

⚠ Caution: Read this page carefully to ensure safe operation.

Before applying power

For the U.S.A. and Canada

Important!

Units shipped to the U.S.A. and Canada are designed for operation on 120 volts AC only.

Safety precaution for a Polarized AC plug

However, some products may be supplied with a non-polarized plug.

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

For the United Kingdom

Important!

Units shipped to the U.K. are designed for operation on 230 volts AC only.

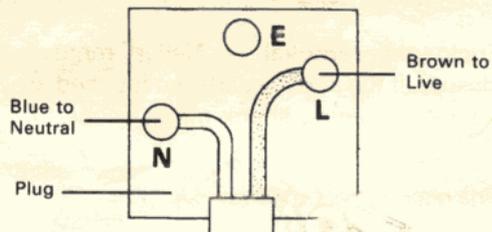
The plug must be removed from the wall socket prior to internal examination.

The wires in this mains lead are coloured in accordance with the following code:

Blue Neutral
Brown Live

The wires in this mains lead must be connected to the terminals in the plug as follows:

Wire colour	Plug terminal marking
Blue	N or Black
Brown	L or Red



Notes:

1. If a 13-amp plug is used, a 13-amp fuse must be used.
2. If a 3-pin plug is used, the earth wire must be connected.

For Australia and Europe

Important!

Units shipped to Australia are designed for operation on 240 V AC only.

Units shipped to Europe are designed for operation on 220 V AC only.

For other countries

Important!

Units shipped to countries other than the above countries are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of this switch.

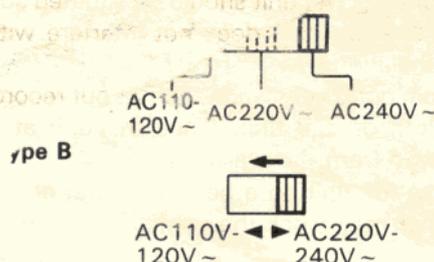
AC voltage selection

This unit operates on 110-120 or 220-240 volts AC. The AC voltage selector switch Type A or Type B on the rear panel is set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.

Note:

Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC voltage selector switch.

AC voltage selector switch



Move switch lever to match your line voltage with a small screwdriver or other pointed tool.

Warnings

PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



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.



THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.



THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.

IMPORTANT SAFEGUARDS

⚠ Caution : Read this page carefully to ensure safe operation.

Please read all of the safety and operating instructions before operating this unit. For best results, follow all warnings placed on the unit and adhere to the operating and use instructions. These safety and operating instructions should be retained for future reference.

1. 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 appliance.

2. 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, pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Never pull or stretch the cord.



3. Grounding or polarization — The precautions should be taken so that the grounding or polarization means of this unit is not defeated.

4. Ventilation — The unit should be situated so that its location or position does not interfere with its proper ventilation.

To maintain good ventilation, do not put records or a table-cloth on the unit. Place the unit at least 10 cm away from the walls.

Do not use the unit on a bed, sofa, rug or similar surface that may block the ventilation openings.

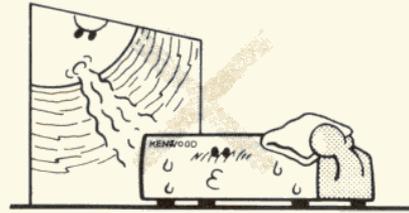


5. Water and moisture — The unit should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

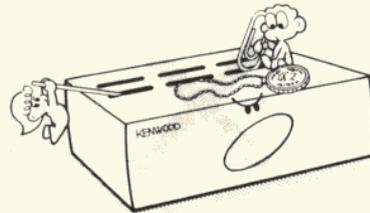


6. Temperature — The unit may not function properly if used at extremely low, or freezing temperatures. The ideal ambient temperature is above +5°C (41°F).

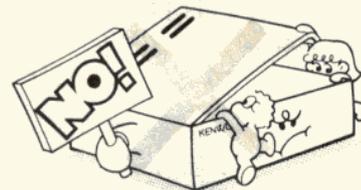
7. Heat — The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.



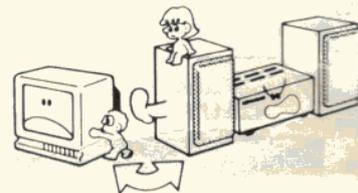
8. Electric shock — Care should be taken so that objects do not fall and liquid is not spilled into the enclosure through openings. If a metal object, such as a hair pin or a needle, comes into contact with the inside of this unit, a dangerous electric shock may result. For families with children, never permit children to put anything, especially metal, inside this unit.



9. Enclosure removal — Never remove the enclosure. If the internal parts are touched accidentally, a serious electric shock might occur.



10. Magnetic fields — Keep the unit away from sources of magnetic fields such as TV sets, speaker systems, radios, motorized toys or magnetized objects.



11. Cleaning — Do not use volatile solvents such as alcohol, paint thinner, gasoline, or benzene, etc. to clean the cabinet. Use a clean dry cloth.



12. Carts and stands — An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



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. Abnormal smell — If an abnormal smell or smoke is detected, immediately turn the power OFF and pull out the power cord. Contact your dealer or nearest service center.

POWER OFF!



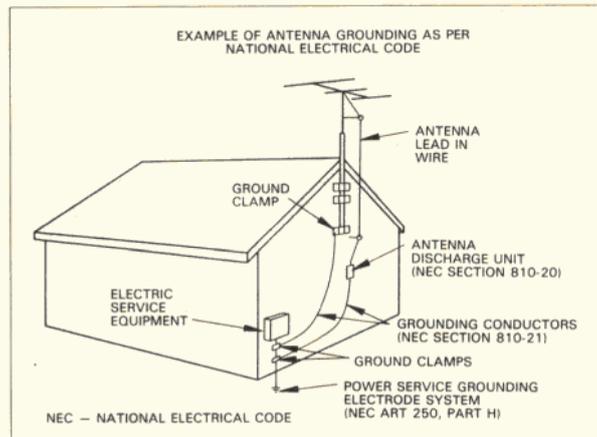
15. Damage requiring service — The unit should be serviced by qualified service personnel when:

- 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 enclosure damaged.

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

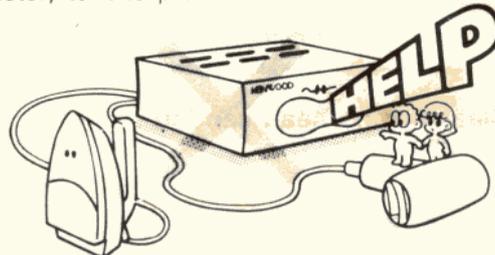
17. Outdoor antenna grounding — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/ NFPA No. 70—1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding con-

ductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure.



18. Power lines — An outdoor antenna should be located away from power lines.

19. AC outlets — Do not connect other audio equipment with a power consumption larger than that specified to the AC outlet on the rear panel. Never connect other electrical units, such as an iron or toaster, to it to prevent fire or electric shock.



The maximum capacities indicated for the AC outlets on the rear panel of this unit are as follows:

SWITCHED outlets ; 200 W

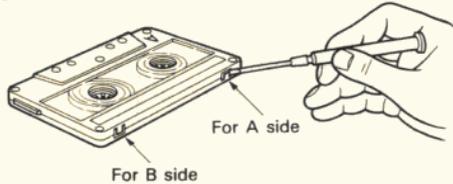
Notes:

- 1. Item 3 is not required except for grounded or polarized equipment.
- 2. Item 17 and 18 are not required except for units provided with antenna terminals.
- 3. Item 17 complies with UL in the U.S.A.

Before operation

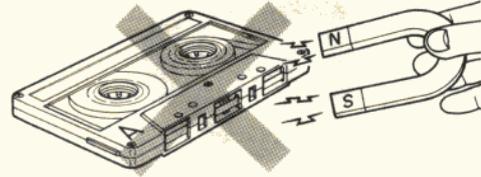
■ Notes on cassette tape

- **Safety tab** (accidental erasure prevention tab):
After an important recording has been finished, break the safety tab, to prevent the recorded contents from being erased or recorded on accidentally.



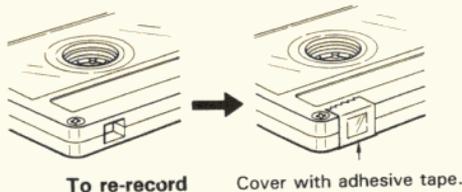
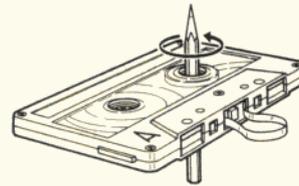
- **To store cassette tapes:**

Do not store the tapes in a place which is subject to direct sunlight, or near equipment that generates heat. Keep the cassette tapes away from any magnetic field.



- **When there is slack in the tape:**

In such a case, insert a pencil into the reel hole and wind the reel hub to remove the slack.



Notes:

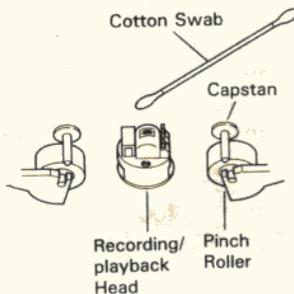
1. 120-minute cassette tape:

Since a 120-minute cassette tape is very thin, the tape could adhere to the pinch roller or be easily cut. It is recommended that these tapes not be used with this unit to prevent possible damage.

2. Endless tapes:

Do not use an endless tape, as this could damage the mechanism of the unit.

■ Cleaning the head section



Cleaning the heads and peripheral components:

For maintaining the best condition of the deck and for longer service life, always keep the erase head, recording/playback head, capstan and pinch roller clean. To clean them, perform the following:

1. Open the cassette holder
2. Using a cotton swab dipped in alcohol, clean the erase head, recording/playback head, capstan and pinch roller carefully.

Demagnetizing the head

When the recording/playback head is magnetized, the sound quality will be deteriorated. In such a case, demagnetize the head using a commercially available demagnetizer (head eraser).

Note:

There are precisely aligned parts around the heads, including the tape guides. When cleaning, pay special attention so as not to apply shock to them.

■ Beware of condensation

When water vapor comes into contact with the surface of cold material, water drops are produced.

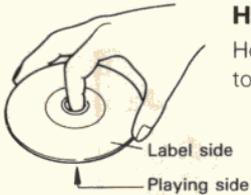
If condensation occurs, correct operation may not be possible, or the unit may not function correctly.

This is not a malfunction, however, and the unit should be dried. (To do this, turn the POWER switch ON and leave the unit as it is for several hours.)

Be especially careful in the following conditions:

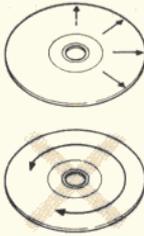
- When the unit is brought from a cold place to a warm place, and there is a large temperature difference.
- When a heater starts operating.
- When the unit is brought from an air-conditioned place to a place of high temperature with high humidity.
- When there is a large difference between the internal temperature of the unit and the ambient temperature, or in conditions where condensation occurs easily.

■ Disc handling precautions



Handling
Hold compact discs so that you do not touch the playing surface.

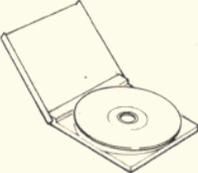
Label side
Playing side



Cleaning
If fingerprints or foreign matter become attached to the disc, lightly wipe the disc with a soft cotton cloth (or similar) from the center of the disc outwards in a radial manner.



Do not attach paper or tape to either the playing side or the label side of compact discs.



Storage
When a disc is not to be played for a long period of time, remove it from the CD player and store it in its case.

■ FM DE-EMPHASIS/CHANNEL SPACE switch (Except for some areas)

The FM DE-EMPHASIS/CHANNEL SPACE switch on the rear panel is set to the correct setting that prevails in the area to which the unit is shipped. However, if the FM DE-EMPHASIS/CHANNEL SPACE setting is not matched to the area where the unit is to be used: for instance, when you moved from area 1 to area 2 or vice versa, desired reception of AM/FM broadcasts is not expected. In this case, change the FM DE-EMPHASIS/CHANNEL SPACE setting in accordance with the area corresponding to the table shown below. The FM DE-EMPHASIS is switched over at the same time.

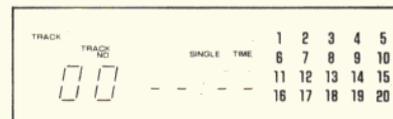
Area	CHANNEL SPACE freq.	FM DE-EMPHASIS
1. U.S.A, Canada, Hawaii, South american countries	FM: 100 kHz AM: 10 kHz	75 μ s
2. Other countries	FM: 50 kHz AM: 9 kHz	50 μ s



■ Caution after transport or carriage of the CD player

When the CD player was transported or carrier to another place, please perform the following operation to check it.

- 1 Turn the power ON without putting a disc in the unit.
- 2 Wait several seconds, and check that the display shown below appears.



- 3 Turn the power OFF.

Note:

When changing the setting of the FM DE-EMPHASIS/CHANNEL SPACE switch, first disconnect the power cord, then reset the channel space switch, connect the power cord again, and turn the power on.

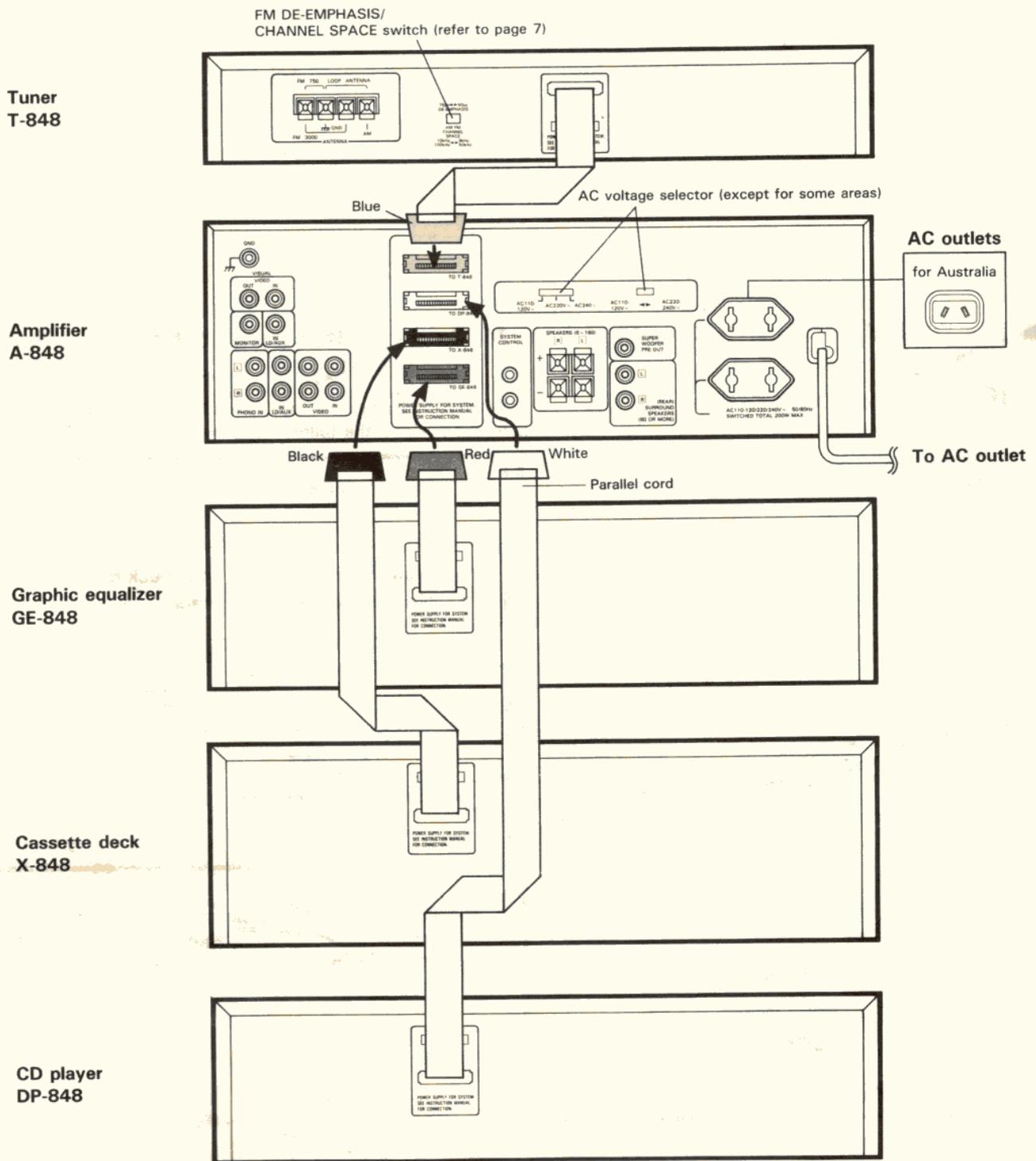
System connections

Basic system connections

Make connection as shown below. When connecting the related system components, refer also to the instruction manuals of the related components.

When connecting the parallel cord, be sure to match the colors of the sockets.

Do not plug in the power lead until all connections are completed.



■ Connection of parallel cord

incorrect connection X

correct connection O

- Hold the connector of the parallel cord in parallel with the socket on the rear panel, and insert securely until it clicks.
- Connect the parallel cord by matching the colors of the connector and socket.

When unplugging the parallel cord
Push and hold the two ends of the connector and pull the connector straight from the rear panel socket.

■ Connection of turntable (KENWOOD P-63 optional)

P-63

Audio cord

Power cord

System control cord

ACT: 120V

SYSTEM CONTROL

TO Y-848

TO GP-848

TO X-848

TO GE-848

POWER SUPPLY FOR SYSTEM SEE INSTRUCTION MANUAL FOR CONNECTION.

for Australia

incorrect connection X

correct connection O

- Be sure to insert the system control cord plugs fully into the SYSTEM CONTROL terminals.
- If the system control cord and audio cords are not connected properly, the automatic system governing remote control and system functions will not operate.

* IMPORTANT:

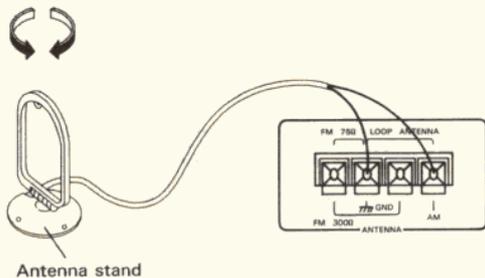
This option may not be available in some areas. For details on options, consult your dealer.

Notes:

1. Connect all cords firmly. If connections are loose there could be loss of sound or noise produced.
2. Do not connect up a power source which is larger than that indicated on the socket at the rear of the unit.
3. When plugging and unplugging connection cords after connections are complete, be sure to first remove the power cord from the AC outlet. Plugging/unplugging connection cords without removal of the power cord can cause malfunctions or damage to the unit.

AM loop antenna connection

The supplied antenna is for indoor use. Place it as far as possible from the main system. TV set, speaker cords and power cord, and set it to a direction which provides the best reception.



FM indoor antenna connection

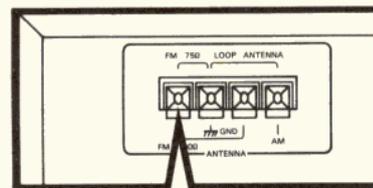
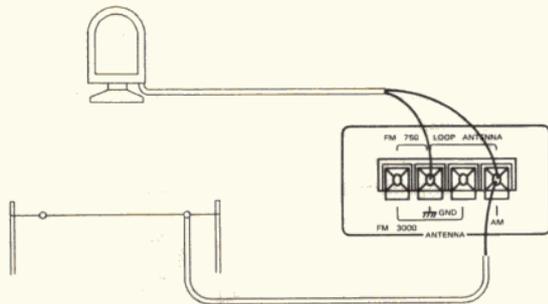
The supplied antenna is for indoor use. For stable reception, remove the indoor antenna after installing an outdoor antenna as soon as possible.

- ① Find the position that provides best reception.
- ② Fix two ends with thumbtacks or drawing pins.



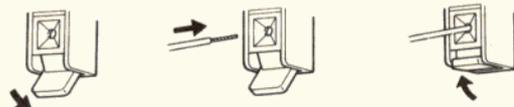
AM outdoor antenna connection

If the reception is poor when the AM loop antenna is used, distribute a vinyl-coated wire of more than 6 meters outdoors, without disconnecting the loop antenna.



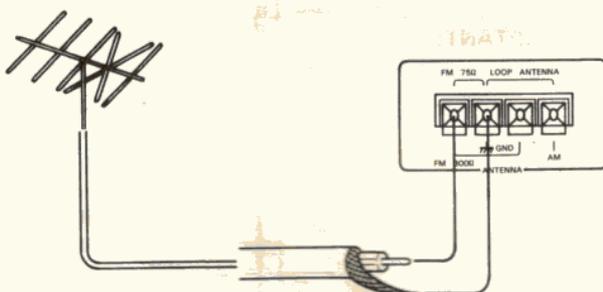
Connection method to each antenna terminal

- ① Push lever down.
- ② Insert conductor.
- ③ Return lever up.



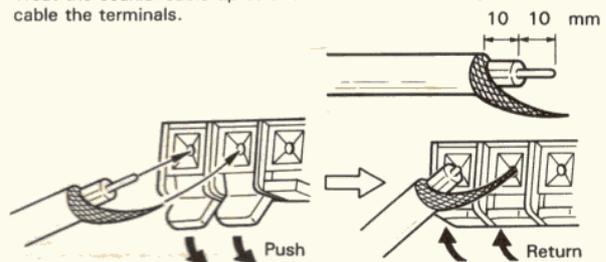
FM outdoor antenna connection

It is recommended to install an exclusive FM outdoor antenna to capture FM broadcasts with high sound quality. Use a coaxial cable for the connection between the outdoor antenna and FM ANTENNA terminal on the rear panel. For the connection between the coaxial cable and FM ANTENNA terminal, please refer to the illustration.

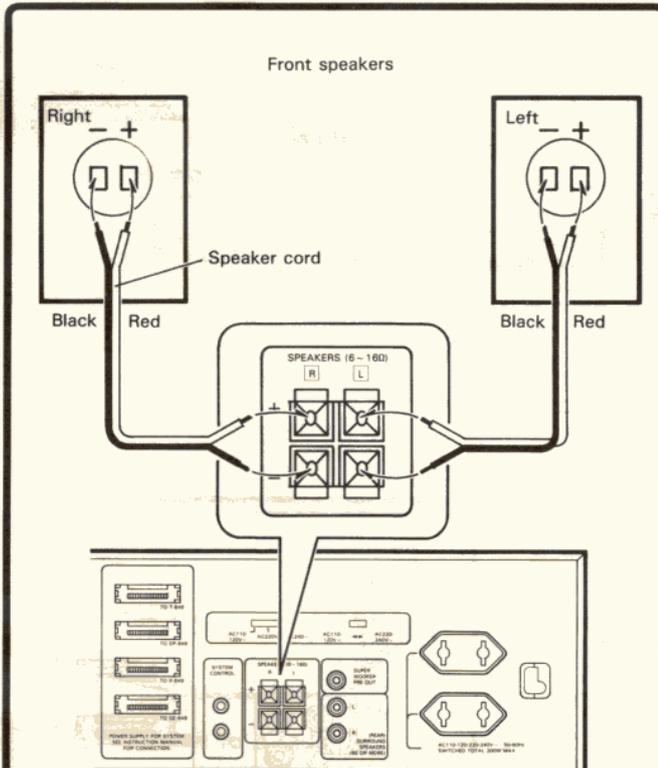


Connection of coaxial cable

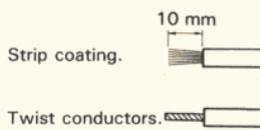
Treat the coaxial cable tip as shown in the illustration, and fit the cable the terminals.



■ Connection of speakers



① Process the cord.



Strip coating.

Twist conductors.

③ Insert cord.



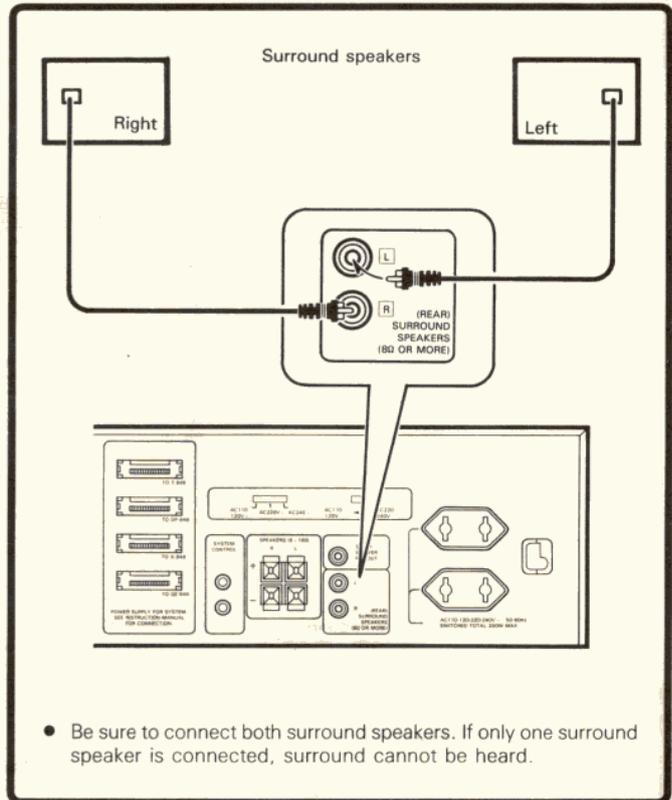
② Push lever up.



④ Lock lever.

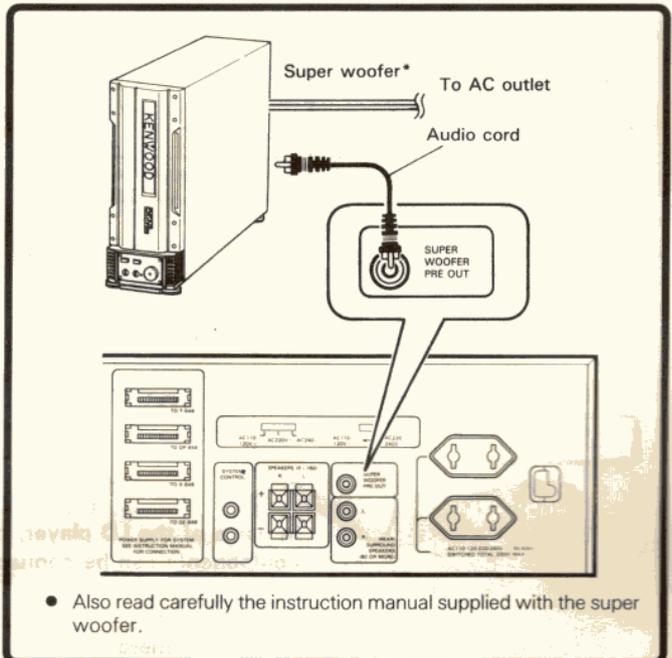


■ Connection of surround speakers (KENWOOD optional)



- Be sure to connect both surround speakers. If only one surround speaker is connected, surround cannot be heard.

■ Connection of super woofer (KENWOOD optional)



- Also read carefully the instruction manual supplied with the super woofer.

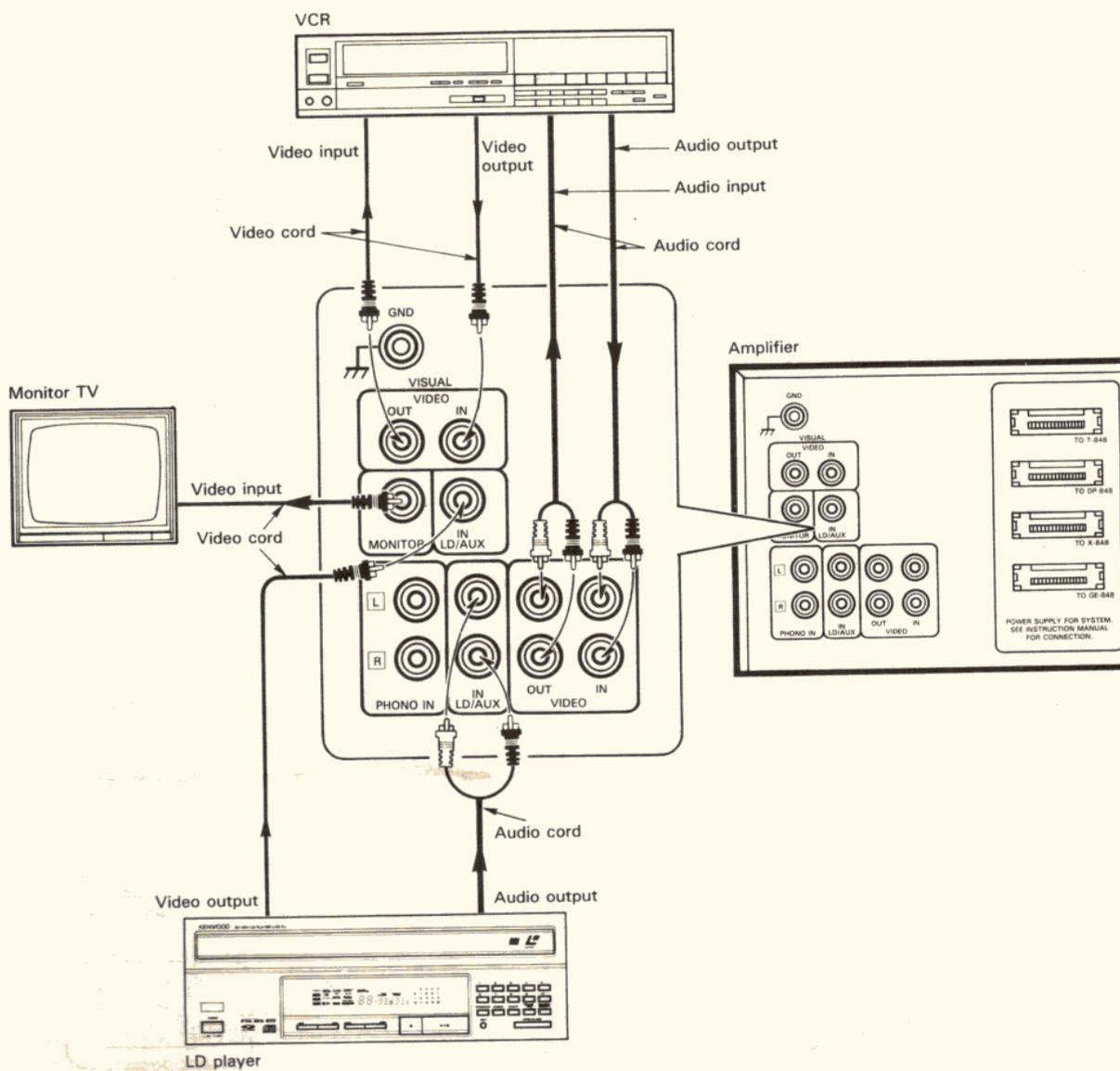
Notes:

1. Never short-circuit the + and - speaker cords.
2. If the left and right speakers are connected inversely or if the speaker cords are connected with reversed polarity, the sound becomes unnatural with ambiguous acoustic image positioning. Be sure to connect the speakers and speaker cords correctly.

*IMPORTANT:

This option may not be available in some areas. For details on options, consult your dealer.

■ Connection of Audio/Visual components (optional)



In place of the LD player, one of the following video components can be connected to the LD/AUX jacks.

- DBS tuner
- Video camera
- Videocassette playback-only deck

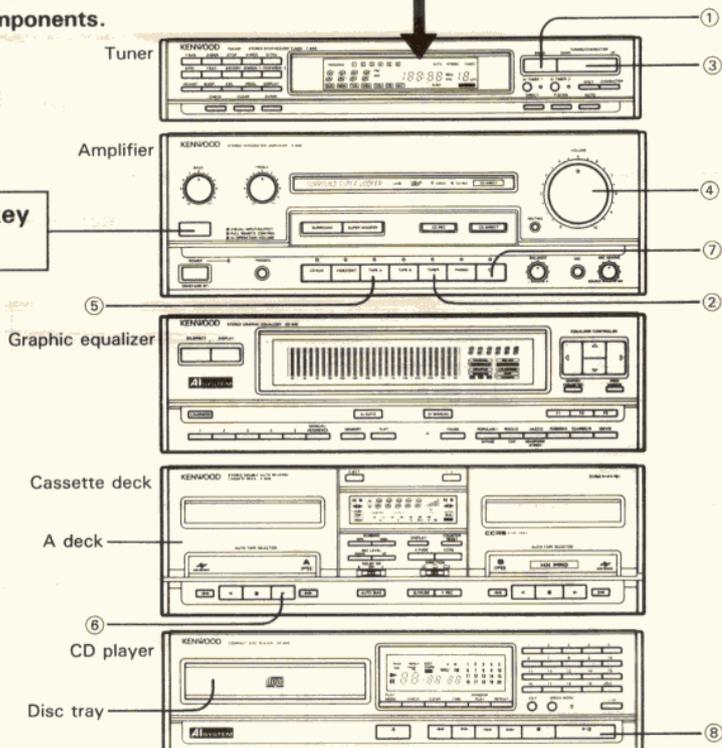
● Connection cords are not supplied with this system.

Listening to sound

For details, also refer to the instruction manuals provided with the connected components.

Blinks! For setting the clock, please read page 55.

Press the **POWER** key of the amplifier.

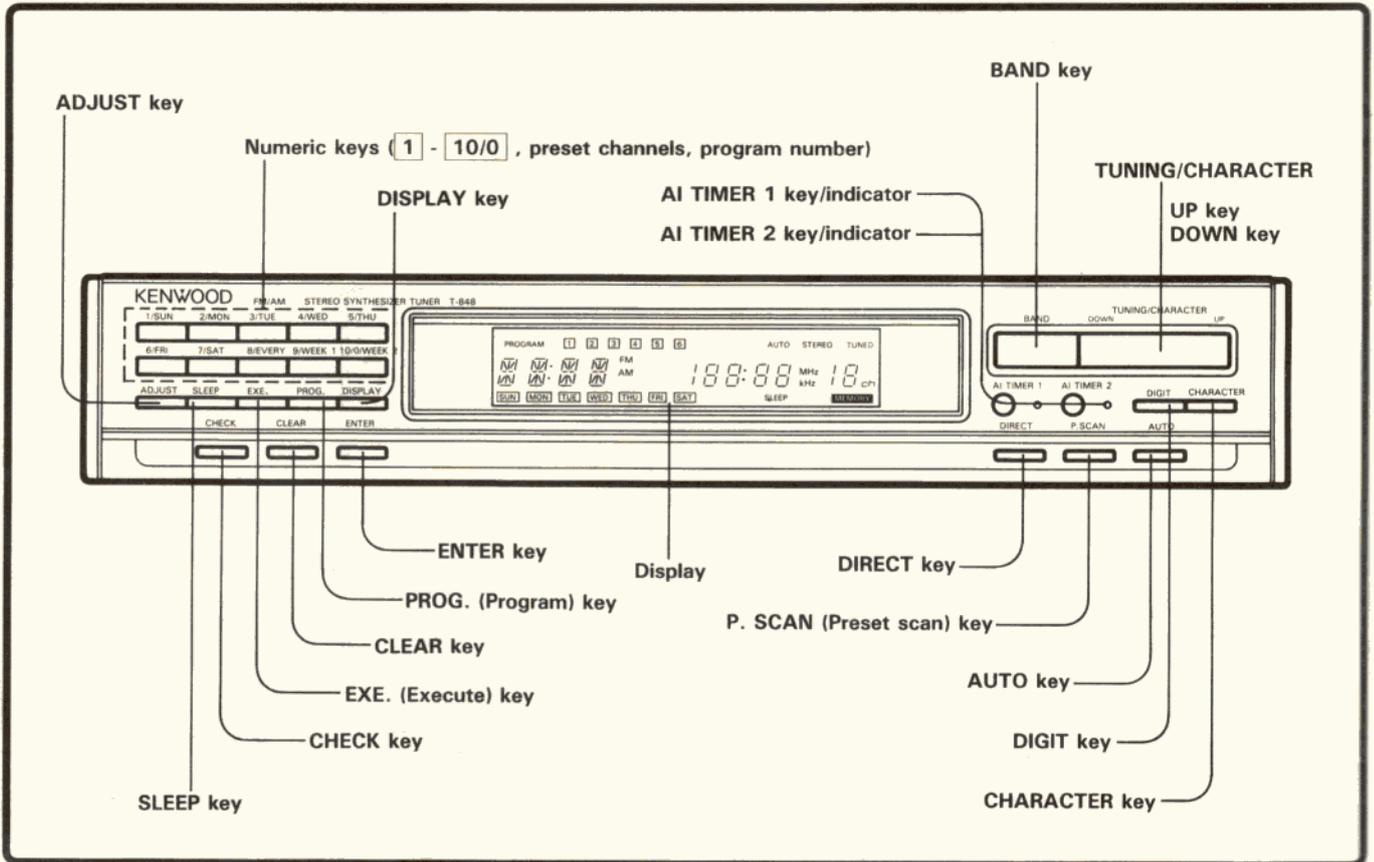


	To listen to a radio broadcast	To listen to a tape	To listen to a CD
1	<p>Select the tuner input. Press the TUNER key ① or BAND key ①.</p>	<p>Insert a tape in Deck A.</p>	<p>Place a CD on the tray.</p>
2	<p>Select a station. Press the TUNING UP or DOWN key ③.</p>	<p>Play the tape. Press the TAPE A key ⑤, or press the play key ⑥.</p>	<p>Play the CD. Press the CD key ⑦, or press the play/pause key ⑧.</p> <p>Adjust the volume.</p>
3	<p>Adjust the volume.</p>		

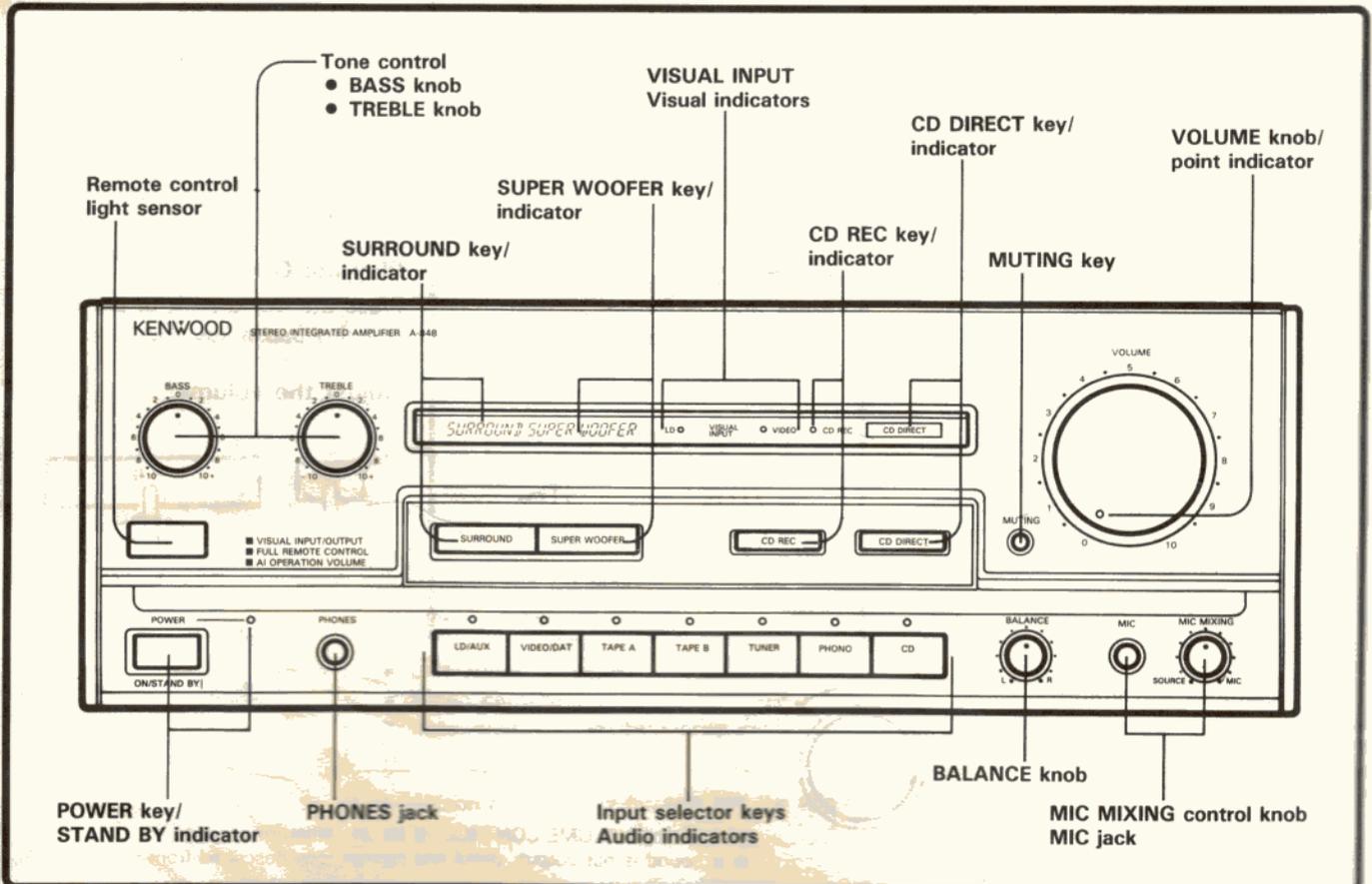
- Turn the **VOLUME CONTROL** ④ for an optimum volume.
- If sound is not output, check the connections described from page 6 again.

Controls and indicators

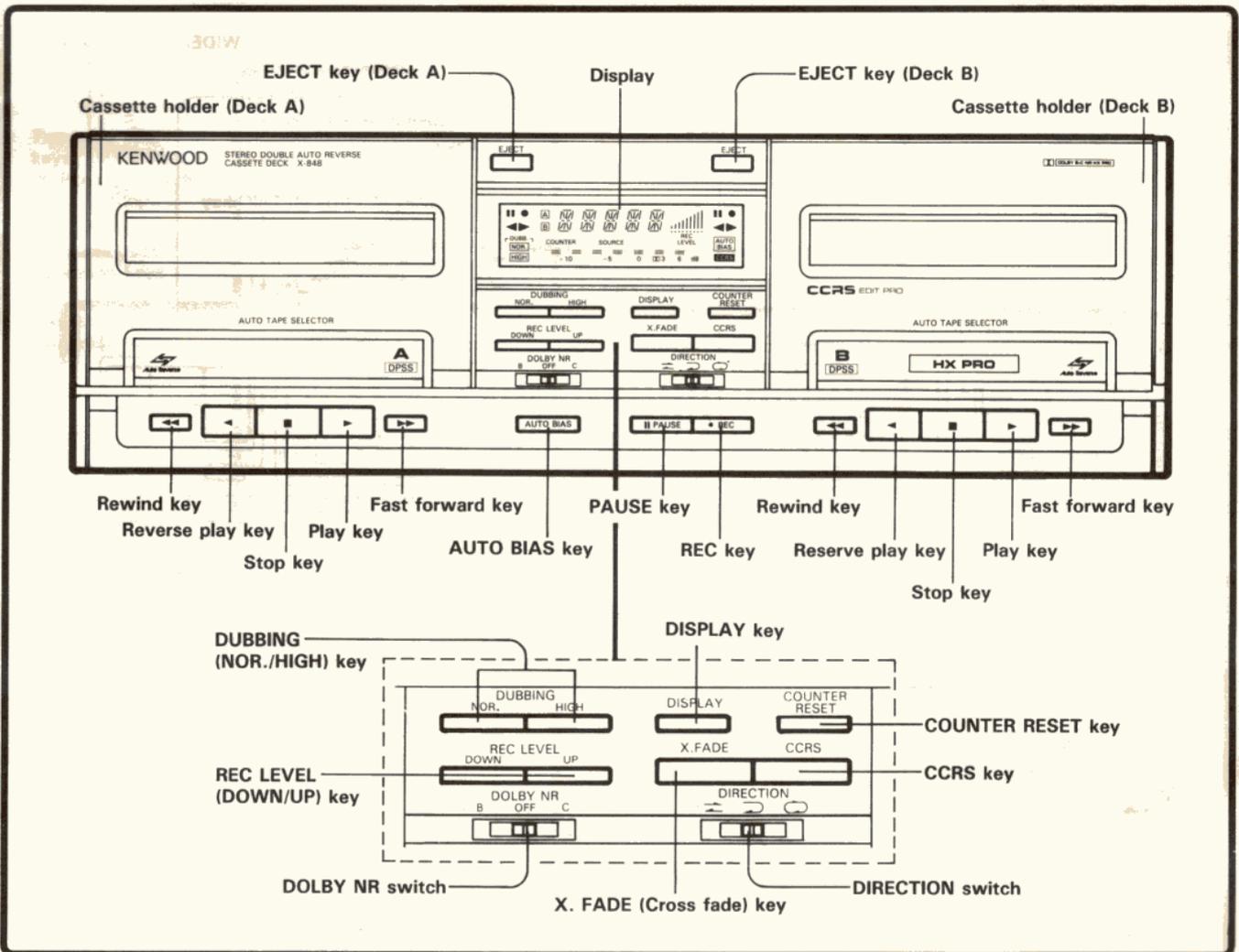
Tuner



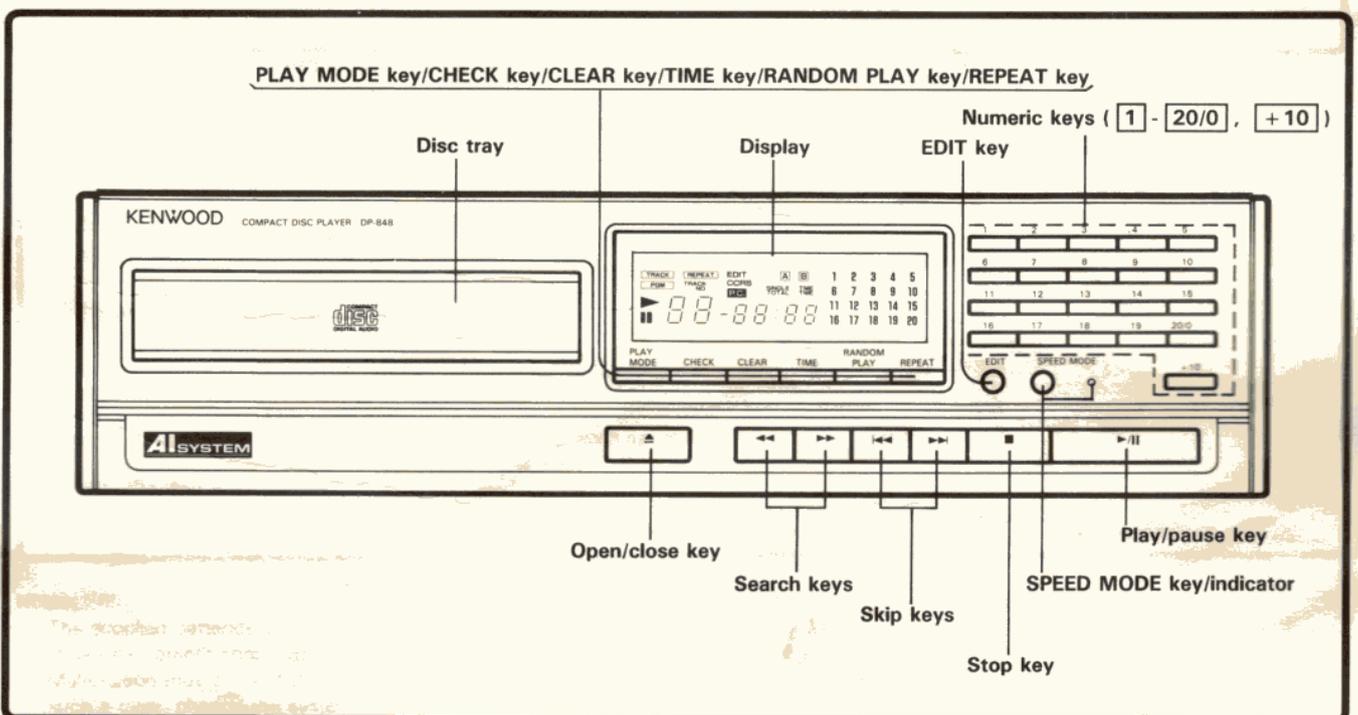
Amplifier



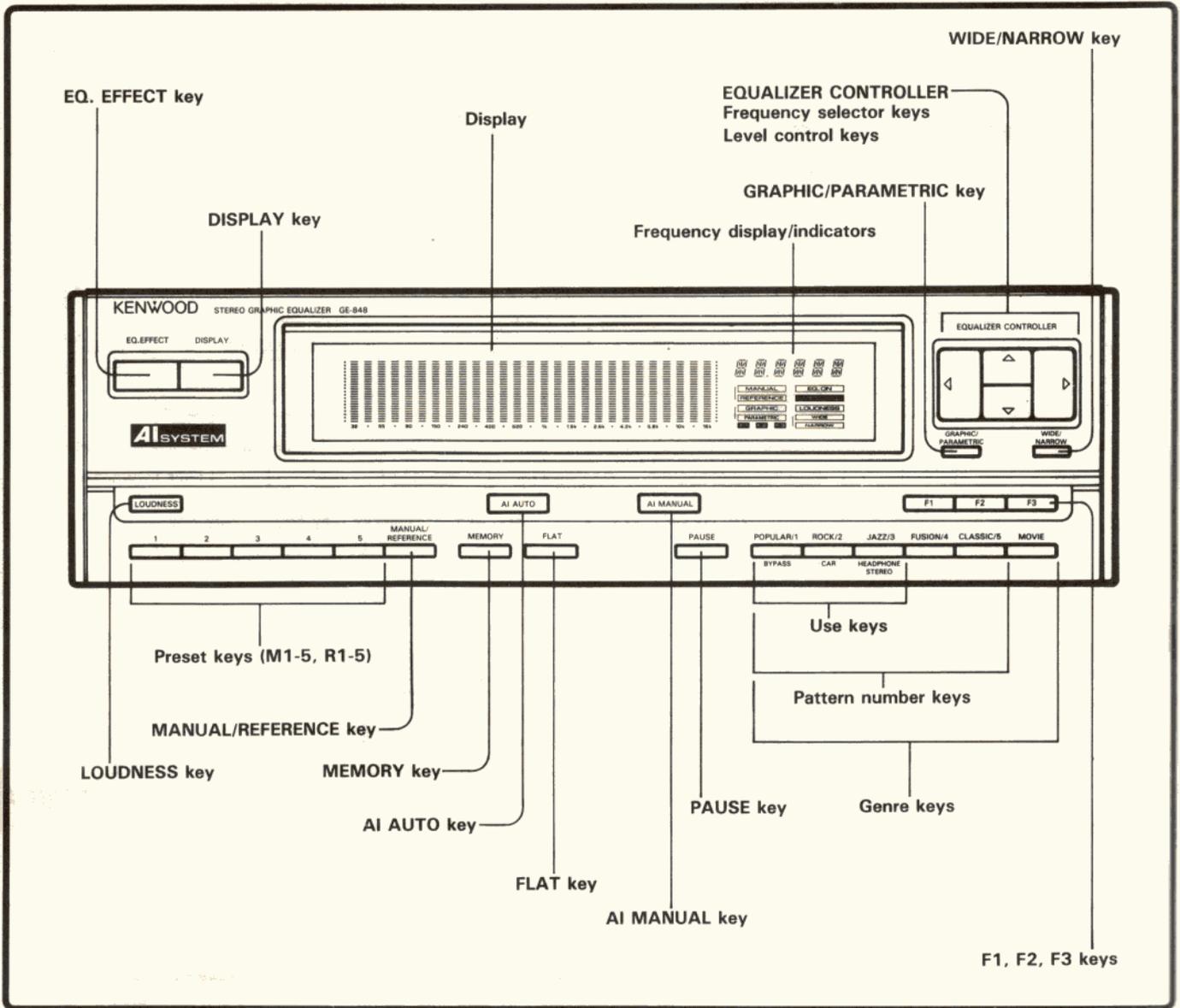
Cassette deck



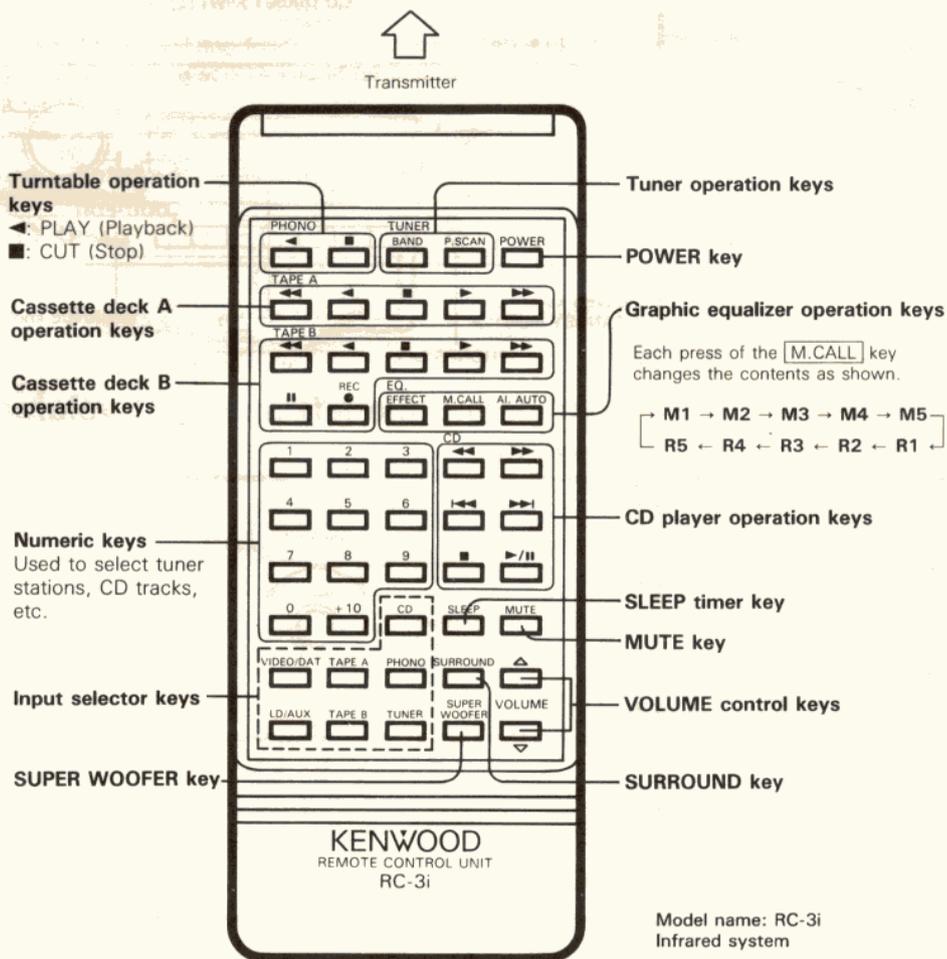
CD player



Graphic equalizer

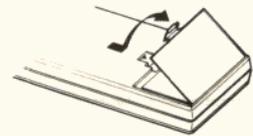


Operation of remote control unit

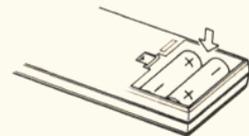


■ Loading batteries

1 Remove the cover.

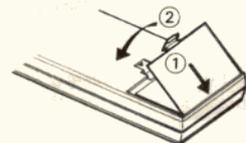


2 Insert batteries.



Insert two AA-size (R6/SUM-3) batteries as indicated by the polarity marking.

3 Close the cover.

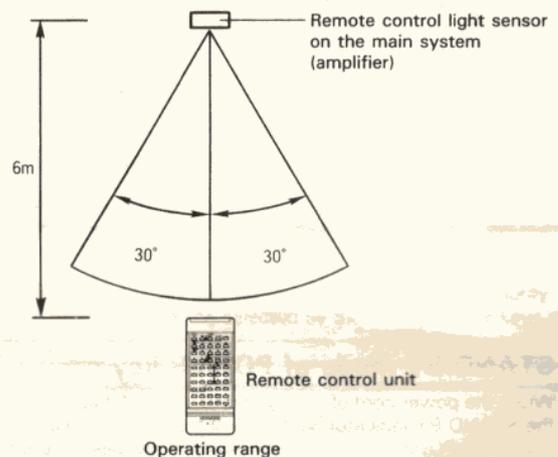


■ Operation procedure

Plug the power cord of the system into an AC wall outlet, and press the **POWER** key on the remote control unit to turn the power on.

When the power is turned on, press the key of the source component to be operated.

- When two operation keys on the remote control unit are pressed successively, press each key securely reserving an interval of more than 1 second for each press.
- Components connected via the system control cords, such as the turntable, can also be remote-controlled. In this case, please read the instruction manual supplied with your turntable.



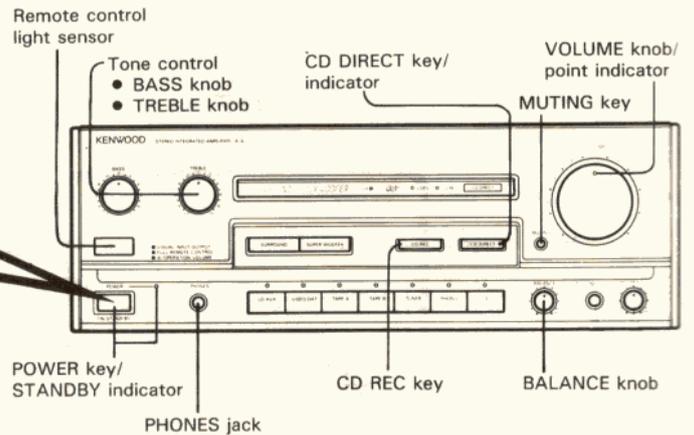
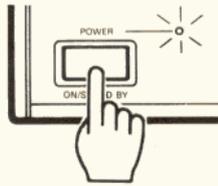
Notes:

1. The supplied batteries are intended for use in operation checks. Therefore, their lives may be shorter than ordinary batteries.
2. When the remote-controllable distance gets shorter than before, replace both batteries with new ones.
3. Malfunction may occur if direct sunlight or the light of a high-frequency lighting fluorescent lamp enters the remote control light sensor. In such a case, change the system installation position to prevent the malfunction.

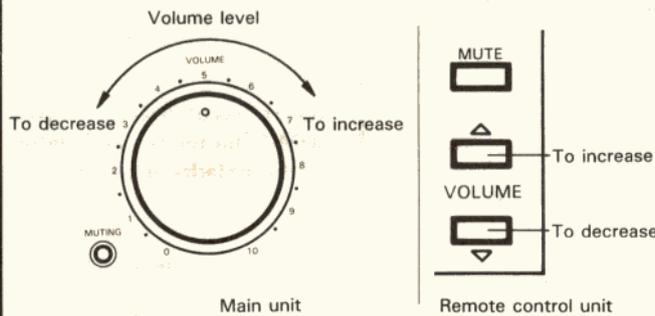
Operation of amplifier

Press the POWER switch of the amplifier.

- The POWER key on the amplifier can switch on/off the powers of main system.

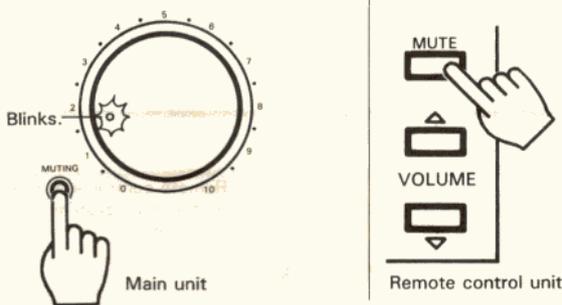


Volume adjustment



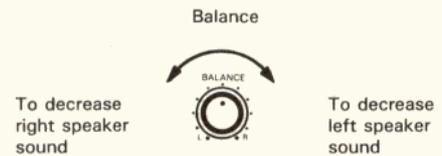
- When the volume is adjusted from the remote control unit, the point indicator on the VOLUME control blinks and rotates together with the control knob.

To mute sound temporarily

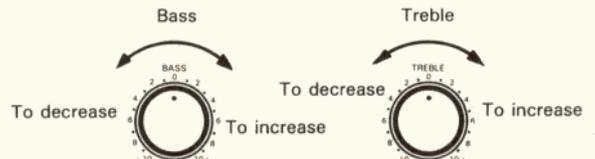


- Pressing the key again resumes the previous volume.

Adjusting the left and right volume balance



Adjusting the tone



- When a graphic equalizer is used, also read its description on page 26 and after.

STAND BY mode of POWER key

When the power cord of this system is plugged into an AC outlet, the STAND BY indicator lights up regardless of the ON/OFF setting of the POWER key. This indicates that a small amount of current is being supplied to the unit to back up the memory contents and support the timer function. This mode is referred to as the Stand By mode. While the STAND BY indicator is lit, the power of the system can be switched ON/OFF from the remote control unit.

Automatic play Operation function associated with input selector keys of amplifier

The Automatic play operation allows to starts playing the selected input source by simply pressing the input selector key (TAPE A, TAPE B, TUNER, CD or PHONO). It also allows to select a correct input selector key on the amplifier by simply starting playback on the desired input source component.

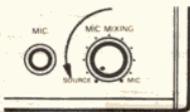
The same operation is also possible with the input selector keys on the remote control unit.

The input source selected at the moment the power is switched ON is the last source (TUNER, CD, etc.) selected before switching the power OFF.

■ Microphone mixing

The microphone mixing function of this unit allows to talk or sign along with the source sound (broadcast, tape, CD, analog disc).

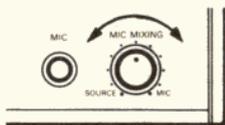
- 1 Set the MIC MIXING control to the SOURCE position.



- 2 Insert the microphone plug into the MIC jack.



- 3 Adjust the volume balance between the microphone and source sound.



Notes:

1. When the microphone is not to be used, set the MIC MIXING control to the <SOURCE> position.
2. It is not possible to record microphone-mixed sound of the Deck A to the Deck B.
3. In Cd recording mode, the microphone mixing operation cannot be carried out.

■ Recording microphone sound only

- 1 Remove any disc from the CD player, and select the CD input with the CD input selector key of the amplifier.

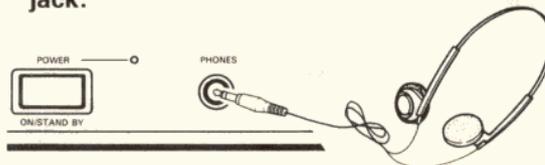
- 2 Set the MIC MIXING control to the MIC position.

- 3 Press the REC key of Deck B of the cassette deck to put the deck in Record mode.

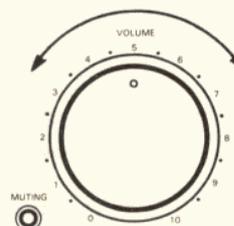
For the operating instructions on the CD REC key, please read page 53.

■ Listening through headphones

- 1 Insert the headphone plug into the PHONES jack.



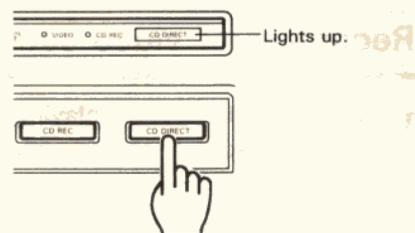
- 2 Adjust the volume.



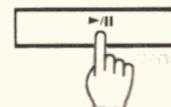
■ Operation of CD DIRECT key

The Compact Disc features an ideal reproduction characteristics, and the sound quality provided by CD can be reproduced with least degradation by means of the **CD DIRECT** key. When the **CD DIRECT** key is ON, the tone control and graphic equalizer circuits are invalidated and do not affect the sound.

- 1 Press the CD DIRECT key.



- 2 Play the CD player.



- The **CD DIRECT** function will play the CD source in priority to any other source being selected by the input selector keys.

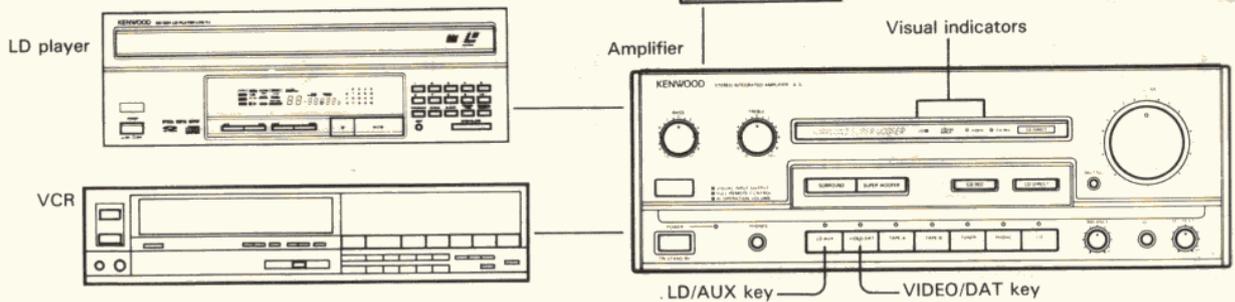
To cancel the CD DIRECT function

Press the **CD DIRECT** key again, or press an input selector key other than CD.

Operation with video components

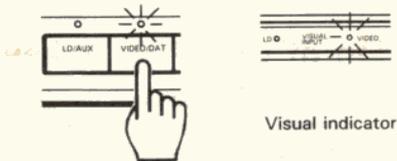
Please refer to page 12 for the connection of Audio/Visual components.

For the connection and operations, also read carefully the instruction manuals supplied with the video components to be connected.



■ Playback of videotape

- 1 Switch the power of the monitor TV ON.
- 2 Press the VIDEO/DAT input selector key of the amplifier.



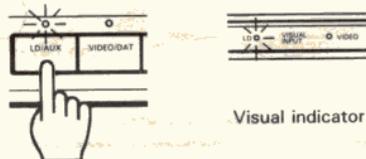
- 3 Play the video deck.

■ Recording of video source

- 1 Connect the video playing deck to the LD/AUX jacks of the amplifier.

- A DBS tuner, video camera or LD player can also be connected in place of the video playing deck.

- 2 Press the LD/AUX input selector key of the amplifier.

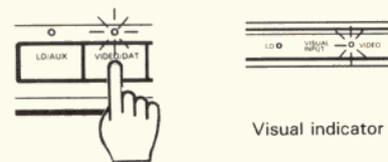


- 3 Put the video recorder deck in the record mode.

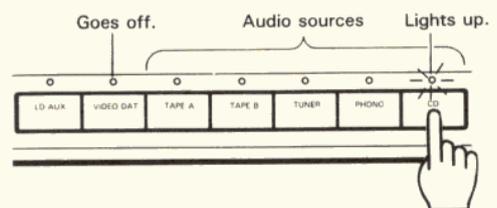
- 4 Play the component connected to the LD/AUX input jacks.

■ Listening to CD or tape sound while watching video or LD image

- 1 Select the video component the image of which is to be viewed.



- 2 Select the audio source the sound of which is to be listened to.



- Only the audio sound source is switched over while the image being displayed remains the same.

- 3 Play the selected video and audio components.

Note:
Release the LOUDNESS of GE-848 when videorecording. (Refer to page 28)

Surround and super woofer

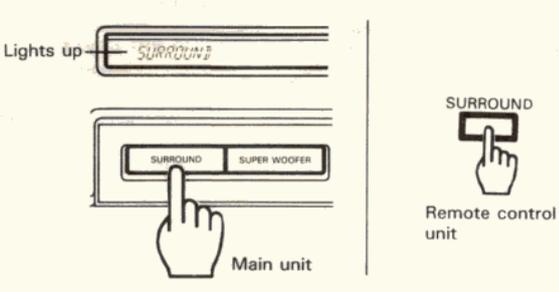
■ Surround play

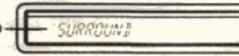
Connect optionally available surround speakers and set the **SURROUND** key to **ON** to obtain surround effect.

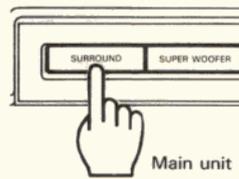
Note that the volume from the surround speakers may be small depending on the type of music source.

The surround effect cannot be obtained from monaural sources.

Press the SURROUND key



Lights up 

 Main unit

 Remote control unit

- Press again to return to normal sound.

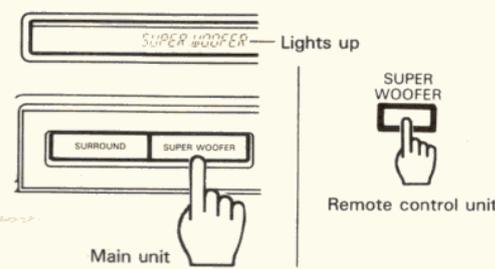
* IMPORTANT:

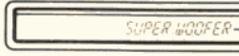
This option may not be available in some areas. For details on options, consult your dealer.

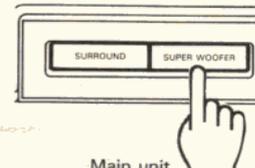
■ Improved bass with Super Woofer speaker

The lowest frequencies, or bass sound, will be made more lively and powerful by connecting an optional KENWOOD Super Woofer unit.

Press the SUPER WOOFER key



 Lights up

 Main unit

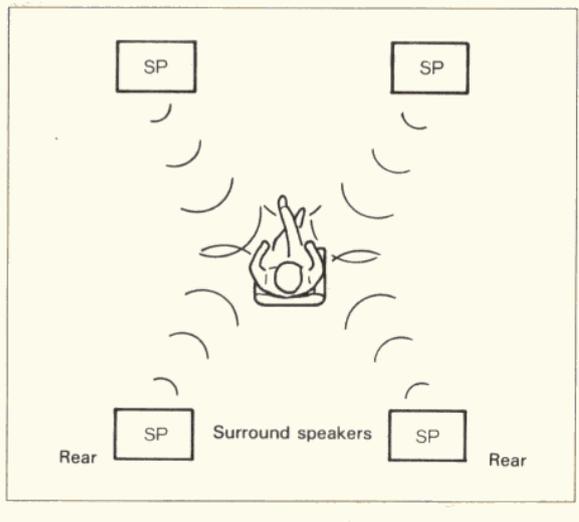
 Remote control unit

- This effect will further be enhanced when Surround speakers are connected as well.
- The Super Woofer volume can be adjusted to match the overall volume by the LEVEL control provided on the Super Woofer unit.
- The overall volume including the Super Woofer and Surround speakers can be adjusted simultaneously by the MASTER VOLUME controls of the amplifier.
- For more details, please read the instruction manual supplied with the optional super woofer unit.

Speaker arrangements

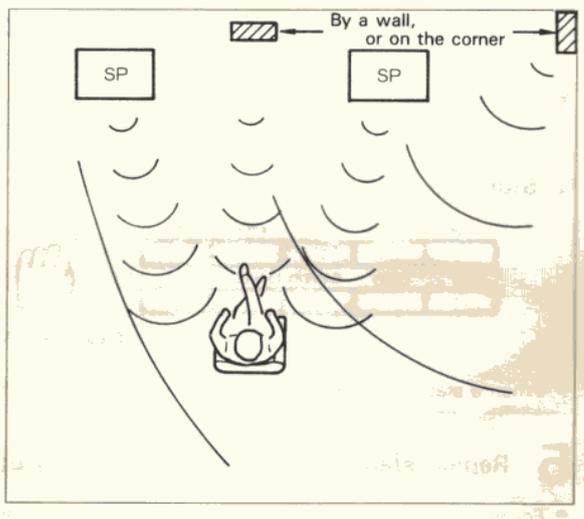
Rear speakers can be placed with various arrangements according to the listening room size and its reverberation characteristics.

The example shown on the left is a typical example among several arrangements which allow efficient enjoyment of Surround effects. In addition to it, other arrangements are also possible. Please install speakers according to your individual taste as well as to the listening room.



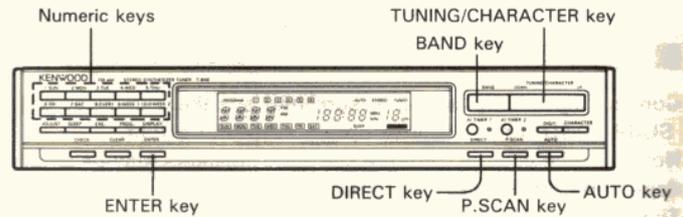
Arrangement of Super Woofer

The reproduction frequency of the Super Woofer is set to be below 120 Hz. Since the direction is not a significant factor for such low frequencies, the Super Woofer can be installed anywhere in the listening room. However, ideally, the best installation position may be near a hard wall or on the corner from which bass sound can expand easily.



Operation of tuner

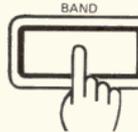
For setting the clock please read page 55.



Receiving broadcast stations and storing them in memory (preset operation)

The preset operation refers to the storage of broadcast stations in memory for later recall. Up to 10 stations can be preset for each of the FM1, FM2, AM.

1 Select the broadcast band.



The bands are switched as follows every time the BAND key is pressed. Example when FM2 is selected

→ FM 1 → FM 2 → AM



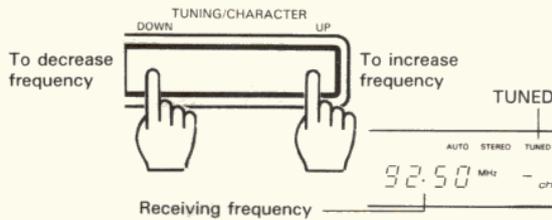
2 Select the tuning mode.



The AUTO indicator goes on and off alternately every time the key is pressed. (Normally leave the indicator lighted.)

	Auto Tuning Mode	Manual Tuning Mode
AUTO indicator	ON	OFF
Receiving Modes (FM band)	Stereo ↔ Mono (auto switching)	Mono
Instance of Selection	In normal reception	When noise is noticeable due to weak input signal

3 Tune the desired station.



Auto Tuning Mode	Manual Tuning Mode
Press once. (Tuning stops automatically when a station is received.)	Press repeatedly, or press and hold, until the station is received.
The TUNED indicator lights up when a station is received.	

4 Storing the stations in memory.

① Press the ENTER key.



- Press while the receiving frequency is displayed.



MEMORY lights up.

② Store the station under one of the numeric keys.



Press while MEMORY is lighted.



Memory goes off.

- When a station has previously been preset under the numeric key pressed, the newly preset station replaces the previous station.

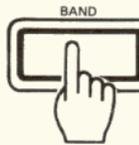
5 Repeat steps 1 to 5 above for each of other stations to be preset.

- For each of the FM1, FM2 and AM bands, up to ten stations can be preset (under numeric keys 1 to 10/0).

■ Receiving a preset station

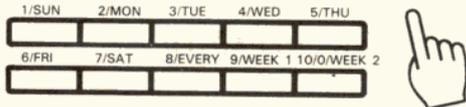
1 Select the broadcast band.

One of FM1, FM2 and AM.



2 Select the desired station.

Press the numeric key under which the station is preset.



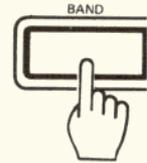
- The frequency of the station received will be displayed.

■ Direct tuning of radio station

If you know the frequency of the desired station, it can be received directly using the numeric keys.

1 Select the broadcast band.

One of FM1, FM2 and AM.



2 Press the DIRECT key.



3 Enter the frequency of the desired station by pressing the numeric keys.

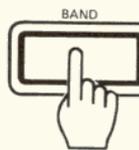
Example

Desired station	Order of pressing numeric keys
AM 810 kHz	8, 1, 0
AM 1,260 kHz	1, 2, 6, 0
FM 90 MHz	9, 0, 0 (100 kHz space)
	9, 0, 0, 0 (50 kHz space)
FM 102.5 MHz	1, 0, 2, 5 (100 kHz space)
	1, 0, 2, 5, 0 (50 kHz space)

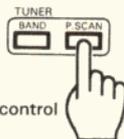
■ Listening to all preset stations in sequence (Preset Scan)

1 Select the broadcast band.

One of FM1, FM2 and AM.



2 Press the P.SCAN key.



Remote control unit

or



Main unit

- Every preset station will be received for 5 seconds.
- When the P.SCAN key is pressed again, the station being tuned at that moment will be received continuously.
- If the TUNED indicator does not light up with a preset station, it will be switched to the next station in 1 second.

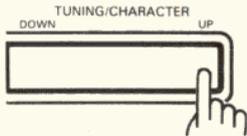
■ Displaying station names

Station names can be input in the FM1 and AM bands. Station names cannot be input in the FM2 band. Station names composed of up to four digits of characters and/or symbols can be displayed on the tuner display. Example: To receive FM 93.4 MHz, enter its name with characters "CBE", and preset them under numeric key **3**.

1 Receive FM 93.4 MHz, and press the CHARACTER key.



2 Select the first character of the station name using the TUNING/CHARACTER key.



Example: To select "C", press the UP segment three times.

The character is switched over every time the key segment is pressed. (For the types of characters, refer to the boxed column on the bottom of this page.)



3 Press the DIGIT key.



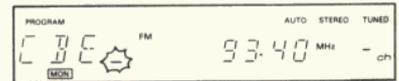
Blinking digit changes to the next digit.



4 Repeat steps 2 and 3 for other characters.

- Up to four digits can be entered.
- To enter a space, press the **DIGIT** key again.
- In case you commit an entry mistake, press the **CLEAR** key and re-start from the beginning.

Character entry is established.



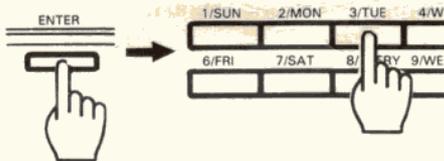
5 Press the CHARACTER key.



Blinking of characters changes to continuous lighting, indicating that the input is established.



6 Press the ENTER key and, within 5 seconds, press the numeric key **3** under which the frequency and station name are to be preset.



- Every time the **TUNING/CHARACTER** key is pressed, the displayed character changes as shown in the figure.
- Pressing the DOWN segment changes character in the reverse order.

← DOWN segment UP segment →

A B C D X Y Z _ * + - / 0 1 2 3 9

_ Blank (Empty space for one character)

■ Changing a station name

Example: To change station name "FHN8" preset with AM 810 kHz frequency under AM **2** to "FEN"

- 1** Receive preset station of AM band **2** by preset tuning, and press the CHARACTER key.

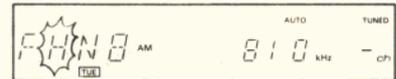


- 2** Move the blinking digit (cursor) to the second digit.

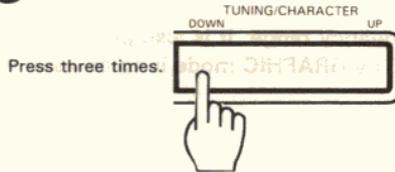


Press once.

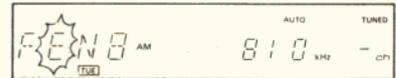
Blinking digit changes to the next digit.



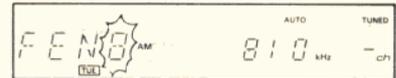
- 3** Select "E" with the TUNING/CHARACTER key.



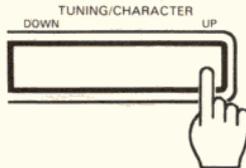
Press three times.



- 4** Press the DIGIT key twice to move the blinking digit by two digits.



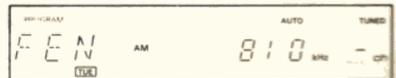
- 5** Select the blank with the TUNING/CHARACTER key.



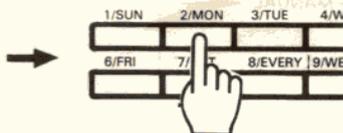
Press two times.



- 6** Press the CHARACTER key.



- 7** Press the ENTER key and, within 5 seconds, press numeric key **2**.



Lights up for 5 sec.



End of preset

Operation of graphic equalizer

This unit incorporates a graphic equalizer with 27-band display. By fine-adjusting the frequency bands (14 points), it is possible to compensate for the acoustics of the listening room, as well as to enjoy music with optimum sound thanks to the AI (Artificial Intelligence) features as described below.

1. AI-AUTO (available only for CD play)

Checks the contents recorded on a CD automatically, and sets the optimum equalizer pattern according to the CD. This feature is to be used when you need a simplified selection of playback equalizer pattern.

2. MANUAL/REFERENCE modes

REFERENCE: Five exemplary patterns have been preset at the factory.

MANUAL: Five preset patterns have been factory-preset for this mode, too. In this mode, it is also possible to preset (assign) equalizer patterns created by the user in place of the factory presets.

3. AI-MANUAL (available with any input source)

A total of 30 playback patterns have been factory-preset by combining five recommended equalizer patterns with six music genres, so that any of them can be selected by actually comparing them. Similarly, selection from 30 types of recording patterns for playback on car stereo or from 30 types of recording patterns for playback on headphone stereo is also available.

Select the optimum equalizer pattern according to the music genre and purpose of use of the pattern.

4. GRAPHIC/PARAMETRIC mode

PARAMETRIC: The equalizer curve can be adjusted in a simplified manner based on the low-, medium- and high-frequency ranges.

GRAPHIC: The equalizer curve can be adjusted in a detailed way for every frequency range. It is also possible to fine-adjust a curve which has been created in the PARAMETRIC mode. The GRAPHIC mode is to be used when detailed adjustment of acoustic compensation is required.

5. AI-Loudness Control

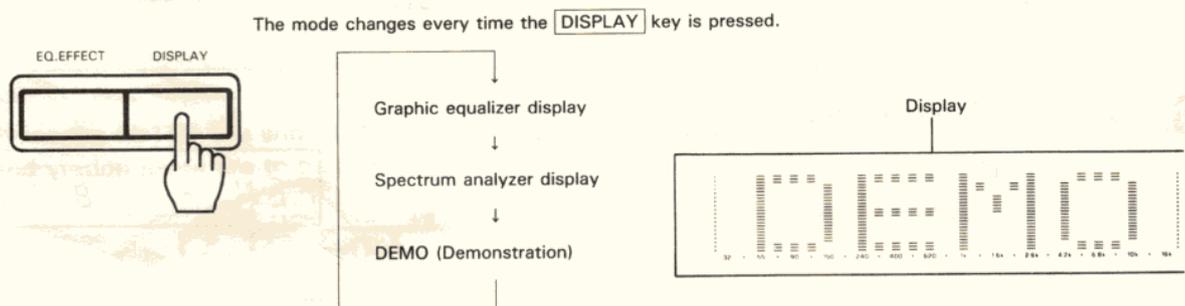
The emphasis of low frequencies and high frequencies which is effective for listening at a low volume is displayed, and the sound changes accordingly.

■ Demonstration method

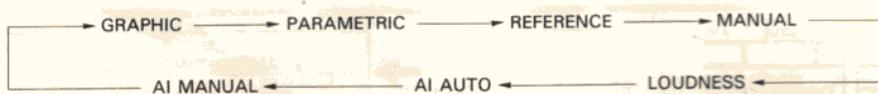
For better understanding of the equalizer features described above, representative pattern for each feature can be displayed for your reference.

1 Play a music source.

2 Initiate the "DEMO" display.



- Demonstration is performed repeatedly in the following order (5 minutes per cycle).

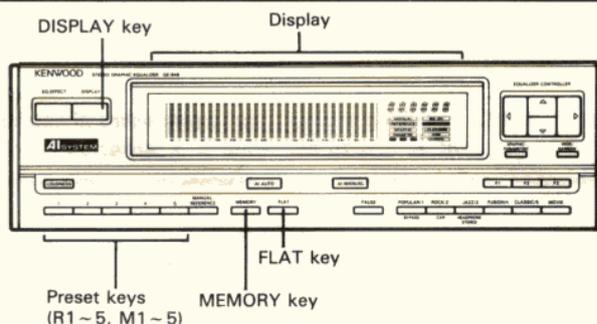


- To end the demonstration, press the **DISPLAY** key again.

The graphic equalizer effect is not applied to the sound from the speakers when the [CD REC] key of the amplifier is set to ON (the indicator lit). Make sure that the CE REC key is set to OFF (the indicator gone off) when not using the CD REC key.

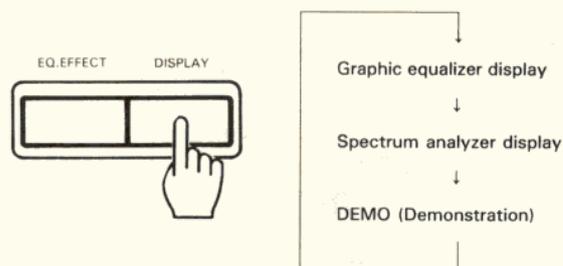
The following keys on the graphic equalizer do not function after setting the CD RED key to ON.

1. [AI AUTO] key
2. [AI MANUAL] key
3. DEMO display of the [DISPLAY] key



Contents of display

The display mode changes every time the [DISPLAY] key is pressed.

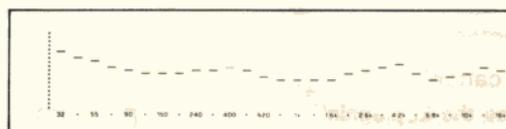


Graphic equalizer display

Shows how each frequency range is compensated. The graphic equalizer display also appears for about 5 seconds, even while the unit is in the spectrum analyzer display mode, when one of the following operations is performed.

1. Switching power ON.
2. An operation key associated with an equalizer operation is pressed.

Graphic equalizer display

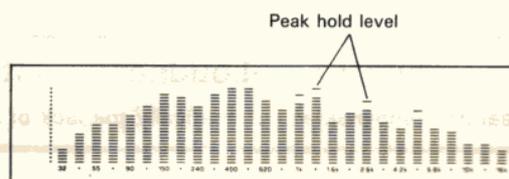


Spectrum analyzer display

Displays the frequency distribution of the source being played to allow understanding at a glance.

The peak value of the varying level of each frequency range is held and displayed for about 0.5 second.

Spectrum analyzer display

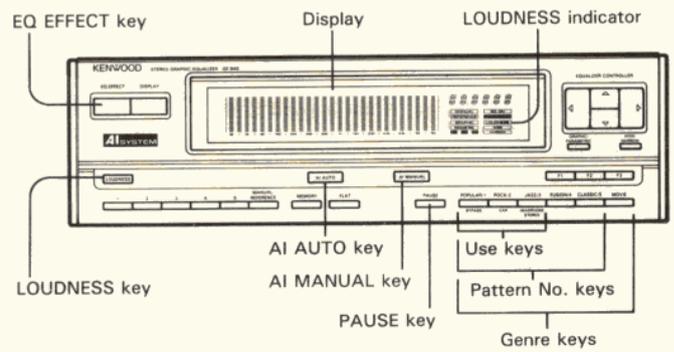


Character display

Regardless of the DISPLAY key setting, guidance in English is displayed according to the operations performed.

Example: DEMO, AI AUTO, AI MANUAL,
GENRE, USEetc.





■ Operation of AI-AUTO (available only for CD play)

By pressing the AI AUTO key only, the optimum equalizer pattern for a CD is selected automatically.

1 Insert a CD.
(Refer to step 2 on page 36.)

TRACK lights up. Also check display.

Track Nos. in the CD are displayed.

2 Press the AI AUTO key.

Blinks.

Spectrum analyzer display

Equalizer pattern display

- The CD starts automatically, and pauses when the sampling analysis of the music source in it is completed.
- The CD play starts in about 40 seconds after the AI AUTO key is pressed.
- The EQ EFFECT key is switched ON automatically.
- The AI AUTO key stops to blink and lights continuously.

To cancel AI AUTO:
Press the key again.

Goes off

- It is also canceled when the key of the CD player is pressed.

■ Operation of AI-Loudness control

This feature compensates automatically the lack of low and high frequencies felt when listening at a low volume.

Press the LOUDNESS key.

Indicator lights up.

- The loudness compensation curve is selected according to the VOLUME control setting of the amplifier and displayed. The final result obtained is the combination of this loudness curve and the currently-set equalizer pattern.

To cancel the loudness effect:

Press the key again.

Goes off.

- Release the LOUDNESS when videorecording referred on page 20.

■ Operation of AI MANUAL

Through selections of the music genre, tone pattern and purpose of use in three steps, this feature allows to obtain the optimum playback pattern from the 90 equalizer patterns (6 genres × 5 patterns × 3 purposes of use = 90).

1 Play a music source.

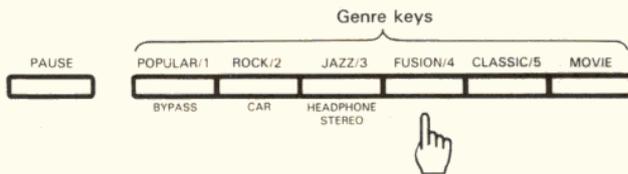
2 Initiate the AI MANUAL mode.

Blinks:



- Sampling of the music source starts. In about 30 seconds, "GENRE" is displayed and [EQ.ON] lights up.

3 Select the genre of music.



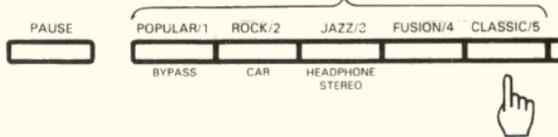
Until you actually select the music genre, patterns of the genres are displayed in repeated cycles (7 seconds) and the tones heard also change accordingly.



If the [PAUSE] key is pressed in step 3 or 4, the repetition of equalizer patterns stop so that you can check the tone of a specific pattern more in details. The repetitions resume when the [PAUSE] key is pressed again.

4 Select the desired tone pattern.

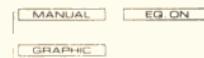
Five of the Genre keys are also used as the Pattern No. keys.



Until you actually select a tone pattern, the five patterns available with the genre selected in step 3 are displayed in repeated cycles and the tones heard also change accordingly.

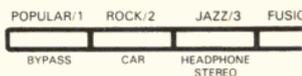


Selected genre name — JAZZ — Tone pattern No.



- After the tone pattern has been selected, characters "USE" appears on the display.

5 Select the purpose of use of the pattern.



Three of the Genre keys are also used as the Use keys.

Major purposes of use provided by the Use keys

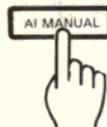
BYPASS key: For use in normal playback and recording.
CAR key: For use in recording of tapes to be played on car stereos.
HEADPHONE STEREO key: For use in recording of tapes to be played on headphone stereo players.

For the CAR or HEADPHONE STEREO use, a special curve for use in recording is combined and displayed. For the procedure of recording sound with equalizer effect, refer to page 34.

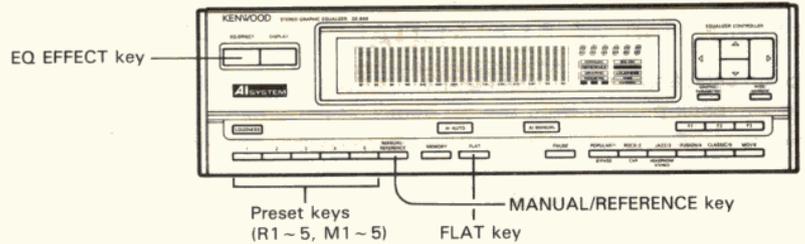
The [AI MANUAL] key stops blinking and lights up continuously.

To cancel AI MANUAL:

Press the key again.



Goes off.

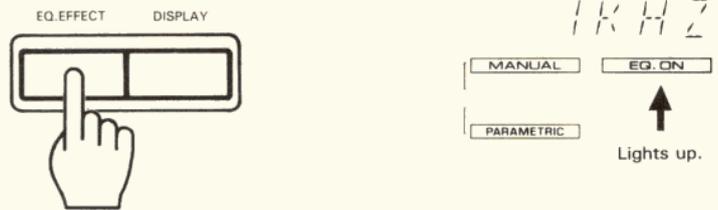


■ Operation of MANUAL/REFERENCE feature

This feature allows to recall one of ten preset equalizer patterns in a simple manner. The equalizer pattern curves of the REFERENCE mode are capable of modifying automatically in case of double-speed recording. The equalizer patterns of the MANUAL mode are mainly for use in playback with surround effect or recording of tapes played on car stereo and headphone stereo.

1 Play a music source.

2 Press the EQ.EFFECT key.

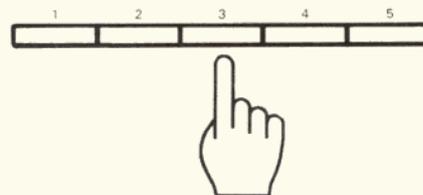


3 Select an equalizer pattern.

① Set to MANUAL or REFERENCE.



(Refer to the equalizer pattern list.)
② Press the key for the desired pattern.



Example when "3" is selected in the MANUAL mode.



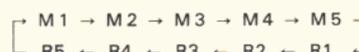
Example when "4" is selected in the REFERENCE mode.



Remote-controlled selection is also possible.



Patterns are switched every time the M.CALL key is pressed.



To cancel the equalizer effect:



• The pattern being displayed remains the same.

• Pressing the FLAT key makes the displayed curve flat. This occurs in any mode.



Equalizer pattern list

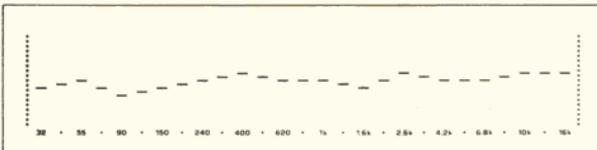
Preset equalizer pattern R1 to R5 (REFERENCE)

The patterns of this mode change automatically in case of double-speed recording.

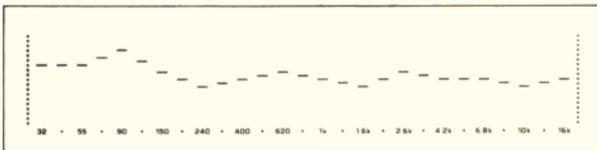
R1: [Soft] For listening a soft sound comfortable for ears, like background music.



R2: [Clear] For listening a brilliant sound with attenuated low frequencies.



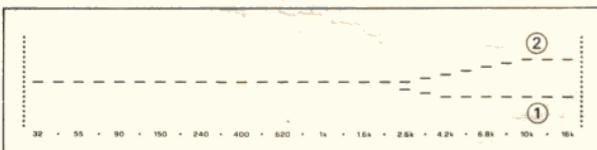
R3: [Heavy] For listening music like rock and fusion with more powerful sound.



R4: [Scale] For listening more exciting sound.



R5: [Noise reduction for double-speed recording] Cut off stimulating medium and high frequencies and enables soft sound recording.

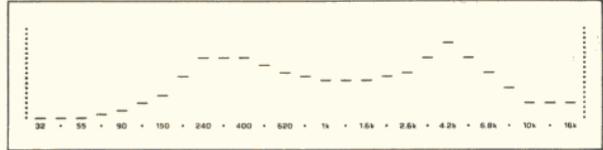


- Pattern ② occurs only in case the double-speed recording is set. In playback, pattern ① is used providing a noise reduction effect.

Preset equalizer pattern M1 to M5 (MANUAL)

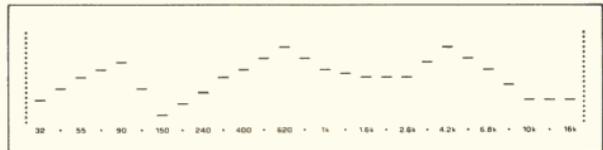
Patterns can be created and preset by the user in this mode.

M1: [Surround 1] For listening a soft surround effect with feeling of expansion.



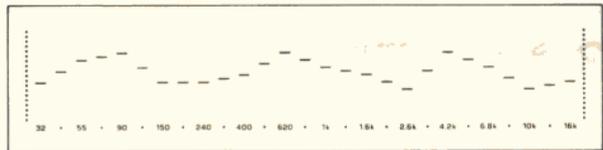
Change

M2: [Surround 2] For listening surround effect with enhanced expansion.



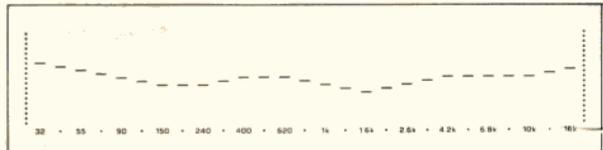
Full Bass

M3: [Surround 3] For listening surround effect with expansion and powerfulness.



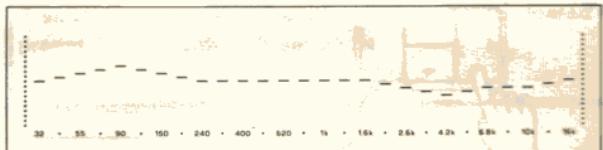
More

M4: [Car] For recording tape with suitable tone to be played on car stereo.



Rock

M5: [Headphones] For recording tape with suitable tone to be played on headphone stereo.



POP

- When pattern M1, M2 or M3 is used, set the SURROUND key of the amplifier to ON.

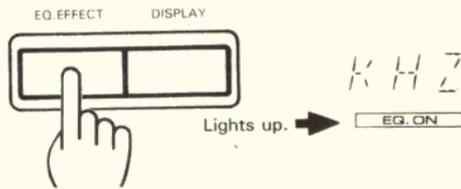
Creation of desired equalizer patterns

PARAMETRIC: This mode allows to create a curve for up to three ranges centered around the user-selected frequencies in the low-, medium- and high- frequency ranges. The inclination of each curve can be selected between WIDE (gentle slope) and NARROW (steep slope).

GRAPHIC: This mode allows to adjust the equalizer curve for each frequency band provided. The curve created in the Parameter mode can be fine-adjusted in this mode.

■ Adjusting curves centered around user-selected frequency ranges (Parametric mode)

1 Press the EQ.EFFECT key.

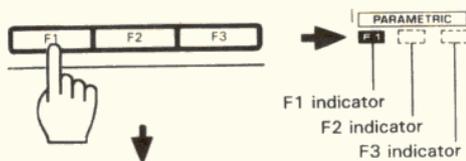


2 Select the Parametric mode.

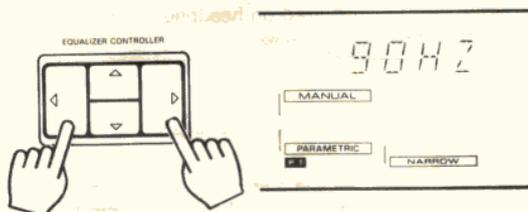


3 Select the center frequency of the range to be adjusted.

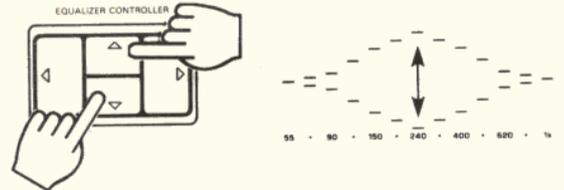
① Select the frequency range.



② Select the center frequency.

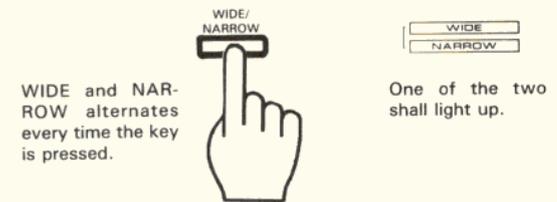


4 Adjust the level.



- Pressing the **FLAT** key allows to start adjustment from the flat level position.

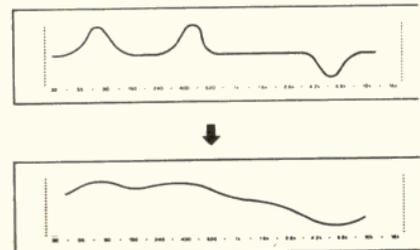
5 Select the inclination of the curve.



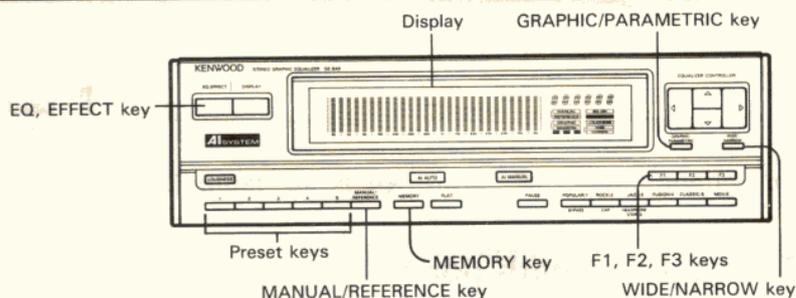
- Once adjusted, the curve remains the same until next time it is adjusted.

6 When the adjustments of ranges F2 and/or F3 are also required, repeat steps 3 to 5 for each of them.

- When two or three curves have been set, the overall curve obtained by combining them is displayed in a few seconds.



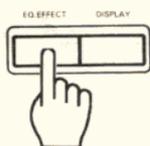
- For finer adjustment, perform the Graphic mode operation described in the following page.



■ Fine adjustment of each frequency band (Graphic mode)

■ User-preset of user-created pattern

1 Press the EQ.EFFECT key.



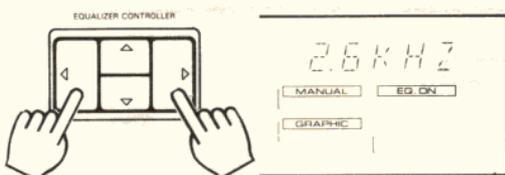
Lights up. →

2 Select the Graphic mode.

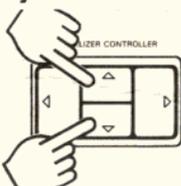


Lights up. →

3 Select the frequency band to be adjusted.



4 Adjust its level.



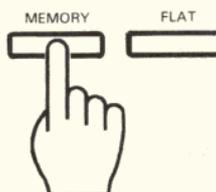
5 For each frequency band to be adjusted, repeat steps 3 and 4 above.

1 Create a desired equalizer pattern.

Any equalizer pattern can be preset if it is being displayed.

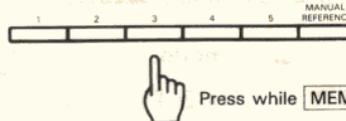
2 Preset the equalizer pattern in the manual memory.

① Press the MEMORY key.



↑
Lights up.

② Press one of the preset keys.



Press while is lighted up.

- Pattern is preset under the number of the numeric key pressed.
- Up to five patterns can be preset in the same manner.
- When a pattern has previously been preset under the numeric key pressed, the newly preset pattern replaces the previous pattern.

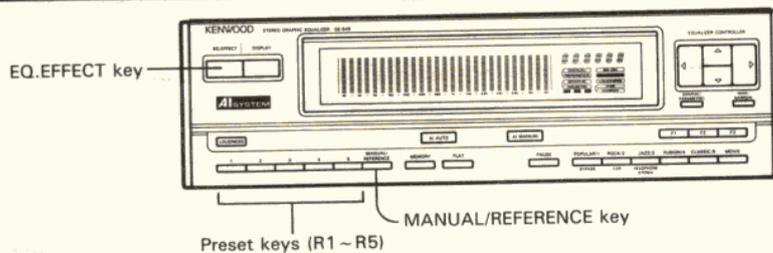
To return to the initial pattern (factory-preset patterns M1 to M5 on page 31) by clearing the user-preset pattern:

Press the preset key where the pattern to be cleared is preset for more than 5 seconds.

Note:

If the mode is switched from "Graphic" to "Parametric", the equalizer pattern created in the Graphic mode is cleared.

Recording sound with equalizer effect



■ Recording with normal equalizer effect

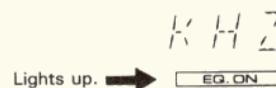
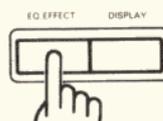
In addition to ordinary recording, special equalizer recording patterns (refer to page 31) can be used for effective playback on car stereo or headphone stereo.

1 Display a desired equalizer pattern.

- Any equalizer pattern can be applied to recording if it is being displayed.



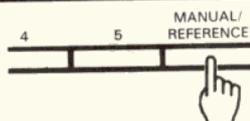
2 Press the EQ.EFFECT key to ON.



3 Start recording. For details, refer to pages 45 and 46.

■ Double-speed recording of CD with equalizer effect

1 Enter the Reference mode.



2 Select a reference equalizer pattern.



Press one of preset keys (R1 ~ R5).

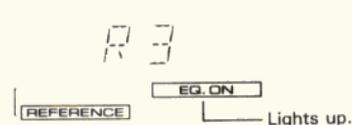
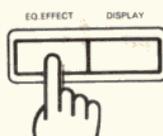
One of R1 ~ R5 is displayed.

R3



Only preset patterns R1 to R5 can be used in double-speed recording (refer to page 31).

3 Press the EQ.EFFECT key to ON.

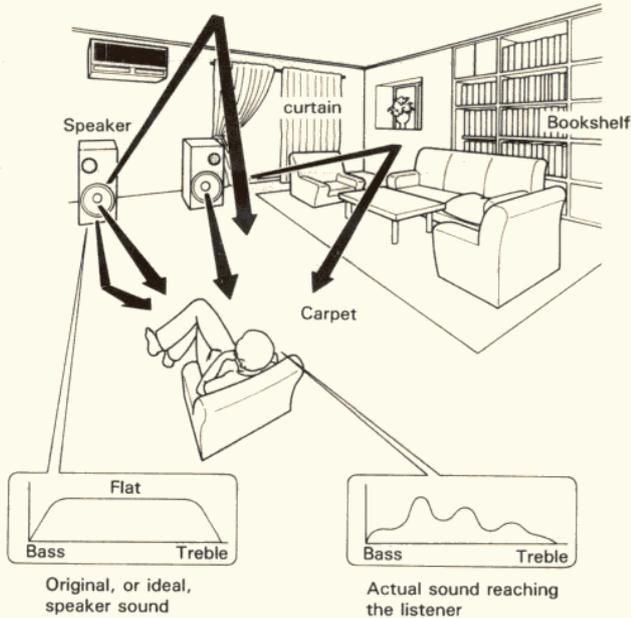


4 Start double-speed recording.

For details, refer to page 52.

Note:
Do not set the recording level too high, for this may cause sound distortion at frequencies enhanced by the equalizer.

Functions of graphic equalizer



Compensation for the audio characteristics of listening room

The listening room may contain several objects. Some of them reflect sound and some absorb sound, thus the sound reaching your ears is considerably affected by these objects.

In such cases, the graphic equalizer can be used to adjust the frequency response of the room for a flat response from low to high frequencies.

- Low frequencies are absorbed by beds, chairs, etc.
- High frequencies are absorbed by curtains, screens, etc.
- The room structure can cause the low frequencies to be unclear, or the sound level to increase or decrease depending on the frequency.

Adjustment of sound to your individual taste

When the reproduced sound contains several musical instruments and voices, the graphic equalizer allows you to enhance or attenuate the sound of specific instruments or voices.

Sound equalization

Super bass range (32 Hz ~ 52 Hz)

When this control is moved up, the bass instrument (double bass, bass drums, or pipe organ, etc.) sound is increased.

When the super bass sound is boomy, move this control down.

Bass range (90 Hz ~ 150 Hz)

Usually, the listening room resonance frequency is in this range. To eliminate bass resonance, move this control down.

Mid-bass range (240 Hz ~ 400 Hz)

This range is the basis of music. Whether the sound is rich or not, depends on this range. When the playback sound is not so good, move this control up.

Mid range (620 Hz ~ 1 kHz)

When this control is moved up or down, the baritone or soprano voice is emphasized/de-emphasized. This range is related to the "presence" of music.

Mid-high range (1.6 kHz ~ 2.6 kHz)

This range is related to stimulus and metallic sound. When this range is well compensated, vivid sound can be obtained.

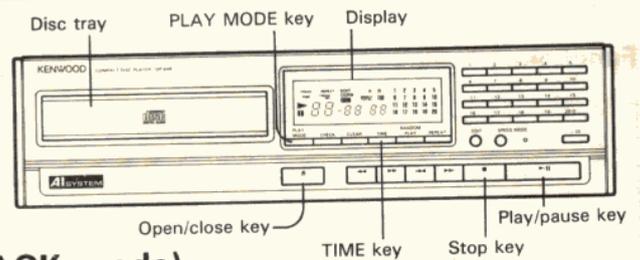
High range (4.2 kHz ~ 6.8 kHz)

This frequency range is related to the hardness of the sound. When this control is moved up, strings or brass instruments, such as flutes or piccolos, are emphasized. When the control is moved down, the sound will be more soothing.

Super high range (10 kHz ~ 16 kHz)

This frequency range is related to the details of the music. When this control is moved up, super high frequency instruments, such as triangles or cymbals, are emphasized, resulting in wide sound and echoes.

Operation of CD player

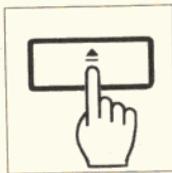


■ Playing a CD from the beginning (TRACK mode)

1 Press the CD input selector key of the amplifier.

2 Insert a CD.

① Open the disc tray.



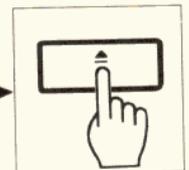
TRACK indicator lights up. Ensure that the display becomes as shown.



② Place a disc on the tray.

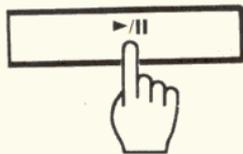
- Hold the disc taking care not to touch the side to be played.
- Be sure to place only one CD at a time.

③ Close the tray.



The track Nos. recorded on the CD are displayed.

3 Start playback.

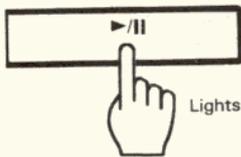


- In a few seconds, playback starts from track No. 1.

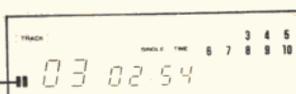


Lights up → Track No. being played Elapsed time from the beginning of track being played

■ To pause CD play

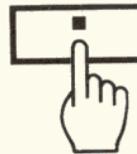


Lights up →



To resume playback, press the key again.

■ To stop CD play



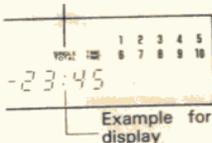
TIME key

Press the **TIME** key when you want to check the elapsed time and remaining time of the track being played. Every time the **TIME** key is pressed, the displayed time is switched as shown below.

The time information display may not appear when playing a CD containing 44 or more tracks or if the total playing time of tracks programmed in the PGM mode is 100 minutes or more. In such a case, the display will show "----:--". Only the "SINGLE TIME" is displayed during random play.



SINGLE/TOTAL TIME display



SINGLE TIME

Elapsed time of the track being played

01:23

SINGLE TIME

Remaining time of the track being played

-02:37

TOTAL TIME

Elapsed time of the whole CD

23:45

TOTAL TIME

Remaining time of the whole CD

-36:15

■ Listening from the desired track

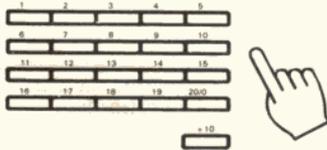
This is possible by one of the following three methods: ① Direct selection (in Track mode only); ② Skip selection; ③ Search selection.

① Direct selection: Playback from the selected track

1 Ensure that the TRACK indicator is lighted.

If the [PGM] indicator is lighted, press the [PLAY MODE] key.

2 Select the desired track



Examples of entry:

To enter track No. 23, press the [+10] key twice then press the [3] key.

To enter track No. 40, press the [+10] key four times then press the [20/0] key.

- The [20/0] key is to be pressed when selecting track No. 20 or when entering "0" for track Nos. 30, 40, etc.

② Skip selection: To start playback from the beginning of the current or next track

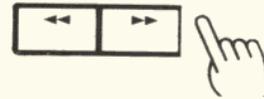
Press one of the skip keys according to which direction to skip.



- When the [◀] key is pressed once during play, the track starts again from the beginning.

③ Search selection: To start playback from the position where the key is released

Press the forward or reverse search key according to the direction to move.



- The fast forward or reverse speed increases as the key is held depressed.

Note:

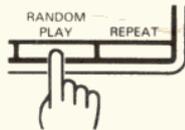
If a track No. which is not present on the CD is selected while the tray is open, the last track on the CD will be played. Such a selection is not accepted after the tray has been closed or playback has started.

■ Playing tracks in a random order (Random play)

1 Check that the TRACK indicator is lighted.

If [PGM] is lighted, press the [PLAY MODE] key.

2 Press the RANDOM PLAY key.



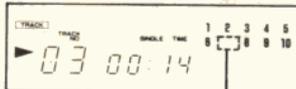
- The music calendar display blinks, and a track No. of no more than 20 is selected and played.

Example in case track No. 7 is selected first



- When the first track has been played, another track is selected at random again, and played.

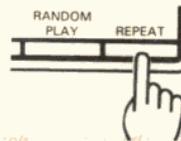
Example in case track No. 3 is selected



The track No. which has been played disappears

- Random play stops after all of the tunes have been played once.

To repeat random play:



[REPEAT] indicator lights up.

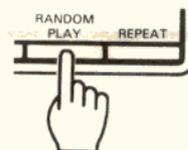


To select another track during random play:



To return to normal play:

Press key again.

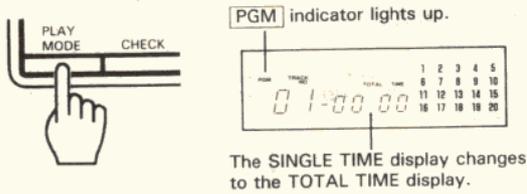


- Normal play starts from the track being played.

■ Playing desired tracks in desired order (Program mode)

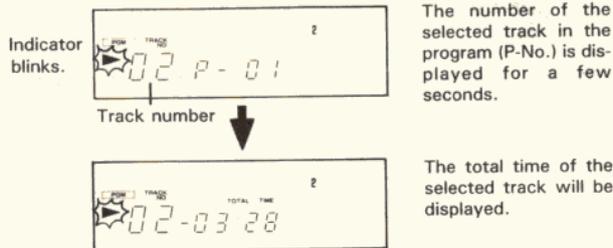
1 Enter the PGM (Program) mode.

Press the PLAY MODE key.



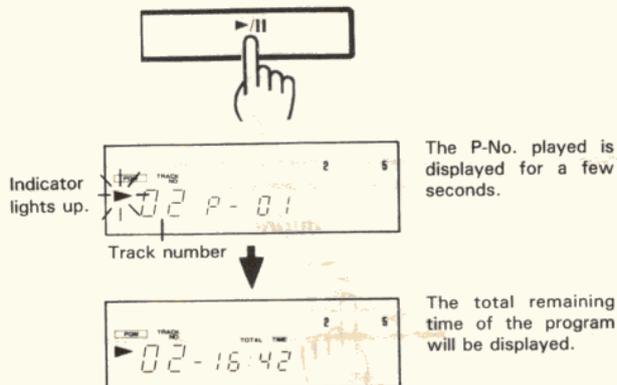
2 Program desired tracks in desired order.

Example: To program track Nos. 2, 5 and 25: Press numeric keys [2], [5], [+10], [+10] and [5] in this order.



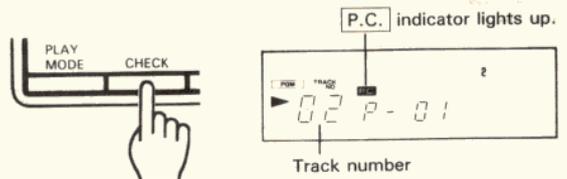
- Up to 20 tracks can be programmed.
- If you made a mistake, press the [CLEAR] key and select the correct track.
- Tracks can also be programmed by reading the disc label while the disc tray is open.
- The time information is not displayed in case a track No. of 44 or more is programmed.

3 Start playback.



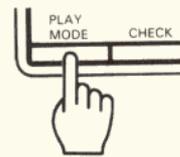
- Tracks are played in the order they are programmed (P-No.).
- If one of the skip keys ([SKIP] or [REVERSE]) is pressed during programmed playback, the track being played is skipped in the forward or reverse direction.

To check the programmed order:



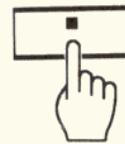
- Every time the key is pressed, the track No. and the order it was programmed (P-No.) are displayed in the order of programming. The previous display will resume in a few seconds.

To resume normal playback:



- The playback in the order of the track Nos. on CD will start after the track being played.

To stop programmed playback:

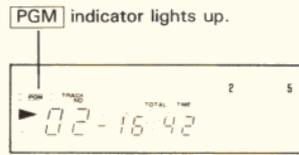


Auto-Space function

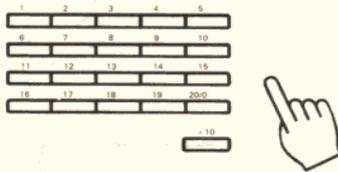
During playback in the program mode, a space of about 4 seconds is reserved automatically between the programmed tracks. This function is provided to facilitate the DPSS function of the cassette deck. However, such a space could also be reserved in case the sound of two tracks are continued, for example with some classic music and live recordings.

■ To add a track to the program

- 1** Ensure that the CD player is in the program mode.

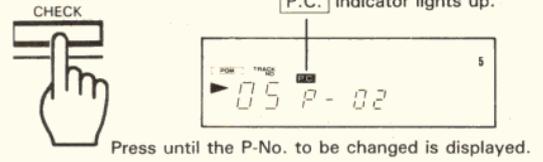


- 2** Press the key(s) for the track No. to be added.

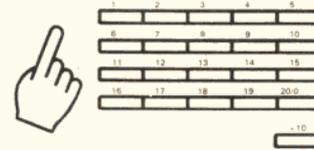


■ To change a track in the program

- 1** Press the CHECK key.



- 2** Press the key(s) to input the track No. to replace the previous one.



- Press while the P.C. indicator is lighted.
- The track being played cannot be changed.

■ To clear tracks from the program

Tracks can be cleared from the program either by; 1) clearing each track from the end of program; 2) clearing the whole of program.

① Clearing from the last track

- Every time the key is pressed, tracks are cleared from the last track in order.



② Clearing the whole of program

Press either of these keys.

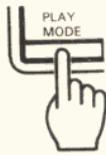


■ Repeated playback

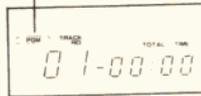
It is possible to play repeatedly: ① a single track, ② a selection of programmed tracks, ③ the whole CD.

① Repeated playback of single track

1 Enter the program mode.



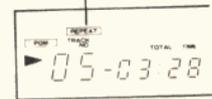
PGM indicator lights up.



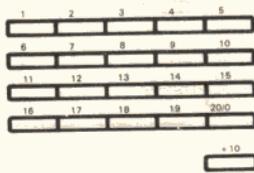
3 Press the REPEAT key.



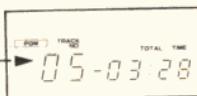
REPEAT indicator lights up.



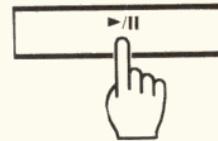
2 Select the desired track.



Blinks.



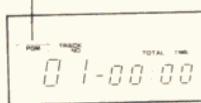
4 Start playback.



② Repeated playback of programmed tracks

1 Enter the program mode and program the desired tracks.

PGM indicator light up.



- As for programming, refer to page 38.

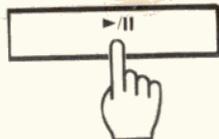
2 Press the a REPEAT key.



REPEAT indicator lights up.



3 Start playback.



③ Repeated playback of the whole CD

1 Enter the TRACK mode.



TRACK indicator lights up.



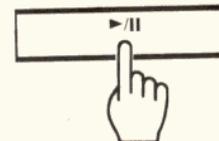
2 Press the REPEAT key.



REPEAT indicator lights up.

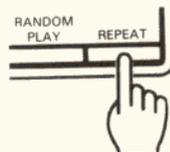


3 Start playback.



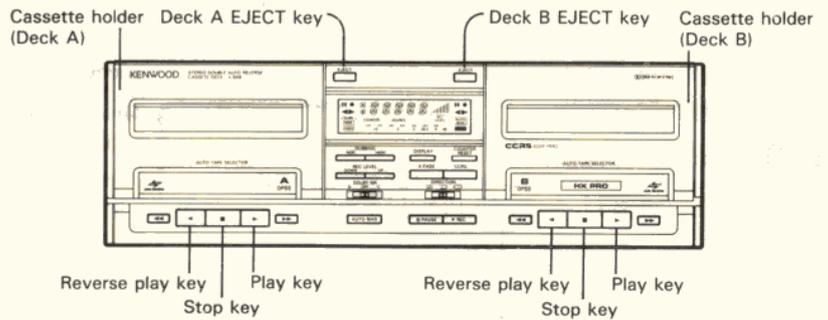
To return to normal playback:

Press the REPEAT key again.



REPEAT indicator goes off.

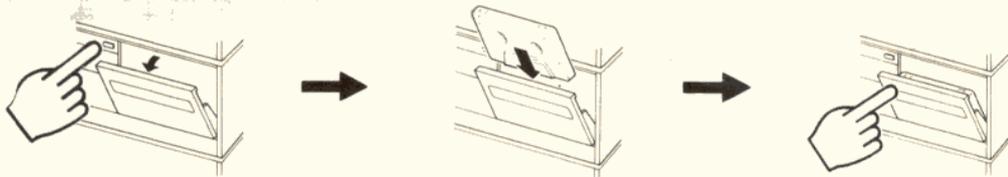
Playback of cassette deck



■ To playback a tape

1 Insert a tape.

Press the EJECT key



- The type of tape. Normal Chrome or Metal, is detected and set automatically.
- Be sure to remove tape slack before insertion.

Close securely by pressing upper inside.

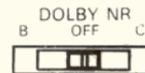
2 Determine the playback conditions.

Selection of the playback mode



- To play only one side of tape
- To play both sides of tape.....
- To play both sides endlessly

Selection of Dolby NR mode



Set the switch according to the tape used.

3 Start playback.



To stop playback press the stop key ■.

Dolby noise reduction system

The Dolby noise reduction system was developed to reduce the tape hiss noise generated during play back. The optimum effect of the Dolby NR system is obtained when the same type NR system is used for both recording and playback. If a different type NR system is used, playback is not performed correctly. Make sure that the same type noise reduction system is used for both recording and playback.

Dolby B-type NR:

The most popular noise reduction system used in home audio components. Usually, Dolby NR system corresponds to B-type NR.

Dolby C-type NR:

Dolby C-type NR offers improved noise reduction performance over that of the Dolby B-type NR. It features a superior noise reduction effect. Use Dolby C-type NR to record or playback with this unit.

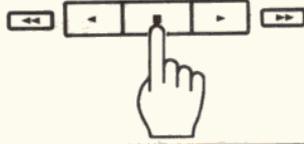
It is recommended that tapes recorded with the Dolby NR system be marked "B" or "C", so that they can easily be distinguished.

Note:

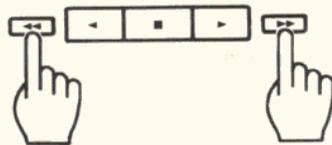
Do not press the EJECT key except when the tape is stationary.

To wind the tape at high speed

1 Stop playback.



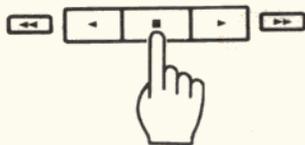
2 Press the ◀◀ key or ▶▶ key.



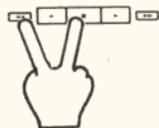
Fast tape winding in the ← direction

Fast tape winding in the → direction

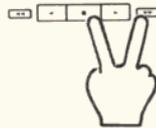
To stop fast tape winding:



Zero-stop operation



Fast forwarding in direction ←



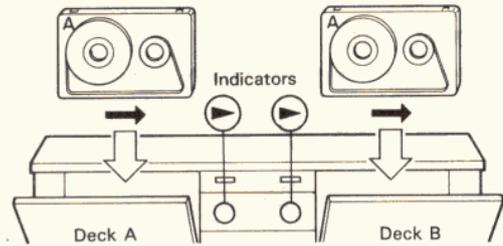
Fast forwarding in direction →

- Tape is forwarded until counter reading "0000", where it stops. (This operation is not available from the remote control unit.)

Relay playback

This function plays back sides A of the tapes in both Decks A and B continuously and repeatedly.

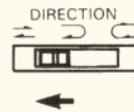
1 Insert tapes.



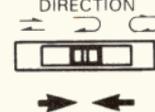
- The tapes are played in the directions indicated by their respective indicators on the display.

2 Select the playback mode.

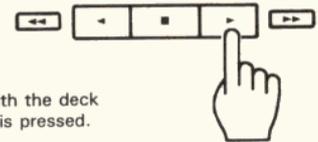
One-side relay playback



Two-side relay playback



3 Start playback.



The playback starts with the deck the play key of which is pressed.

Tape counter display

- In the playback mode, the tape display is switched as shown in the diagram every time the [DISPLAY] key is pressed.

Counter display for deck A



Counter display for deck B

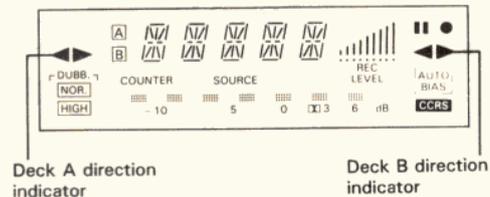


SOURCE



Tape transport direction indicator

The ◀▶ indicators show the direction of tape transport in its playback or recording. The direction selected when the tape was stopped the last time is maintained even after the power is turned off, and the same direction will be set next time the power is turned on. To change the tape transport direction, insert a tape and press the play key of the opposite direction.



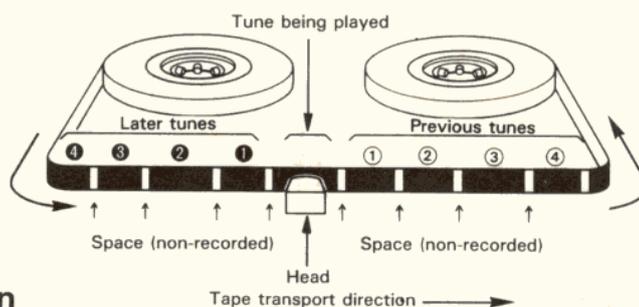
Deck A direction indicator

Deck B direction indicator

DPSS operation

The DPSS stands for Direct Program Search System, which enables the following convenient operations (these operations are, however, not available on both decks simultaneously). The DPSS functions are based on the detection of non-recorded spaces of 4 seconds or more between tunes.

1. **Skip play:** By specifying a tune located several tunes beyond (or behind) the tune being played, skips tunes between the current tune and the desired tune and starts playback from the beginning of the selected tune. Up to 16 tunes can be skipped in Skip Search.
2. **Single-tune repeated playback:** One single tune is played back repeatedly up to 16 times.
3. **Rewind & Play:** Rewinds the tape to the beginning and starts playback from there.
4. **Dash & Play:** If a non-recorded space of more than 10 seconds is detected during playback, that space will be skipped by fast tape winding.



■ Skip play operation

If the direction indicated by the tape direction indicator is ◀, always press the keys for the opposite directions to those shown in the illustrations below.

To play a tune located immediately after the tune being played:
 Direction of tape direction indicator: ▶

Press once.

To play the tune being played from the beginning:
 Direction of tape direction indicator: ▶

Press once.

To play a tune located 4 tunes beyond:
 Direction of tape direction indicator: ▶

Press 4 times.

To play the tune located 4 tunes behind:
 Direction of tape direction indicator: ▶

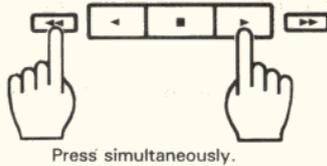
Press 5 times.

The DPSS will not function properly with the following types of tapes.

- Tapes containing spaces of 4 seconds or more, such as conversations and speeches.
- Tapes containing extremely low levels or non-recorded blanks in the middle of tunes, such as classical music.
- Tapes containing recording or large noise between tunes.
- Tapes containing spaces of less than 4 seconds between tunes.
- Tapes recorded with low recording level.
- Tapes recorded using Cross-fade recording.

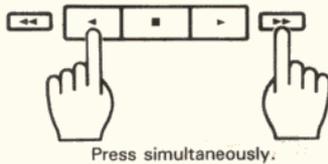
■ Rewind & Play operation

Direction of tape direction indicator: ▶



Press simultaneously.

Direction of tape direction indicator: ▶



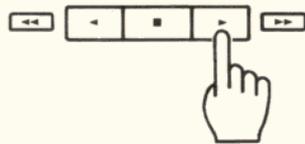
Press simultaneously.

■ Single-tune repeated playback

1 Play the tune to be repeated.

2 Press the play key of the same direction as the current tape transport direction.

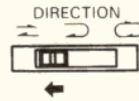
Direction of tape direction indicator: ▶



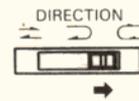
- Normal playback resumes after repeating the same tune for 16 times.

■ Dash & Play operation

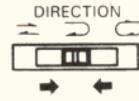
1 Determine the playback mode (conditions).



“←” ... One side is repeated 8 times.



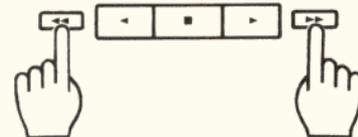
“↻” ... Two sides are repeated 8 times.



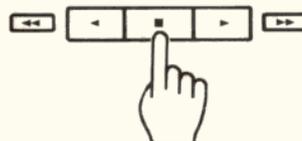
“⇄” ... Two sides are played only once.

- In case the DIRECTION switch is set to “⇄” and tapes are inserted in both of the decks, when a deck finishes dash & play, the other deck starts dash & play on it.

2 Press the ◀◀ and ▶▶ keys simultaneously.



To cancel the playback above in the middle:



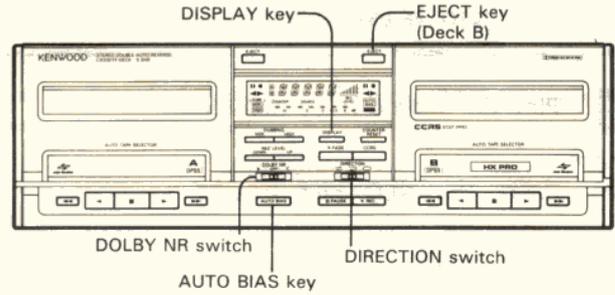
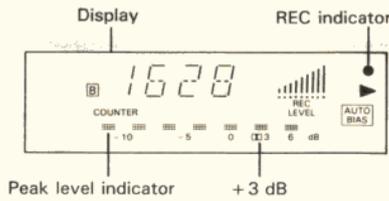
Press once.

Note:

“Rewind & Play” and “Dash & Play” are not available from the remote control unit.

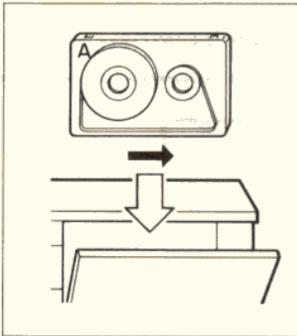
Recording on cassette deck (Deck B only)

The Dolby HX Pro headroom extension function operates to provide a recording with superior high-frequency characteristics.

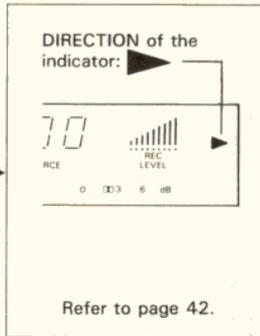


Preparation for recording

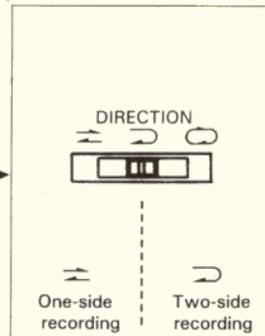
1 Set up the cassette deck. Insert a tape in Deck B.



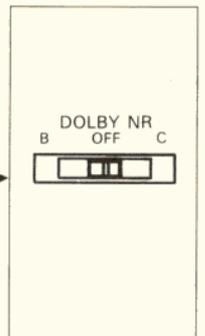
Set the tape transport direction



Select one-side or two-side recording.



Select the Dolby NR mode.



2 Select the source to be recorded.

Press one of the input selector keys on the amplifier.



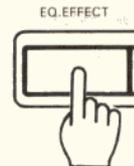
These cannot be selected as the recording source.

Recording source display (Example shows the case in which tuner is selected)



When the **DISPLAY** key is pressed, the display shows the recording source.

When the equalizer effect is required, press the **EQ. EFFECT** key to ON.



3 Activate auto bias setting.



Blinking changes to continuous lighting when setting is complete.

- The optimum bias is set in about 45 second.
- To cancel the auto-bias adjustment operation in the middle, press the stop key **■**.
- Recording is possible even when the auto-bias setting is omitted.

Autobias function

The tapes categorized as "normal tape, chrome tape" vary widely in the characteristics from popular to high-class types. Therefore, this system is equipped with the auto-bias adjustment function for exclusive use with normal tapes, chrome tapes so that optimum recording can always be obtained with any types of normal tape, chrome tape. It is recommended to use the auto-bias function when using a normal tape, chrome tape.

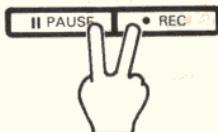
Note:

1. During auto-bias adjustment, the keys are defeated except for the fast forward key, rewind key and stop key of A deck and the stop key of B deck.
2. If the amount of remaining tape is small, the auto-bias adjustment may be canceled in the middle and stopped.

Recording level adjustment

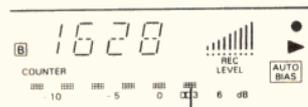
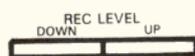
1 Play the source to be recorded.

2 Press the REC and PAUSE keys simultaneously.



Enter the record-pause mode.

3 Adjust the recording level.



Adjust the REC LEVEL controls so that the peak level indicator occasionally lights up at "00 3".

4 Stop playing the source.

To record radio broadcast

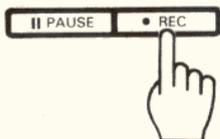
1 Make the preparations for recording.

Select the TUNER source. (Refer to page 45.)

2 Adjust the recording level.

(Refer to page 46.)

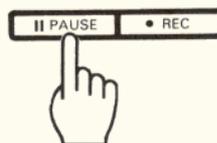
3 Start recording.



Press once.

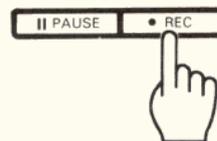
- The recording stops automatically when the end of tape is reached.

To Pause recording temporarily



Press once.

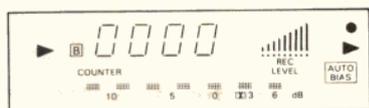
To resume recording:



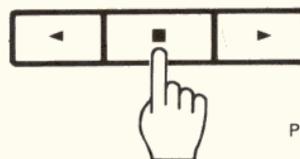
Press once.

Utilization of counter

Before starting recording, press the COUNTER RESET key to reset the counter to "0000". By noting the counter reading when the recording is later stopped in the middle of tape, the tape position can easily be located next time you want to continue recording on the rest of tape.



1

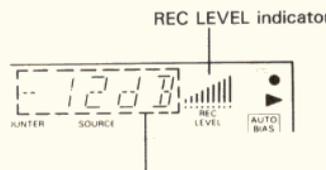


Press once.

2 Stop playing the source component.

Recording level and REC LEVEL indicator

- An optimum recording level is provided according to each input setting of the amplifier. But this level can also be varied as required.
- When the recording level is determined by operating the REC LEVEL keys, that level is stored in memory and recalled when the same input is recorded later.
- The recording level is not displayed during CCRS operation and when the TAPE A or TAPE B input selector key is selected.
- The REC LEVEL indicator shows the setting made by the REC LEVEL keys.



- When the REC LEVEL key is pressed, recording level will be displayed for about 5 sec.

■ Synchro recording of CD playback

The synchro recording allows to start the CD player playback and cassette deck recording at the same time.

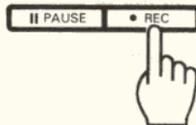
1 Make the preparations for recording.

Refer to page 45.

2 Adjust the recording level.

Refer to page 46.

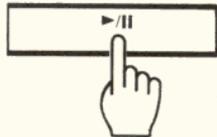
3 Enter the record-pause mode.



Press successively twice.

- The deck enters the record-pause mode after leaving a non-recorded space of about 4 seconds.

4 Start playing the CD.



- Tape recording starts at the same time.
- When the CD player has completed playback, the cassette deck also stops recording and enters the stop mode.

To pause.... Press the key of the CD player.

To resume

recording.... Press the key of the CD player.

To stop

recording.... Press the key of the CD player.

■ Synchro recording of analog disc play

By connecting the optional P-63 Turntable, the analog disk play and cassette deck recording can be started at the same time.

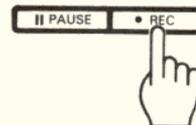
1 Make the preparations for recording.

Refer to page 45.

2 Adjust the recording level.

Refer to page 46.

3 Enter the record-pause mode.



Press successively twice.

- The deck enters the record-pause mode after leaving a non-recorded space of about 4 seconds.

4 Start playing the analog disk.



Turntable



Remote control unit

- Tape recording starts at the same time.
- When the turntable has completed playback, the cassette deck also stops recording and enters the stop mode.

To pause..... Move the cuing lever of the turntable up ().

To resume recording..... Move the cuing lever of the turntable down ().

To stop recording..... Press the **PLAY/CUT** key of the turntable. (With the remote control unit, press the key.)

Note:

When the Stop key on the cassette deck is pressed the cassette deck enters the Stop mode, but the CD player or turntable does not stop.

■ To re-start recording after mistake

A non-recorded space of 4 seconds or more should be reserved before the position where recording was started.

During recording in ► direction



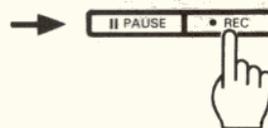
During recording in ◀ direction



- The recording is aborted, the tape is rewound to the position where the recording was started, and the deck enters the stop mode after leaving a non-recorded space of about 2 seconds from the end of the previous tune.

Press the REC key twice.

Press the REC key once.



A non-recorded space of 4 seconds is reserved on tape.



Recording starts.

Recording of CD playback (CCRS)

The CCRS (Computer-controlled CD Recording System) makes the following convenient recordings possible by setting the optimum tape recording level and recording bias for the specific CD to be recorded and starting recording automatically. (Please also refer to "Operation of CD player".)

Recording of TRACK mode playback: CCRS starts recording the CD tracks from the first track in order. When the end of one tape side is reached during recording, fade-out occurs there, and recording is continued on the other side of tape, which starts with fade-in.

Recording of PGM mode playback: CCRS starts recording the programmed CD tracks in the programmed order. When the end of one tape side is reached during recording, the track which should end in the middle is erased, and the recording on the other side of tape is started from that track.

Recording by CD Editing function: When the recording time of the tape is specified first, the order of the CD tracks are edited so that no track is interrupted at the ends of tape. This allows an effective use of the tape recording space without wasting it. The maximum number of tracks that can be edited is 20.

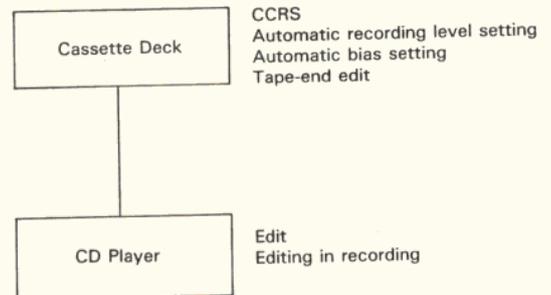
X.FADE (Cross-fade) recording: The beginning and end of each track is faded in/out to create a music tape without interruption between tunes.

CCRS double-speed recording: Records CD at twice the normal speed. The graphic equalizer provides patterns for use in double-speed recording.

CCRS (Computer-controlled CD Recording System)

When the [CCRS] key is pressed, the following operations occur automatically and recording of CD starts after them.

1. The CD is played and its peak level is sampled from the disc recording level.
2. The optimum tape recording level for that disc is determined from the sampled peak level and the cassette deck is set accordingly.
3. The cassette deck sets automatically the optimum bias for the tape used in recording.
4. The recording preparations detailed above are completed in about 90 seconds, after which actual recording starts.
5. When the recording is completed (when the CD player ends playback or when the tape has been recorded), both the cassette deck and CD player enter the Stop mode.



X. FADE (Cross-fade) recording

The Fade-in refers to the gradual volume increase from a small level to the normal level used in beginning of music, and fade-out refers to the gradual volume decrease from the normal level to a small level used in ending of music.

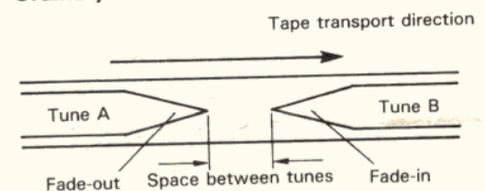
The X. FADE recording applies fade-out of a tune and fade-in of the next tune simultaneously so that the tunes can be recorded continuously without interruption.

This makes it possible to create a tape library containing successively changing music as in a disco.

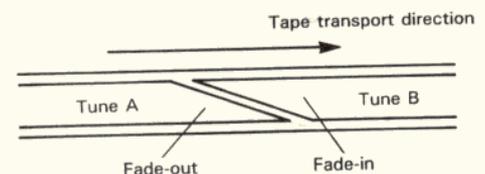
Similarly to CCRS recording, the X. FADE recording can be started automatically by simply pressing the [X.FADE] key.

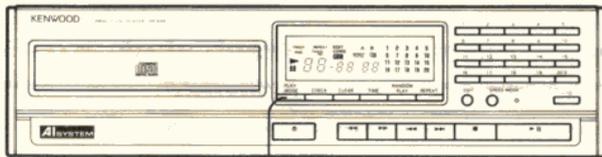
- The display of the cassette deck shows "FADE" during X. FADE recording.

Ordinary fade-out and fade-in

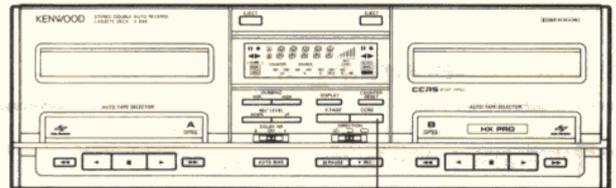


X. FADE recording





PLAY MODE key



CCRS key

■ Recording of CD playback in TRACK mode

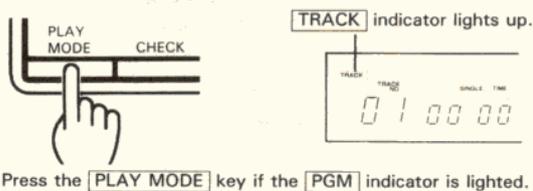
Fade-out and fade-in occur at the end of tape where it is reversed.

■ Recording of CD playback in program mode

Tracks are recorded so that they do not end in the middle at the end of tape.

1 Place a disc in the CD player.

2 Set the CD player to the TRACK mode.

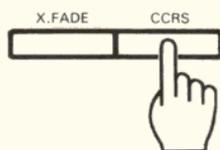


Press the **PLAY MODE** key if the **PGM** indicator is lighted.

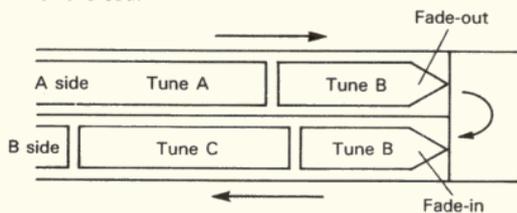
3 Set up the cassette deck ready for recording.

(Refer to steps 1 on page 45.)

4 Start recording.



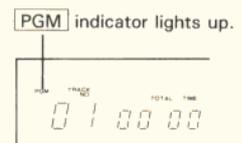
- The CCRS is activated so the recording will start in about 90 seconds.
- The tracks on the disc are recorded in the order of the track Nos.
- The operations as shown below occur at the end of tape where it is reversed.



1 Place a disc in the CD player.

2 Program desired tracks.

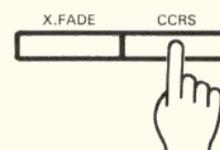
(Refer to steps 1 and 2 on page 38.)



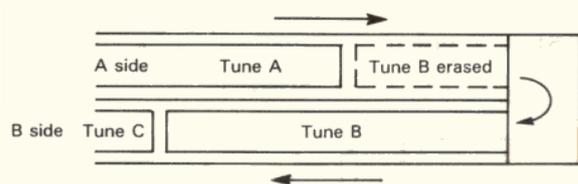
3 Set up the cassette deck ready for recording.

(Refer to steps 1 on page 45.)

4 Start recording.



- The CCRS is activated so the recording will start in about 90 seconds.
- The tracks on the disc are recorded in the programmed order.
- The operations as shown below occur at the end of tape where it is reversed.



Notes:

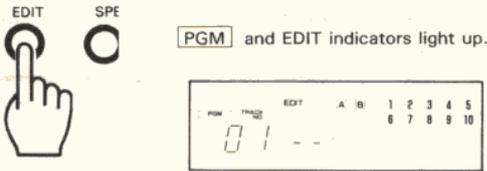
1. When the **CCRS** key is pressed during CD playback, the playback is stopped and CCRS setting operation starts.
2. The tape to be recorded onto should be fully rewound before being inserted into the cassette holder.
3. Once the recording level has been set by the CCRS, it cannot be adjusted as long as the CCRS operation continues.
4. The CCRS searches the peak level on a CD in a limited period of about 90 seconds. Therefore, it could happen that the optimum level cannot be adjusted, though it is a very rare case.
5. The recording level set by the CCRS is canceled when the Open/Close key  of the CD player is pressed or the power is turned off. When **CCRS** indicator of the cassette deck does not go out after changing the disc, press again the Open/Close key  to open/close the disc tray.
6. If the length of a track on the CD is extremely long such as with a classical music, the CCRS cannot be used because the music cannot be fit in one side of tape. In such a case, the CD should be recorded referring to "Synchro recording of CD playback".
7. If a tune beginning and ending with fade-in and fade-out is recorded by X. FADE recording, spaces between recorded tunes may become very long.
8. When a CD containing continuous recording of several tracks, such as a live recording, is recorded on tape, unexpected spaces may sometimes be left automatically between tunes.
9. When the **DIRECTION** switch of the cassette deck is "", the tape end processing occurs only on the A side of tape.

■ Edited recording of CD

1 Place a disc in the CD player.

2 Activate CD editing.

① Press the EDIT key on the CD player.

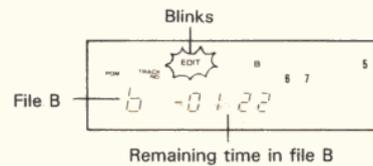
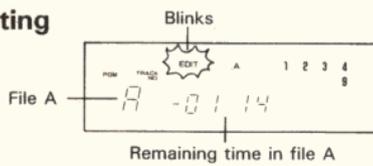


② While the EDIT indicator is lighted, input the two-way recording time of the tape by using the numeric keys of the CD player.

Example: For a C-60 tape, press **+10** 6 times and **0** once.

Example: For a C-46 tape, press **+10** 4 times and **6** once.

During editing



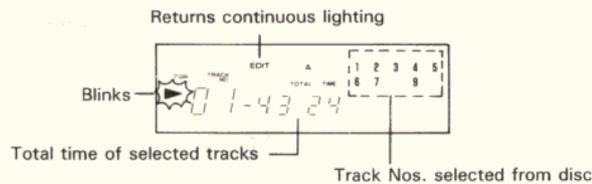
The CD contents can be edited as follows.

(1) The input tape recording time is divided by two, and tracks that can be accommodated in file A (which refers to tracks on tape side A) are selected in order of their track Nos.

- If the RANDOM PLAY key is pressed before inputting the tape recording time, tracks are selected in a random order.

(2) In a few seconds, the time left on tape side A after file A is displayed, then file B (tracks on tape side B) is edited in the same manner.

Completion of editing

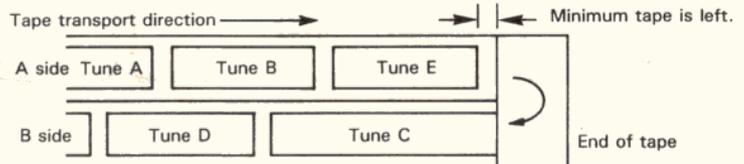
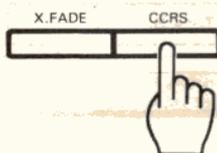


3 Set up the cassette deck ready for recording.

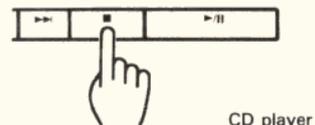
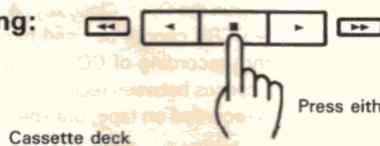
(Refer to steps 1 on page 45.)

4 Start recording.

- The CCRS is activated so the recording will start in about 90 seconds.
- When the recording is completed, both the cassette deck and CD player enter the Stop mode.



To stop recording:



Cassette deck

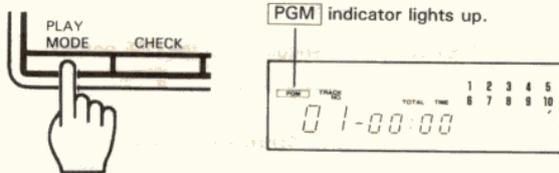
CD player

■ To include desired track in priority in edited recording

■ To check the edited contents

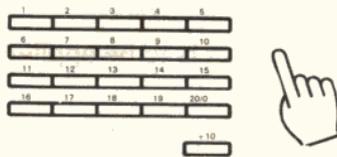
1 Place a disc in the CD player.

2 Ensure that the PGM indicator is lighted.



Press the **PLAY MODE** key if the **TRACK** indicator is lighted.

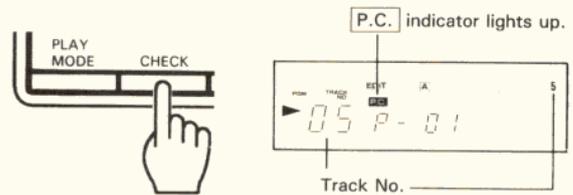
3 Input the desired track No. with the numeric keys.



4 Start edited recording of CD.

Refer to the step 2 "Edited recording of CD" on page 50.

Press the **CHECK** key

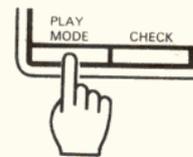


- Every time the **CHECK** key is pressed, the track Nos. are displayed in the edited order.

■ To change the edited contents (order)

This function edits the tracks at random.

1 Clear the whole of the edited contents.



2 Re-start editing.

Do step 2 - ① on page 50.

3 Press the **RANDOM PLAY** key.

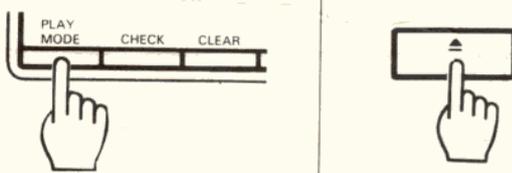


4 Go to step 2 - ② on page 50.

■ To clear the edited contents

Clearing all edited contents.

Press either of these keys.



Clearing from the last track.

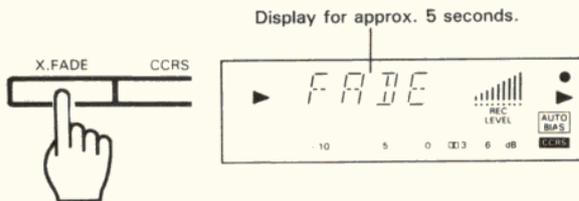
- Every time the **CLEAR** key is pressed, the last track in the edited content can be cleared.

■ X. FADE recording of CD playback ■ CCRS double-speed recording operation

1 Set up the cassette deck ready for recording.

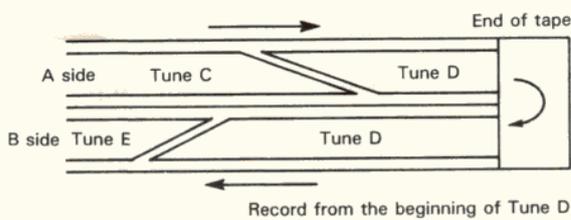
(Refer to steps 1 on page 45.)

2 Start recording.

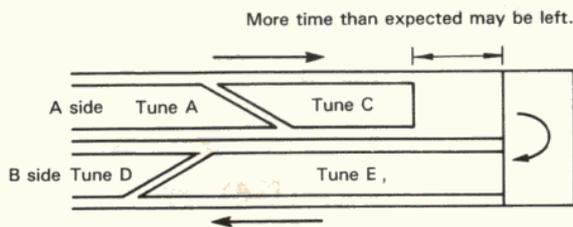


- The CCRS is activated so the recording will start in about 90 seconds.
- The recording operation according to the mode of the CD player starts.

In case of TRACK or PGM mode



In case editing is executed before recording



1 Place a disc in the CD player.

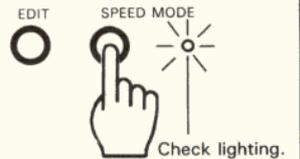
2 Set up the cassette deck ready for recording.

Refer to steps 1 on page 45.

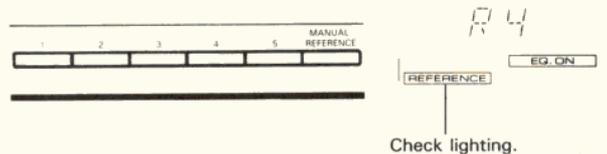
- The DOLBY NR switch should be in the OFF position.

3 Enter the double-speed mode.

Press the SPEED MODE key of the CD player so that the indicator lights up.

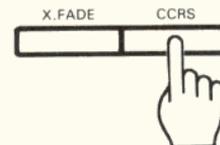


If equalizer effect is to be applied to recording



- REFERENCE mode patterns (R1 to R5) can be used in double-speed recording (refer to page 34).

4 Start recording.



- Recording starts automatically in about 90 seconds.
- When the recording is completed, the cassette deck enters the stop mode after reserving a non-recorded blank of about 6 seconds, and the SPEED MODE indicator of the CD player goes off.
- If you commit a mistake in the steps above, re-start operation from the beginning.
- The edited contents of the recording are the same as with normal-speed CCRS operation.

Note:

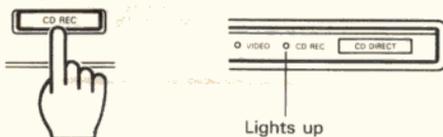
1. It is not possible to listen to another source during double-speed recording.
2. When the CD is played by manual operation after having pressed the SPEED MODE key, the CCRS double-speed recording will be canceled.
3. X.FADE recording is not available in the double-speed recording mode.
4. DOLBY NR recording is not possible.

■ Listening to a music source while recording a CD

Equalizer effect can be applied to the recorded contents by setting the **EQ.EFFECT** key to ON prior to recording (refer to page 34).

However, the equalizer effect is not applied to the music source monitored during recording.

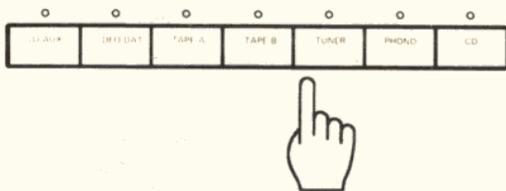
- 1 Press the CD REC key of the amplifier.



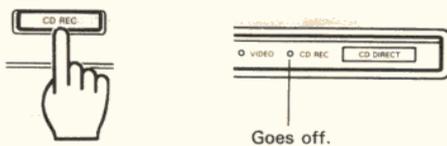
- 2 Start recording following the procedure in "Recording CD sound".

- This function is compatible with the CD recording functions described on page 47 to 52.

- 3 Press one of the input selector keys of the amplifier to select the source to be listened to during CD recording.



- 4 After completion of recording, press the CD REC key again to turn the CD REC OFF.



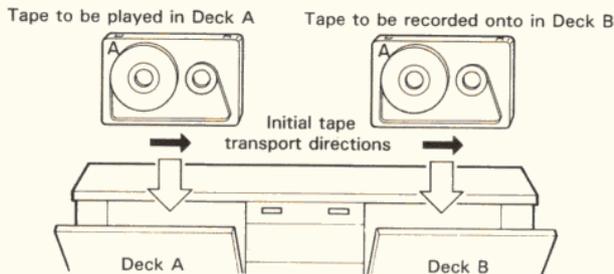
Tape dubbing

The dubbing refers to the copy of the recorded contents of a tape to another tape (tape in Deck A → tape in Deck B).

Normal-speed dubbing: Copy at normal tape speed.

High-speed dubbing: Copy at double the normal speed.

1 Insert tapes in the cassette decks.



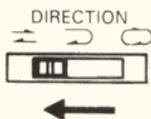
2 Set the same tape transport direction for both decks.

Refer to page 42.



3 Select one-way or two-way dubbing mode.

For one-way dubbing



For two-way dubbing

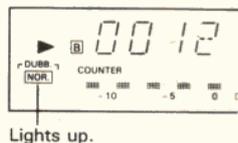
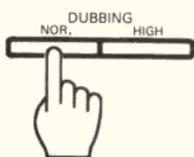


4 Press the AUTO BIAS key.

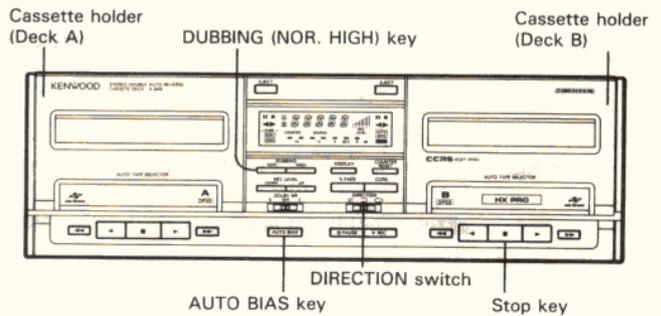
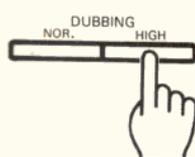
- The optimum bias is set in about 45 seconds, after which the cassette deck enters the stop mode.

5 Start dubbing.

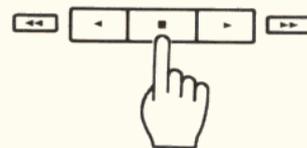
For normal-speed dubbing



For high-speed dubbing



To stop dubbing



Deck B Stop key

- Both decks A and B enter the Stop mode.

To pause dubbing

Normal-speed dubbing: Press the NOR. key.
Double-speed dubbing: Press the HIGH key.

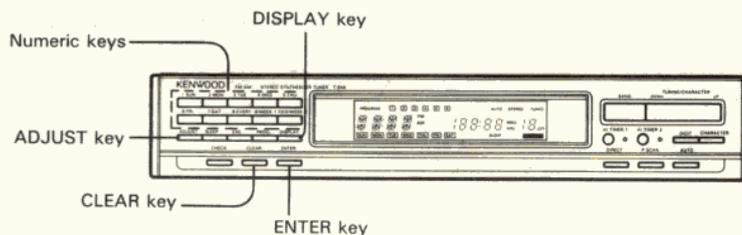
- Deck B enters the record-pause mode after leaving a non-recorded space of about 4 seconds in case of normal-speed dubbing, or about 6 seconds in case of high-speed dubbing.
- To skip tunes you do not dub on another tape during dubbing, press the key of deck A.
- To resume dubbing after pause, press the same DUBBING key as above (NOR. or HIGH key) again.

Notes:

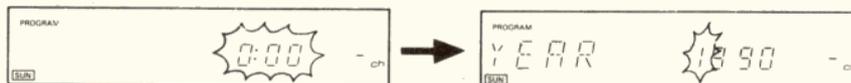
- The recording level cannot be adjusted during dubbing.
- The DOLBY NR switch does not function during dubbing.
- Noise from TV may interfere with dubbed sound if high-speed dubbing is executed near a TV set. To prevent this, install the system further from the TV set.
- If the original tape was recorded at a high level, the sound quality may be degraded if high speed dubbing is used. In such a case, use normal speed dubbing.

Time adjustment

The tuner incorporates the clock function. Adjust the clock to the exact time before timer programming.



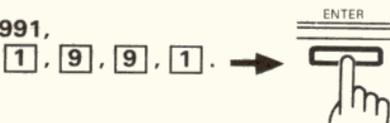
1 Enter the time adjustment mode.



The leftmost digit of the time display blinks.

2 Input the year using the numeric keys, and press the ENTER key.

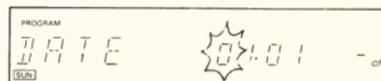
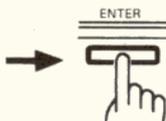
Example: To input the year 1991,
press numeric keys **1**, **9**, **9**, **1**.



3 Input the month then the day, and press the ENTER key.

Example: To input March 7,
press **0**, **3**, **0**, **7**.

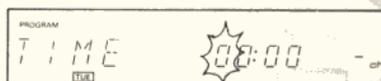
Example: To input December 30,
press **1**, **2**, **3**, **0**.



4 Input the time of the day.

Example: To input 9:05AM,
press **0**, **9**, **0**, **5**.

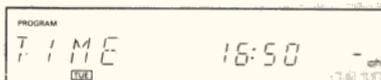
Example: To input 4:50PM,
press **1**, **6**, **5**, **0**.



- If you commit a mistake in the input of numeric keys, press the **CLEAR** key, and re-start the time adjustment from the beginning.

5 Press the ENTER key.

- For correct time adjustment, it is recommended to press the ENTER key at the same time as a time announcement.



Note:

The time display blinks after a power failure or when the power cord was unplugged from the power outlet. In this case, set the time again.

Displayed contents and DISPLAY key

Every time the **DISPLAY** key is pressed while a radio station is received, the displayed content is switched to the frequency, date and time. When a key associated with tuning is pressed while the date or time is being displayed, it is switched to the frequency display, and returns to the previous content in a few seconds. When the DISPLAY key is pressed while the power is OFF, the displayed content is switched alternately between the date and time.

Timer operations

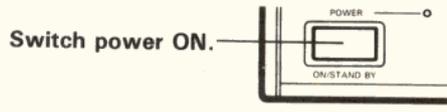
The timer of the system can be used for the following functions.

Program timer: Receives broadcast, record broadcast or plays tape or CD at the specified ON time, and switches power OFF at the specified OFF time. The ON/OFF times can be set in one of the four program patterns, and up to six programs can be set at a time.

AI TIMER 1 When the power is switched ON at the timer ON time, the volume will increase in three steps.

AI TIMER 2 When the power is switched ON at the timer ON time, two tracks of a CD is played first, then the input is switched automatically to the tuner.

Sleep timer: Switches power OFF in up to 90 minutes from the moment it is activated.



■ Preparation for program timer operations

Before proceeding to the following, be sure to set the present time as described in "Time adjustment" on page 55.
 Example: To set 7:30Am to 8:00AM of every morning in program No. 2

1 Enter the program setting mode.

• After pressing the key, press the next key within 5 seconds.

2 Select the program No.

Select by pressing one of numeric keys [1] to [6].
 Example when program No. [2] is selected

3 Select a program pattern.

See the program pattern table below.

Example: When "EVERY" day is selected....this display will not change.

4 Input the ON time.

Example: To input 7:30AM, press [0], [7], [3], [0].

5 Input the OFF time.

Example: To input 8:00AM, press [0], [8], [0], [0].

The MODE display standby status starts.

Program pattern table

Types of Program Patterns	Numeric Keys to be Pressed & Display Example
① ON/OFF only once at the specified day of week	Sunday Monday Tuesday Wednesday Thursday Friday Saturday
② ON/OFF every day at the specified times	8/EVERY
③ ON/OFF at the specified times from Monday to Saturday	9/WEEK 1
④ ON/OFF at the specified times from Monday to Friday	10/O/WEEK 2

■ Timer reception of radio broadcast

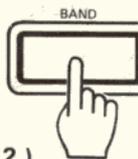
Preparation: 1. Preset radio stations as described on page 22.
2. Make preparation for program timer operations described on page 56.

1 Select the timer PLAY mode.



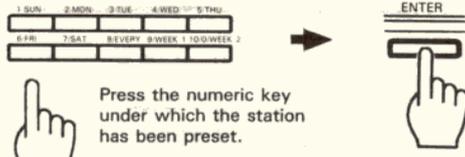
(Refer to Table 1.)

2 Select the tuner band.



(Refer to Table 2.)

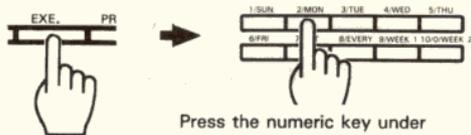
3 Select the desired station.



Press the numeric key under which the station has been preset.

Now the program has been set.

4 Activate the execution of program timer.

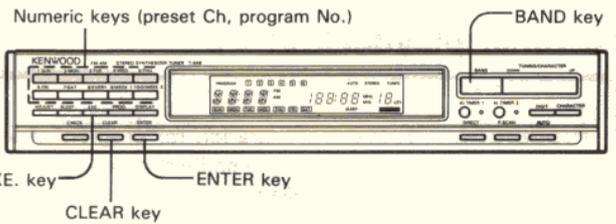
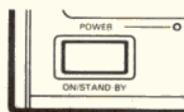


Press the numeric key under which the program No. has been set.

Example when activating program No. 2

5 Adjust the volume and tone. (Refer to Table 3.)

6 Switch the power OFF.



[Table 1]

Selection of PLAY and REC modes



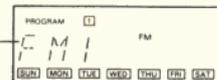
The modes are switched every time the **BAND** key is pressed.



[Table 2]

Selection of input sources

Example when FM1 is selected



The sources are switched every time the **BAND** key is pressed.



- The timer programs shall be set so that they do not overlap. In case the ON periods of two or more time programs overlap, only the program with the smallest program No. will function.
- If you commit a mistake in the timer programming, press the **CLEAR** key and re-start from the beginning.
- If it is required to modify a program which has already been set, set a new program from the beginning.
- When a program has previously been set under the numeric key pressed, the newly-set pattern replaces the previous pattern.

[Table 3]

- It is not required to adjust the volume when using AI TIMER 1 described on page 60.

To continue the reception of radio station which has been started to be received by timer ON:

- Before the OFF timer comes, press the **CLEAR** key then the numeric key for the program being executed.

■ Timer playback of CD

Preparation: 1. Make preparation for program timer operations described on page 56.
2. Place a disc in the CD player.

1 Select the PLAY mode.



Refer to Table 1 on page 57.

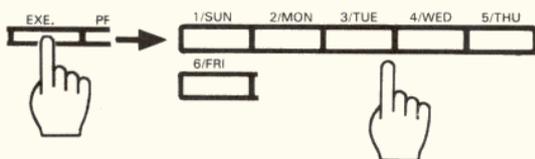
2 Select the CD source.



Refer to Table 2 on page 57.

Now the program has been set.

3 Activate the execution of program timer.

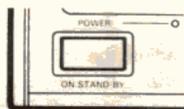


Press the numeric key under which the program No. has been set.

4 Adjust the volume and tone.

Refer to Table 3 on page 57.

5 Switch the power OFF.



■ Timer playback of tape

Preparation: 1. Make preparation for program timer operations described on page 56.
2. Insert tapes to be played in the cassette decks. (Both decks A and B can be used. Deck A is given the priority.)

1 Select the PLAY mode.



Refer to Table 1 on page 57.

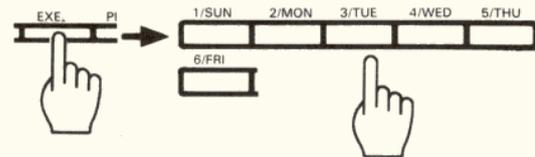
2 Select the TAPE source.



Refer to Table 2 on page 57.

Now the program has been set.

3 Activate the execution of program timer.



Press the numeric key under which the program No. has been set.

4 Select the playback conditions.

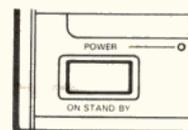
Refer to page 41.



5 Adjust the volume and tone.

Refer to Table 3 on page 57.

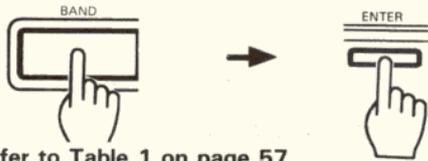
6 Switch the power OFF.



■ Timer recording of radio broadcast ■ To check timer contents

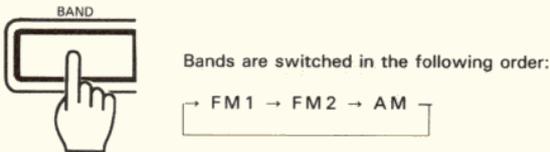
- Preparation:**
1. Check that the CD REC indicator of the amplifier is not lighted.
 2. Make preparations for recording as described on page 45.
 - The Auto-bias function cannot be used.
 3. Adjust the recording level as described on page 46.
 4. Make preparation for program timer operations described on page 56.

1 Select the REC mode.

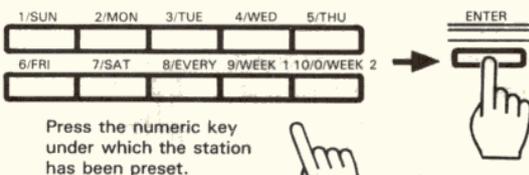


Refer to Table 1 on page 57.

2 Select the tuner band.



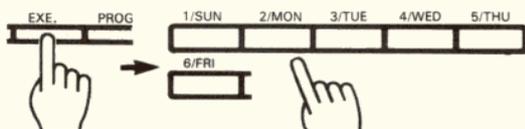
3 Select the desired station.



Press the numeric key under which the station has been preset.

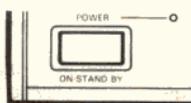
Now the program has been set.

4 Activate the execution of program timer.



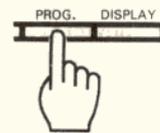
Press the numeric key under which the program No. has been set.

5 Switch the power OFF.

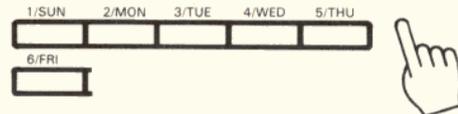


- When the power is turned ON by the program timer, the listening volume will be set automatically to a low volume.

1 Press the PROG. key.



2 Press the numeric key corresponding to the program to be checked.



- Program contents will be displayed for about 3 seconds each. After this, the previous display resumes.

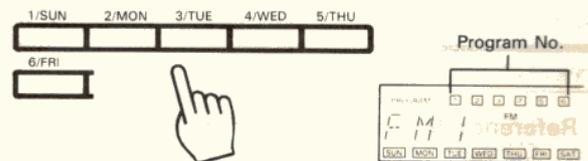
■ To cancel timer operation

The program contents are not cleared even when the timer operation is canceled.

1 Press the CLEAR key.



2 Press the numeric key corresponding to the program of the operation to be cleared.



- The corresponding program No. indicator goes off.

Re-activation of timer operation after canceling it

Since the program itself is retained in memory, make necessary contents of the program timer and perform operation step 3 or 4 of "Activate the execution of program timer".

Notes:

Do not press the [CLEAR] key or [POWER] key when the power is switched ON by the timer. Otherwise malfunction may result.

AI TIMER operations

After setting the program timer and after switching the power OFF, one of the following operations are available by pressing the AI TIMER (Artificial Intelligence TIMER) key. The AI TIMER 1 and AI TIMER 2 keys do not function in the timer recording mode.

■ Operation of AI TIMER 1

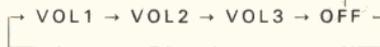
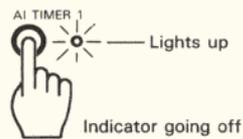
With this function, when the power is switched ON by the program timer, the volume increases in three steps. The maximum volume can be selected from three options.

1 Set the timer playback.

- For timer playback of radio broadcast, refer to page 57.
- For timer playback of CD or tape, refer to page 58.

2 Press the AI TIMER 1 key.

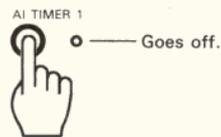
Select the maximum volume.



- The maximum volume levels are switched every time the key is pressed.

To cancel AI TIMER 1

The indicator does not go off when the program timer operation has completed. Be sure to turn off the AI TIMER when not used.



■ Operation of AI TIMER 2

With this function, when the power is switched ON by the program timer, two tracks on the CD is played first, then the input source is switched automatically to the tuner.

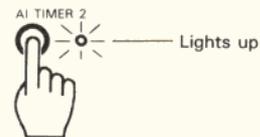
This function is given the highest priority over other program timer functions.

1 Place a disc in the CD player.

2 Perform operations of "Timer reception of radio broadcast".

- Refer to page 57.

3 Press the AI TIMER 2 key.



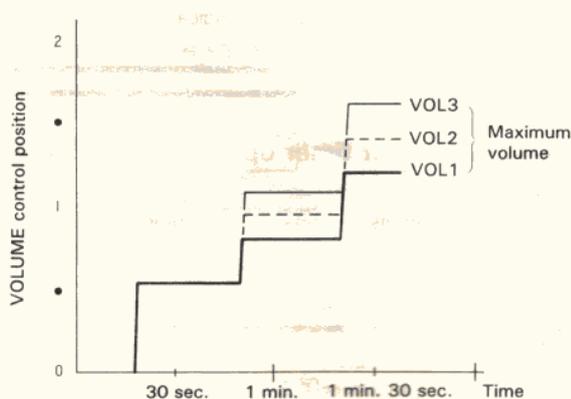
- Press the AI TIMER 1 key if you want to increase the volume in three steps.

To cancel AI TIMER 2

The indicator does not go off when the program timer operation has completed. Be sure to turn off the AI TIMER when not used.



Reference for volume selection



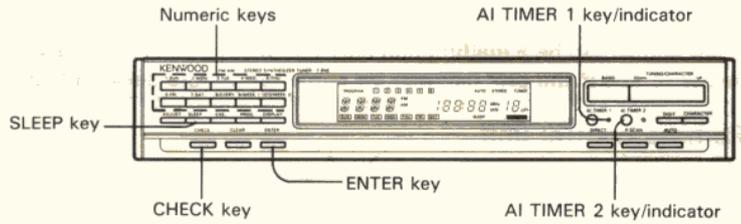
- The VOLUME control rotates as the volume changes.
- The graphic equalizer curve also varies accordingly.

Note:

To use AI TIMER 2, the period between the program timer ON/OFF times should be set so that it is longer than the playing time of the two CD tracks to be played.

If the set timer ON period is too short, power will be switched off in the middle of CD play and all components stop.

When the CD player or another component is operated during CD play, the function of AI TIMER 2 is canceled.



■ Sleep timer

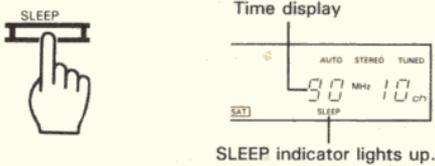
The sleep timer allows to turn the system power off after the specified period has elapsed. The period can be set up to 90 minutes in 10-minute steps. The sleep timer is applied in priority over the timer programs.

■ Calendar check

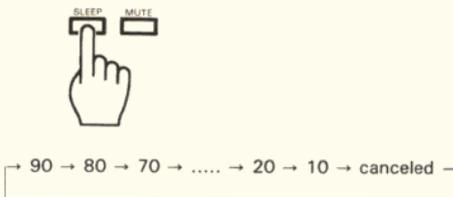
The calendar check allows to display the day of the week of a specified date input by the user. This function covers the range from January 1, 1900 to December 31, 2099.

1 Turn the power ON.

2 Press the SLEEP key once.



3 Press the key until the desired period is displayed.



- Each press decreases the period by 10 minutes.

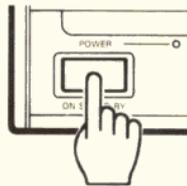
To cancel sleep timer:

Press the **SLEEP** key until the sleep timer is canceled.



Press either of these keys.

Press the **POWER** key to turn the power off (STAND-BY).



1 Press the CHECK key.



2 Input the year.

Use the numeric keys, and press the ENTER key.

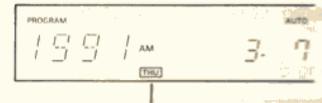
Example: To input the year 1991, press **1**, **9**, **9**, **1**.



3 Input the month then the day.

Use the numeric keys, and press the ENTER key.

Example: To input March 7, press **0**, **3**, **0**, **7**.



- The indicator of the day of the week of the date input above lights up.
- The previous display content resumes in a few seconds.

In case of difficulty

What appears to be a malfunction may not always be serious. If your unit should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your dealer or service representative.

Remote control unit

Symptom	Cause	Remedy
Remote control operation is not possible.	<ul style="list-style-type: none"> Batteries are exhausted. The flat cords and the system control cords are not connected properly. The remote control unit is too far away from the main system, controlling angle is too large, or there is an obstacle in between. The source component to be operated does not contain the analog disk, tape(s) or CD. An attempt is made to play a tape which is being recorded in the cassette deck. 	<ul style="list-style-type: none"> Replace with new batteries. Connect properly referring to "Connections". Operate the remote control unit within the controllable range. Place an analog disk, tape(s) or CD in the source component to be played. Wait until the recording is completed.

Amplifier, speakers

Symptom	Cause	Remedy
Sound is not output.	<ul style="list-style-type: none"> The speaker cords are disconnected. The VOLUME is set to the minimum position. The MUTING key of the amplifier is set to ON and the point indicator is blinking. 	<ul style="list-style-type: none"> Connect them properly referring to "Connections". Adjust the volume to a proper level. Press the MUTING key to OFF.
The input selector audio indicator flashes and no sound comes out.	<ul style="list-style-type: none"> Speaker cords are short-circuited. 	<ul style="list-style-type: none"> Turn the power off, eliminate the short-circuiting, then turn on the power again.
Sound is not output from one of the speakers.	<ul style="list-style-type: none"> The speaker cord is disconnected. The BALANCE control is set to an extreme position. 	<ul style="list-style-type: none"> Connect it properly referring to "Connections". Adjust the Left/Right balance.
Sound is not output from the surround speakers.	<ul style="list-style-type: none"> The [SURROUND] key is not set to ON. The surround speaker cord is disconnected. 	<ul style="list-style-type: none"> Press the [SURROUND] key ON. Connect is properly referring to "Connections".
A hum noise is generated when the PHONO input selector key is pressed.	<ul style="list-style-type: none"> The audio cord from the turntable is not inserted securely into the PHONO jacks. The turntable is not grounded. 	<ul style="list-style-type: none"> Insert the audio cord plugs securely into the PHONO jacks. Connect the grounding wire to the GND terminal on the rear panel.

Tuner

Symptom	Cause	Remedy
The clock display is blinking without changing from a certain time.	<ul style="list-style-type: none"> There was a power failure. The power cord was unplugged. 	<ul style="list-style-type: none"> Set the current time again. Set the current time again.
The timer does not work.	<ul style="list-style-type: none"> The current time is not set, or there was a power failure. The timer ON time and OFF time have not been set. The timer execution has not been specified. 	<ul style="list-style-type: none"> Set the current time referring to "Clock adjustment". Set the timer ON time and OF time. Specify execution by pressing the [EXE] key.
Radio stations cannot be received.	<ul style="list-style-type: none"> No antenna is connected. The broadcast band is not set properly. The frequency of the desired station is not tuned. 	<ul style="list-style-type: none"> Connect an antenna. Set the broadcast band properly. Tune the frequency of the desired station.
A station which was preset cannot be received by pressing the corresponding numeric key.	<ul style="list-style-type: none"> The preset station belongs to a frequency that cannot be received. The preset memory was cleared because the power cord had been unplugged for a long period of time. 	<ul style="list-style-type: none"> Preset a station with a receivable frequency. Preset the station again.
Interference.	<ul style="list-style-type: none"> Noise due to ignition noise of an automobile. Noise due to an influence from an electric appliance. Noise due to a nearby TV set. 	<ul style="list-style-type: none"> Install the outdoor antenna apart from the road. Turn off the power of the appliance. Install the system more apart from the TV set.

Cassette decks.

Symptom	Cause	Remedy
Sounds is not produced when the Play key is pressed.	<ul style="list-style-type: none"> The head is dirty. Tape is irregularly wound and hard to take up. A non-recorded tape is being played. 	<ul style="list-style-type: none"> Clean the head referring to "Cleaning the head section". Replace the tape. Play a recorded tape.
The deck does not work when an operation key is pressed.	<ul style="list-style-type: none"> The cassette holder is not closed completely. The operation key was pressed immediately after closing the cassette holder. The operation key was pressed within less than 3 seconds after the power was turned on. Tape is not inserted. Tape is irregularly wound and hard to take up. Tape has been fully wound to reel. 	<ul style="list-style-type: none"> Close the cassette holder completely. Press the desired operation key in a few seconds after closing the cassette holder. Press the desired operation key in more than 3 seconds after turning the power on. Insert a tape. Replace the tape. Change the tape transport direction or insert the tape inversely.
DPSS malfunctions.	<ul style="list-style-type: none"> The tape is not suitable for DPSS operation, for example the spaces between tunes are too short. 	<ul style="list-style-type: none"> Read "DPSS operation".
CCRS does not work.	<ul style="list-style-type: none"> A recordable tape is not inserted in Deck B. A disc is not placed in the CD player. The disc is dirty. 	<ul style="list-style-type: none"> Insert a recordable tape in Deck B and press the CCRS key. Place a disc in the CD player and press the CCRS key. Clean the disc, place it in the CD player, and press the [CCRS] key.
The dubbing on Deck A and Deck B ends at different timing.	<ul style="list-style-type: none"> This is due to the difference in tape length or to the characteristics of the cassette deck mechanisms. 	<ul style="list-style-type: none"> A small time difference is not regarded as a failure.
The cassette holder does not open when the EJECT key is pressed.	<ul style="list-style-type: none"> The key is pressed during recording or playback. 	<ul style="list-style-type: none"> Press in the Stop mode.
Recording is not initiated when the REC key is pressed.	<ul style="list-style-type: none"> The protection tab on the cassette has been broken. The cassette holder is not closed completely. The recording level is set to the minimum position. The TAPE A or B input selector is selected on the amplifier. Tape has been fully wound to a reel. 	<ul style="list-style-type: none"> Use a cassette with unbroken tab. or close the hole. Close the cassette holder completely. Adjust the recording level referring to "Recording on cassette deck". Press the input selector key of the source to be recorded. Change the tape transport direction of Deck B or insert the tape inversely.
Sound is hoarse, or high frequencies are not audible.	<ul style="list-style-type: none"> The head is dirty. The tape is stretched or wrinkled. 	<ul style="list-style-type: none"> Clean the head referring to "Cleaning the head section". Replace the tape.
Sound is distorted.	<ul style="list-style-type: none"> The recording level was too high. A tape recorded with distorted sound is being played. 	<ul style="list-style-type: none"> Adjust the recording level referring to "Recording on cassette deck". Replace the tape.
Noise level is high.	<ul style="list-style-type: none"> The head is magnetized. External noise is induced. The recording level was too low. A tape recorded with Dolby NR ON is being played with Dolby NR OFF. 	<ul style="list-style-type: none"> Demagnetize the head referring to "Cleaning the head section". Install the system apart from other electrical appliances and TV set. Adjust the recording level referring to "Recording on cassette deck". Press the [DOLBY NR] switch to B or C.
Sound is vibrating.	<ul style="list-style-type: none"> The capstans or pinch rollers are dirty. Tape is irregularly wound. 	<ul style="list-style-type: none"> Clean the head referring to "Cleaning the head section". Wind the tape regularly by fast forwarding, rewinding or playing it fully from one reel to another.

Graphic equalizer

Symptom	Cause	Remedy
Volume is too low.	<ul style="list-style-type: none"> The equalizer levels are set too low at all frequency ranges. 	<ul style="list-style-type: none"> Increase the levels of the equalizer level control keys.
Sound is distorted.	<ul style="list-style-type: none"> The tone controls are set to the maximum positions. 	<ul style="list-style-type: none"> Set the tone controls to the center positions.

CD player

Symptom	Cause	Remedy
Disc has been placed but it cannot be played.	<ul style="list-style-type: none"> The disc is placed upside down. The disc is very dirty. The disc is scratched or damaged. Dew is condensed on the optics lenses. 	<ul style="list-style-type: none"> Place the disc properly, with the labeled side up. Clean the disc then play it again. Replace the disc. Remove condensed dew by referring to "Beware of condensation".
Sound is not produced	<ul style="list-style-type: none"> Disc is not placed. The CD player is not set in the Play mode. 	<ul style="list-style-type: none"> Place a disc and play it. Press the Play/Pause key .
Sound skips.	<ul style="list-style-type: none"> The disc is dirty. The disc is scratched or damaged. Vibrations are applied to the CD player. 	<ul style="list-style-type: none"> Clean the disc then play it again. Replace the disc. Install the system in a place which is not subject to vibrations.

Notes:

1. With some tapes, a squeaky noise is produced when the tape is stopped automatically. This is due to the tape protection function, and not a malfunction.
2. Do not use 120-minute tapes, for the tape is too thin and gets easily tangled.
3. This system is microprocessor-controlled, so malfunction may occur due to external noise or interference noise. In such a case, unplug the power cord, plug it and turn power on again.
4. Do not use contact cleaners because it could cause a malfunction. Be specially careful against contact cleaners containing oil, for they may deform the plastic components.

Specifications

Amplifier

(A-848)

Continuous power output

(IHF '66) From 40 Hz to 20 kHz,
0.09% T.H.D. at 6 Ω 50 W + 50 W

(EIAJ) Maximum useful power output
at 6 Ω 78 W + 78 W

Total harmonic distortion

at rated power 0.09%

Signal to noise ratio (IHF '66)

PHONO (MM) 78 dB

CD, TUNER, LD/AUX, VIDEO/DAT,
TAPE A, TAPE B 80 dB

Input sensitivity/Impedance

PHONO (MM) 2.5 mV/47 k Ω

CD, TUNER, LD/AUX, VIDEO/DAT,
TAPE A, TAPE B 150 mV/47 k Ω

Tone controls

BASS ± 10 dB (at 100 Hz)

TREBLE ± 10 dB (at 10 kHz)

General

Power consumption 300 W

Dimension W: 360 mm

H: 129 mm

D: 373 mm

Weight (net) 7.7 kg

Graphic equalizer

(GE-848)

Graphic equalizer controls

32 Hz, 55 Hz, 90 Hz, 150 Hz,
240 Hz, 400 Hz, 620 Hz, 1 kHz,
1.6 kHz, 2.6 kHz, 4.2 kHz, 6.8 kHz,
10 kHz, 16 kHz

General

Dimension W: 360 mm

H: 109 mm

D: 344 mm

Weight (net) 3.4 kg

Tuner

(T-848)

FM tuner section

Tuning frequency range 87.5 MHz ~ 108 MHz

Usable sensitivity (IHF at 75 Ω) 0.95 μ V/10.8 dBf

Total harmonic distortion (at 1 kHz, 65 dBf input)

MONO 0.4%

STEREO 0.5%

Signal to noise ratio (at 1 kHz, 65 dBf input)

MONO 78 dB

STEREO 72 dB

Stereo separation (at 1 kHz) 40 dB

Alternate channel selectivity

(± 400 kHz) 56 dB

Frequency response

(30 Hz ~ 15 kHz) +0.5 dB, -3.5 dB

AM Tuner Section

Tuning frequency range

9 kHz step 531 kHz ~ 1,602 kHz

10 kHz step 530 kHz ~ 1,610 kHz

Usable sensitivity 14 μ V (500 μ V/m)

Signal to noise ratio

(at 30% mod. 1 mV input) 49 dB

General

Dimension W: 360 mm

H: 69 mm

D: 354 mm

Weight (net) 2.0 kg

Specifications

CD player

(DP-848)

Type	Compact disc player
Read system	Non-contact optical pickup
Rotational speed	About 200 to 500 rpm (CLV normal speed) About 400 to 1000 rpm (CLV double-speed recording)
Frequency response	20 Hz ~ 20 kHz
Signal-to-noise ratio	more than 90 dB
Total harmonic distortion	less than 0.07% at 1 kHz
Channel separation	more than 80 dB at 1 kHz
Wow flutter	Below measurable limit
Maximum dimensions	W: 360 mm H: 107 mm D: 352 mm
Weight (net)	3.3 kg

Cassette Deck

(X-848)

Type	4 track 2 channel stereo
Heads	
Playback/Record head (B deck)	1
Playback head (A deck)	1
Erasing head (B deck)	1
Motors	2 (each deck)
First winding time (A deck)	Approx. 90 seconds with C-60 tape
Frequency response	
Normal tape	30 Hz to 15,000 Hz ± 3 dB
CrO ₂ tape	30 Hz to 16,000 Hz ± 3 dB
Metal tape	30 Hz to 16,000 Hz ± 3 dB
Signal to noise ratio (A deck)	
Dolby NR OFF	58 dB (Metal tape)
Dolby B NR ON	67 dB (Metal tape)
Dolby C NR ON	75 dB (Metal tape)
Wow and flutter	0.08% (W.R.M.S.)
General	
Dimension	W: 360 mm H: 119 mm D: 352 mm
Weight (net)	4.0 kg

Note:

KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.