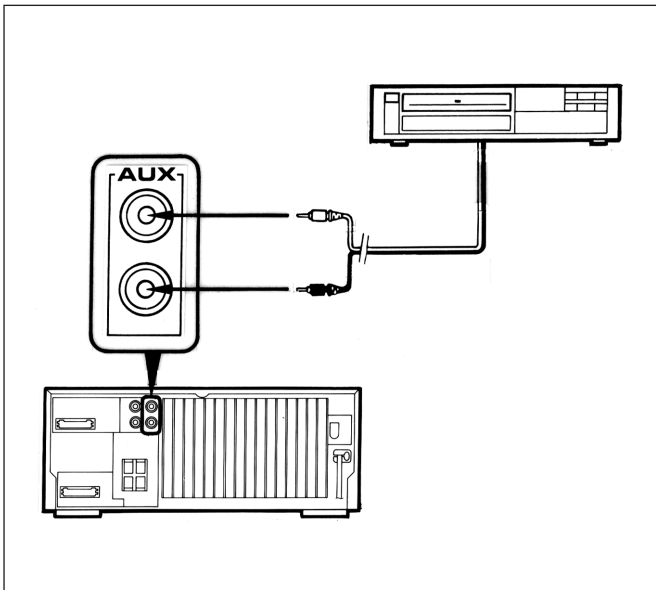
Auxiliary (AUX)

1 Connect the output lead of a video cassette player, video disc player, etc. to the AUX inputs of this unit. (red → right channel, white → left channel)

2 Select the AUX position with the INPUT selector.

3 Operate the unit connected to the AUX inputs.

4 Start recording with this unit, if so desired. (See page 30.)
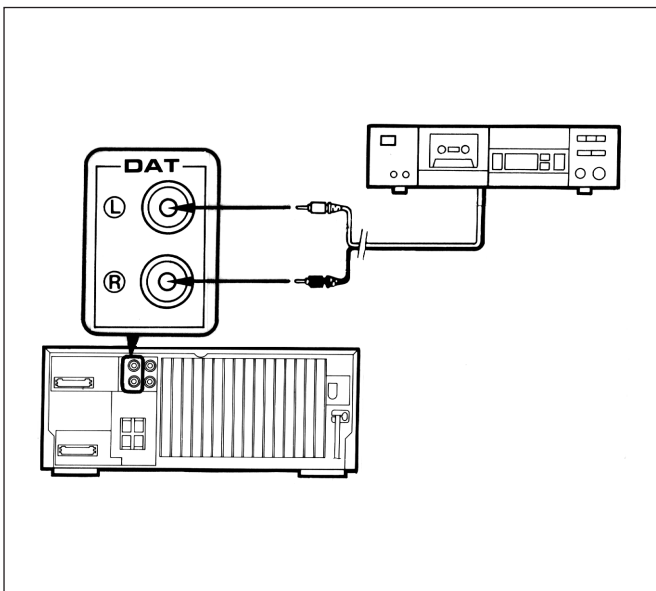
Auxiliary (DAT) (U.S.A., Canada and General models)

1 Connect the output lead of a DAT or another input source. (red → right channel, white → left channel)

2 Select the DAT position with the INPUT selector.

3 Operate the unit connected to the DAT inputs.

4 Start recording with this unit, if so desired. (See page 30.)
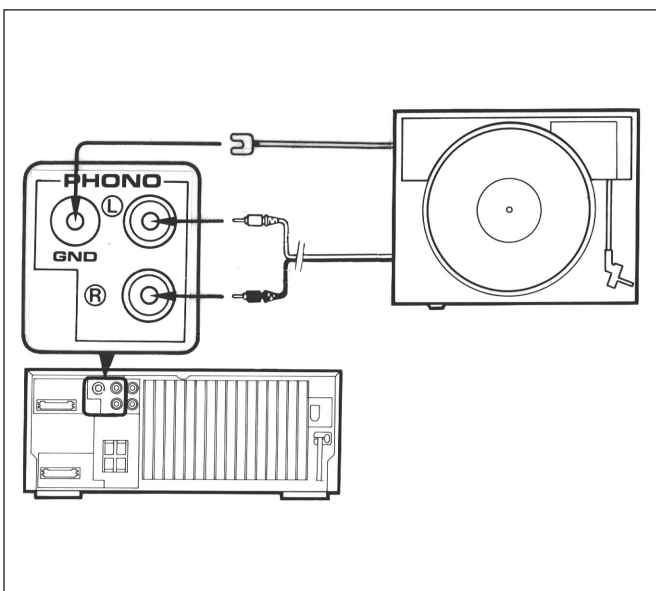
Turntable (PHONO) (U.K., Australia and Europe models)

1 Connect the output lead of a turntable. (red → right channel, white → left channel)

2 Connect the GND lead of a turntable.

3 Select the PHONO position with the INPUT selector.

4 Operate the turntable.

5 Start recording with this unit, if so desired. (See page 30.)
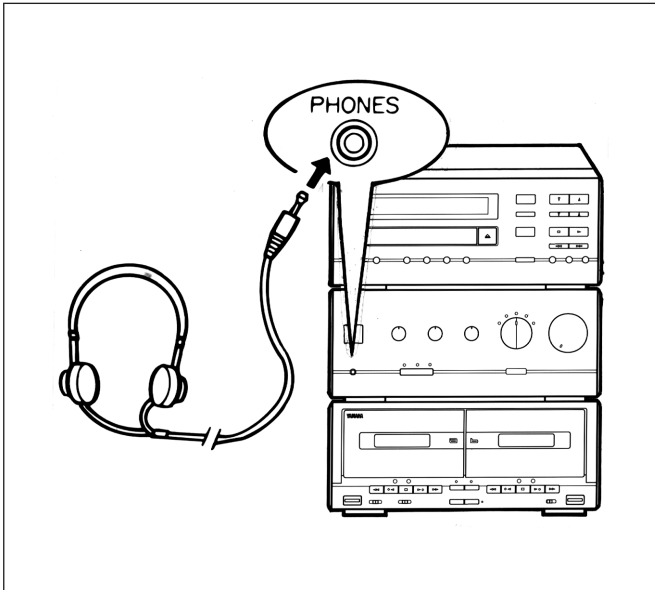
Headphones

- 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. Adjust the VOLUME control for desired volume.

MAINTENANCE

Tape "a"

Tape "b"
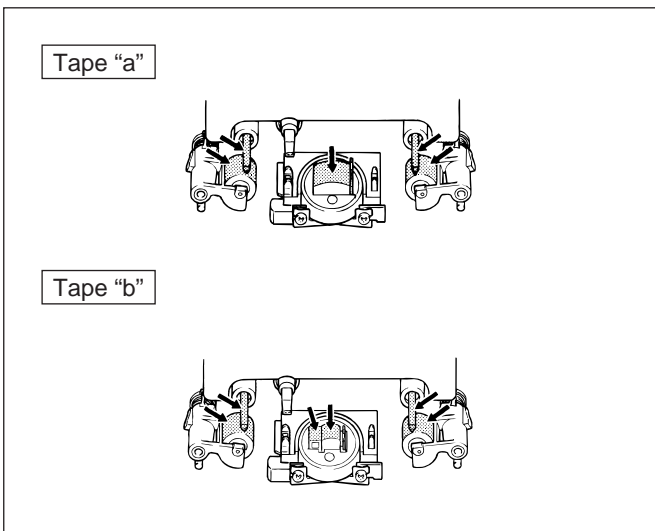
Internal care

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

External care

- Periodically wipe the cabinet with a soft cloth and dilute soap solution, then wipe with a dry cloth.
- Do not use chemically treated cleaning cloths or other chemicals. (See "Precautions".)

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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.

■ Tuner/CD player section

Power source .... AC supplies from amplifier unit
Input sensitivity and input impedance ..... AUX; 200 mV/47 kohms
Load impedance .... Headphones; 16 – 50 ohms
(recommended; 32 ohms)
Dimensions .... Width; 277 mm (10-7/8")
Height; 114.5 mm (4-1/2")
Depth; 258.5 mm (10-3/16")
Weight .... 2.3 kg (5 lbs. 1 oz.)

(Tuner)

Frequency range
FM .... 87.5 – 108.0 MHz
AM (MW/LW)
[U.S.A. and Canada models] .... AM; 530 – 1,720 kHz
[Australia and General models] .... AM; 530 – 1,620 kHz
[U.K. and Europe models] .... MW; 522 – 1,620 kHz
LW; 153 – 281 kHz

Sensitivity
FM .... 1.0 μV
AM (MW/LW)
[U.S.A., Canada, Australia and General models]
.... AM; 500 μV/m
[U.K. and Europe models] .... MW; 500 μV/m
LW; 560 μV/m

(Compact disc player)

Type .... Compact disc player
Signal readout .... Non-contact, 3-beam semi-conductor
laser pick-up
Rotation speed .... 200 – 500 rpm CLV, Approx.
Error correction ....CIRC (Cross Interleave Reed-Solomon Code)
D/A converter 16-bit
Filter ....4-time oversampling digital filter active filter
Frequency response .... 20 – 20,000 Hz
Wow and flutter ....Unmeasurable (less than 0.001% W. peak)

■ Amplifier section

Power Supply
[U.S.A. and Canada models] .... AC 120V, 60 Hz
[Australia and U.K. models] .... AC 240V, 50 Hz
[Europe model] .... AC 230V, 50 Hz
[General model] .... AC 110/120/220/240V, 60/50 Hz
Power consumption
[U.S.A. model only] .... 120 W
[Canada model only] .... 165 W
[Australia, Europe, U.K. and General models] .... 125 W
Continuous power output
[U.S.A. and Canada models]
.... 2 x 35W, 40 Hz – 20 kHz, 6 ohms, 0.9% T.H.D.
[Australia and General models]
.... 2 x 50W, 1 kHz, 6 ohms, 10% T.H.D.
[U.K. and Europe models]
.... 2 x 42W, 1 kHz, 6 ohms, 0.9% T.H.D.
2 x 40W, 1 kHz, 6 ohms, 0.7% T.H.D. (DIN)
Load impedance .... Speakers; 6 ohms
Dimensions .... Width; 277 mm (10-7/8")
Height; 114.5 mm (4-1/2")
Depth; 304 mm (11-15/16")
Weight .... 5.0 kg (11 lbs.)

■ Tape Deck Section

Power source .... AC supplies from amplifier unit
Tape .... Compact cassette tape
Frequency response (Playback) ..... 30 – 13,000 Hz (Normal tape)
30 – 14,000 Hz (CrO_2 tape)
Signal/noise ratio .... 64 dB (Dolby B NR ON)
72 dB (Dolby C NR ON)
Dimensions .... Width; 277 mm (10-7/8")
Height; 114.5 mm (4-1/2")
Depth; 251.5 mm (9-7/8")
Weight .... 2.7 kg (5 lbs. 15 oz.)

■ Speaker section

Type .... Active Servo Processing type
Speakers .... 12 cm (4-3/4") woofer
5 cm (2") tweeter
Frequency range .... 40 – 20,000 Hz
Maximum power handling capacity 50W
Impedance .... 6 ohms
Dimensions .... Width; 180 mm (7-1/16")
Height; 342.5 mm (13-1/2")
Depth; 219.5 mm (8-5/8")
Weight .... 3.5 kg (7 lbs. 11 oz.)/each

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
AMPLIFIER	No power even if the POWER switch is pressed.	AC supply lead is not plugged in.	Plug in AC supply lead.
	No sound from one speaker	Loose speaker connections.	Connect properly.
	No sound from speakers.	Internal protection circuit is functioning.	Unplug AC supply lead from the wall AC outlet, and then plug in again.
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 (LW or MW) broadcasts.	Interference from source such as lightning, flourescent lights, electric motors or thermostat of nearby electrical appliance.	Problem is difficult to eliminate but can be lessened by grounding MW/LW (AM) loop antenna.
		TV or microprocessor is being used nearby.	Move away from TV or microprocessor.
	AM (LW or MW) broadcast sensitivity is poor. Can't set timer.	Radio signal is weak or antenna is not properly connected.	Properly connect MW/LW (AM) loop antenna.
			Change orientation of MW/LW (AM) loop antenna.
			Install an external MW/LW (AM) antenna.
	Can't set timer.	Current time is not set.	Set current time.
	Timer doesn't function as expected.	Power is turned off using the POWER switch.	After setting timer, turn power off using the TIMER button.
CD PLAYER	Play does not begin even if disc is loaded.	Disc is upside down.	Load disc label side up.
		Disc is dirty.	Clean disc.
	No sound.	Input selector setting is incorrect.	Select the CD position of the input selector.
	Sound stops suddenly (always at same spot).	Disc is dirty.	Clean disc.
		Volume set too high.	Lower volume.
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.	Erasure prevention tab is broken off.	Replace tape or cover erasure 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.	DOLBY NR switch is set to wrong position.	Set to positions matching those used when tape was recorded.
	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 specific selections on tape.	Silent gaps between selections are too short.	The music search function 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 30° radius.
		Direct sunlight or lighting (of an inverter type of flourescent 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 infrared photo sensor.	Move TV farther away or cover its infrared photo sensor.

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