SONY

CD Radio Cassette-Corder
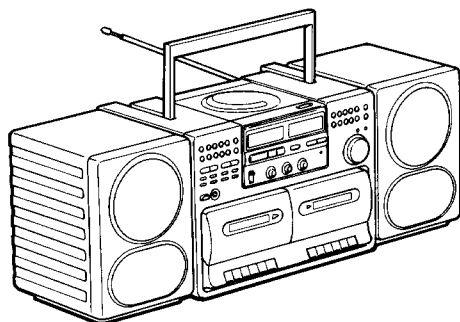
CFD-470/740

Operating Instructions

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

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. CFD-470/740   Serial No. _____

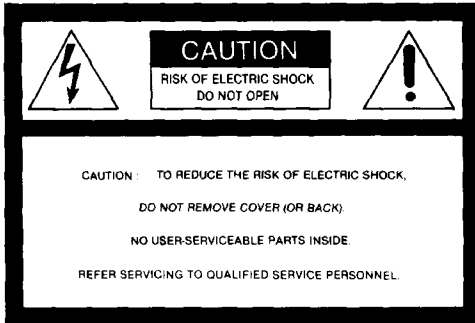CFD-470 is available in the U.S.A. and CFD-740 is available in Canada.

COMPACT
disc
DIGITAL AUDIO

MEGA BASS

© 1991 by Sony Corporation

Table of Contents

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

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

CAUTION

The use of optical instruments with this product will increase eye hazard.

Information

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

Reorient the receiving antenna

Relocate the equipment with respect to the receiver

Move the equipment away from the receiver

Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

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

2

Features

Memory preset tuning
A total of 20 stations can be stored in any order.

High quality sound
The Sony MEGA BASS system produces a powerful bass.

A high performance, high fidelity CD player with many functions
• An 8 cm (3-inch) CD can be played without using an adaptor.
• Repeat function allows playing either the entire disc or a single selection.
• Program play for playing selections in the order desired.
• Shuffle play for playing selections repeatedly in random order.

• A synchronized CD starting system for recording.
• An automatic editing function—The CD player automatically edits the selections on a CD depending on the tape length.

Digital clock timer
• You can listen to CD or radio at a preset time.

Others
High or normal speed tape dubbing

Precautions

On safety
• Operate the unit only on 120V AC or 15V DC.
  For AC operation, use the AC power cord supplied; do not use any other type.
  For battery operation, use ten size D (R20) batteries.
• Unplug the unit from the wall outlet when it is not to be used for an extended period of time.
• When the internal batteries are not to be used, remove them to avoid damage caused by battery leakage and corrosion.
• As the laser beam used in the CD player section is harmful to the eyes, do not attempt to disassemble the casing. Refer servicing to qualified personnel only.
• Should any solid object or liquid fall into the unit, unplug the unit, and have it checked by qualified personnel before operating it any further.

On installation
• Do not leave the unit in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
• If the unit is left in a car parked in the sun, be sure to choose a location in the car where the unit will not be subject to the direct rays of the sun.
• Do not place anything within 10 mm of the side of the cabinet. The ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.
• Since a strong magnet is used for the speakers, keep personal credit cards using magnetic coding or springwound watches away from the unit to prevent possible damage from the magnet.

On operation
• If the unit is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the CD player section. Should this occur, the player will not operate properly. In this case, remove the disc and wait about an hour for the moisture to evaporate.
• If the unit has not been used for a long time, set it in the playback mode to warm it up for a few minutes before inserting a cassette.
• The use of cassettes longer than 90 minutes is not recommended except for long continuous recording or playback.

Whether you are going to operate the unit on AC power or on batteries, make sure to insert three size AA (R6) batteries for the clock/timer/memory functions.

• **If a cassette cannot be removed**
  If the power was accidentally cut off (for example, the AC power cord was disconnected, the batteries fell out or an interruption of the main power source occurred) after ►, REC or HI-SPEED DUB was pressed, it may not be possible to eject the cassette. In this case, supply power to the unit again and then press ■ ▲ to remove the cassette.
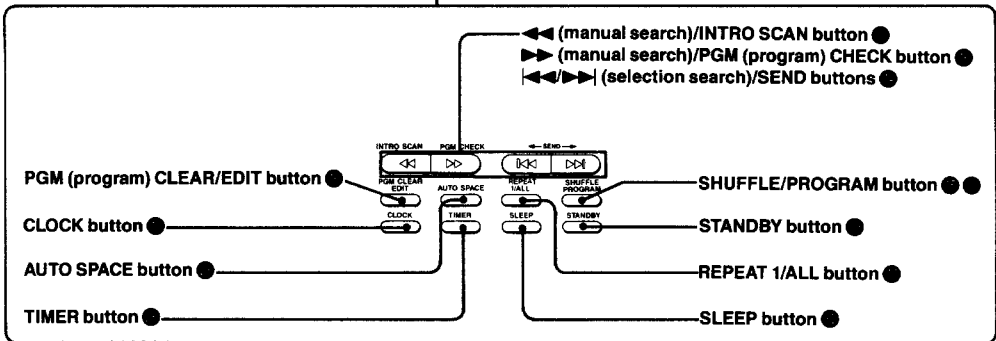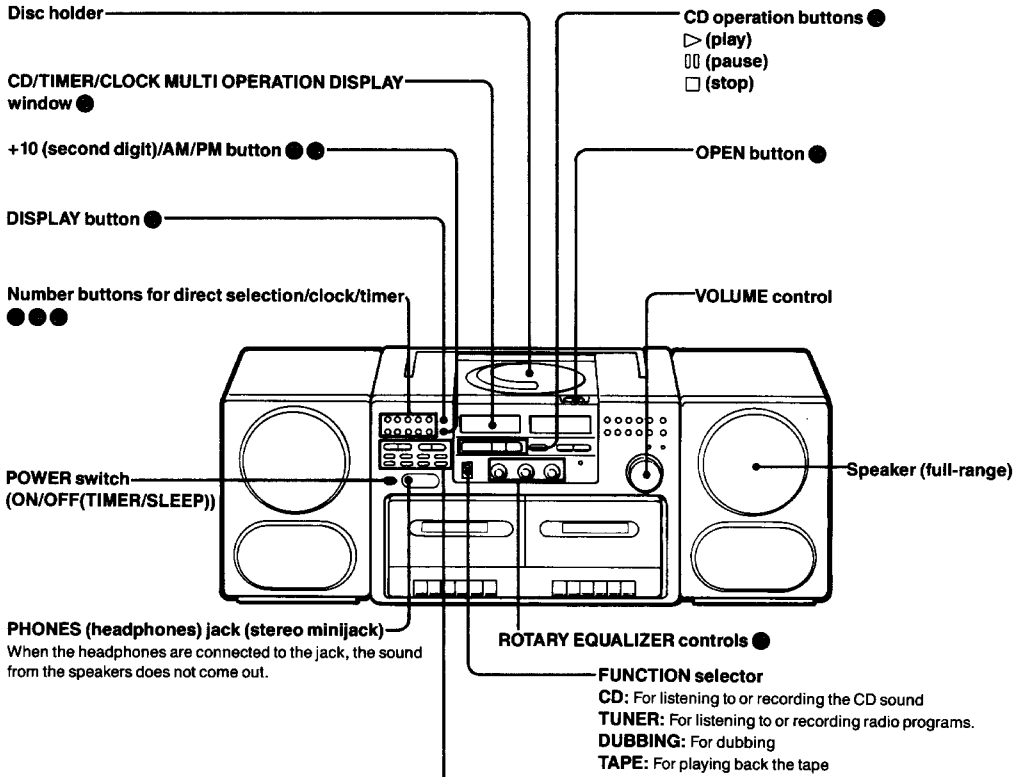• **If the cassette holder cannot be closed firmly**
  Press ■ ▲ to remove the cassette and reinsert it into the holder. Do not attempt to play back or record when the cassette holder is not firmly closed. Otherwise, the cassette may be damaged.

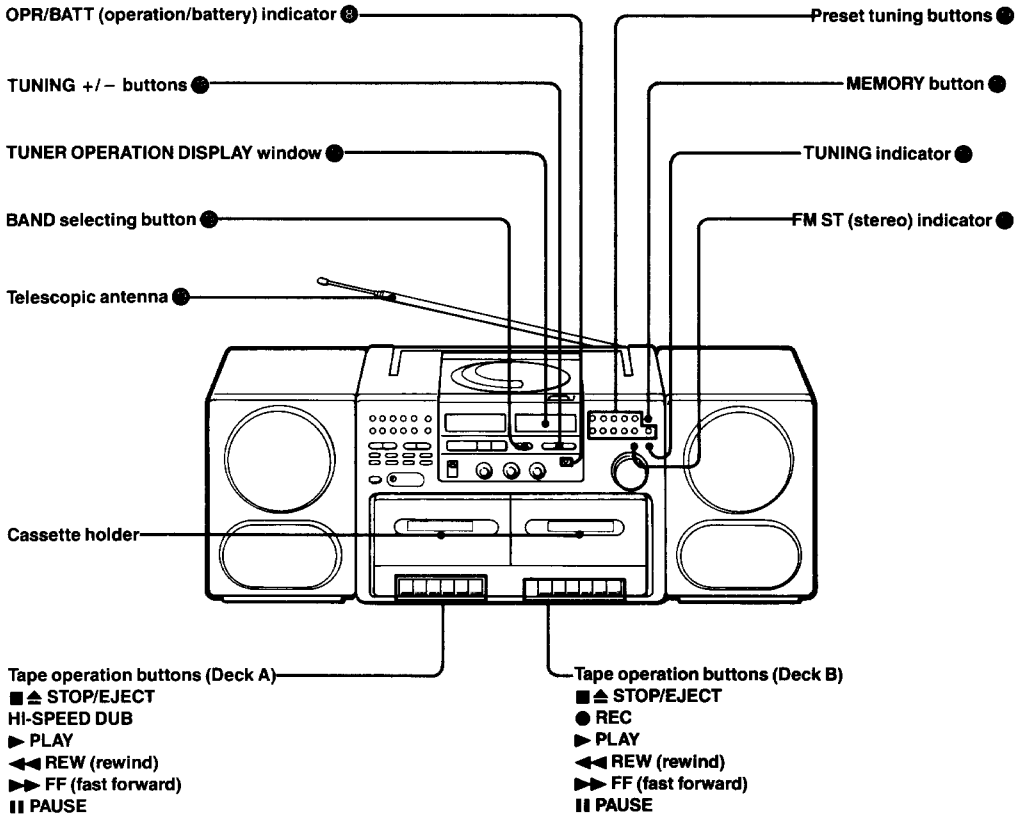If you have any question or problem concerning your unit, please consult the nearest Sony dealer.

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CD Player Section-Clock/Timer Section

Disc holder

CD/TIMER/CLOCK MULTI OPERATION DISPLAY window ●

+10 (second digit)/AM/PM button ● ●

DISPLAY button ●

Number buttons for direct selection/clock/timer ● ● ●

POWER switch (ON/OFF(TIMER/SLEEP))

CD operation buttons ●
▷ (play)
Ⅱ (pause)
□ (stop)

OPEN button ●

VOLUME control

Speaker (full-range)

PHONES (headphones) jack (stereo minijack)
When the headphones are connected to the jack, the sound from the speakers does not come out.

ROTARY EQUALIZER controls ●

FUNCTION selector
CD: For listening to or recording the CD sound
TUNER: For listening to or recording radio programs.
DUBBING: For dubbing
TAPE: For playing back the tape

◄◄ (manual search)/INTRO SCAN button ●
►► (manual search)/PGM (program) CHECK button ●
I◄◄/►►I (selection search)/SEND buttons ●

PGM (program) CLEAR/EDIT button ●

CLOCK button ●

AUTO SPACE button ●

TIMER button ●

SHUFFLE/PROGRAM button ● ●

STANDBY button ●

REPEAT 1/ALL button ●

SLEEP button ●

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OPR/BATT (operation/battery) indicator ⊕

TUNING +/− buttons ⊕

TUNER OPERATION DISPLAY window ⊕

BAND selecting button ⊕

Telescopic antenna ⊕

Cassette holder

Preset tuning buttons ⊕

MEMORY button ⊕

TUNING indicator ⊕

FM ST (stereo) indicator ⊕

Tape operation buttons (Deck A)
■ ▲ STOP/EJECT
HI-SPEED DUB
▶ PLAY
◀◀ REW (rewind)
▶▶ FF (fast forward)
II PAUSE

Tape operation buttons (Deck B)
■ ▲ STOP/EJECT
● REC
▶ PLAY
◀◀ REW (rewind)
▶▶ FF (fast forward)
II PAUSE

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Display Section

CD/TIMER/CLOCK MULTI OPERATION DISPLAY window

TIMER indication ● AUTO SPACE indication ●
Playing mode indication ● ● ● OVER 20 indication ●
Play/pause indication ● Music calendar ●

SHUFFLE	REPEAT	1ALL	AUTO SPACE	OVER20	1	2	3	4	5
PROGRAM					6	7	8	9	10
▷ ⅢⅢ	TIMER CLOCK	STANDBY SLEEP	EDIT		11	12	13	14	15
					16	17	18	19	20

CLOCK indication ●
Selection number/number of selections ●

EDIT indication ●
STANDBY indication ● ●
SLEEP indication ●

Clock display	During CD playing
	Playing time/remaining time
AM,PM indication ● Current time (hour, minute)	SEC (second) STEP/MIN (playing order/ minute)

TUNER OPERATION DISPLAY window

PRESET indication ●
Preset number indication ●

PRESET [ ]

FM AM [ ][ ][ ].[ ][ ] MHz kHz

Frequency indication ●
FM,AM indication ● MHz, kHz indication ●

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MIX MIC (mixing microphone) jack (minijack) ●

FM/SENS selector ●

ISS (interference suppress switch) ●

SPEAKER OUTPUT terminals (R/L) ●

Speaker cord

Battery compartment

AC IN (AC power input) socket ●

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Power Sources

Two separate power sources are needed to operate this unit: one for the unit itself and one for the clock/timer/memory.

You can use the unit either with house current, or batteries. In either case, **be sure to insert batteries for the clock/timer/memory.**

House Current

Insert three size AA (R6) batteries for clock/timer/memory. For battery insertion, see below.

to AC IN

to a wall outlet   AC power cord (supplied)

Batteries

Insert three size AA(R6) batteries for clock/timer/memory.
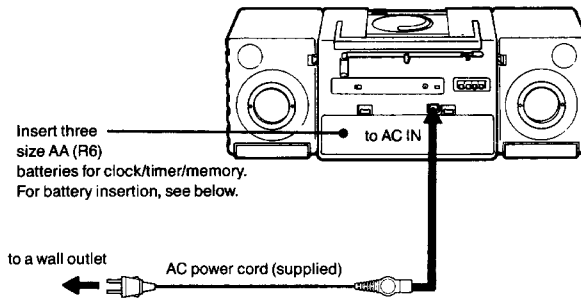
Insert ten size D (R20) batteries
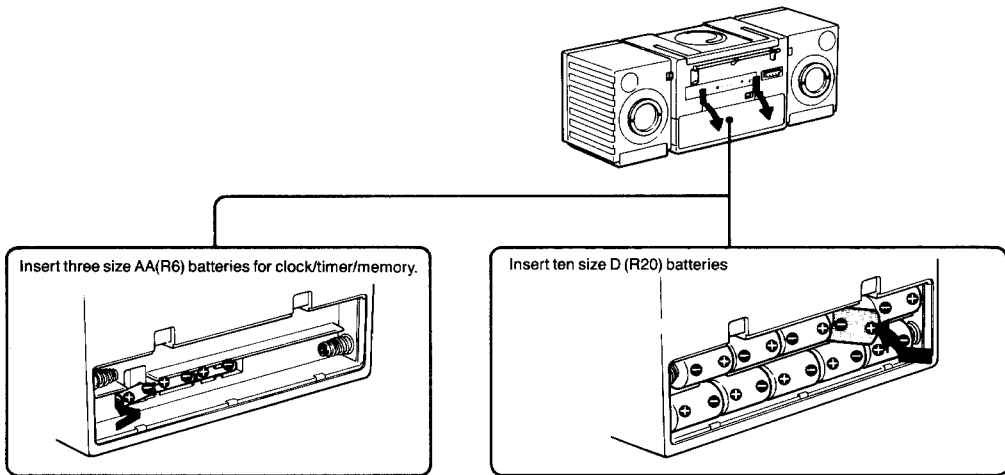
Notes
- The unit cannot be operated on the internal batteries when the AC power cord is connected to the unit.
- For critical recordings or disc playing, operating the unit on house current is recommended.

Battery replacement
Batteries for the operation of the radio cassette-corder:
When the batteries become weak, the OPR/BATT indicator will become faint. In this case, replace all the batteries with new ones.

Batteries for clock/timer/memory:
When the batteries become weak, the indication in the display window becomes faint. Replace the batteries with new ones and then adjust the clock to the current time, reset the timer setting, if necessary.

Note
When you replace the batteries for clock/timer/memory, be sure to connect the AC power cord to the unit and to the wall outlet and turn the power on before you remove the batteries.

8
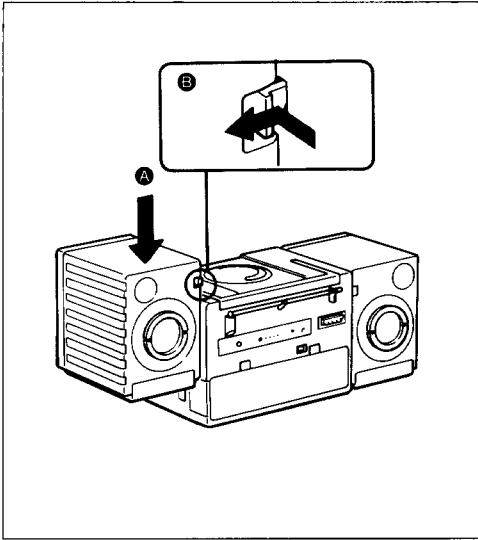
To attach speakers Ⓐ
Align the grooves and slide the speaker box down.

To detach speakers Ⓑ
Unlock the speaker and slide the speaker box all the way up
and away from the main unit.
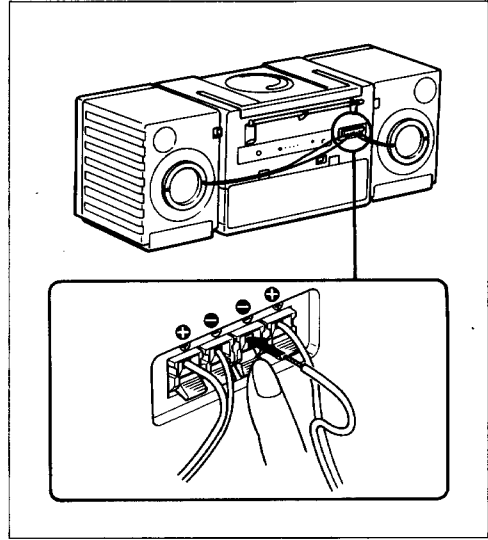
To connect the speaker wire
• Turn off the power before connecting or disconnecting the
  speaker cords.
• Connect the speaker cord of the right speaker to the R con-
  nectors and left speaker to the L connectors.
• Connect black wires to − terminals and red wires to + ter-
  minals.

9
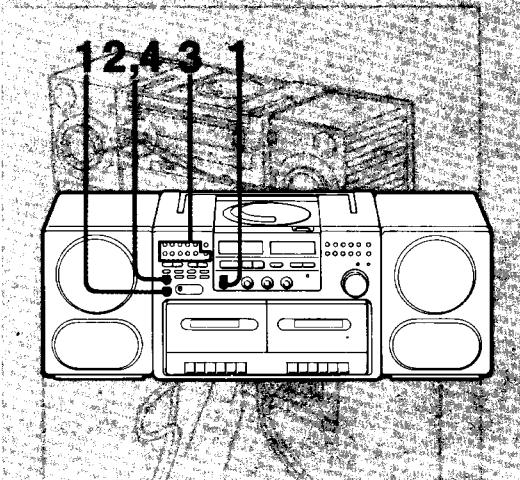
1 Turn the power off.

POWER

⊂⊃
ON Ⅱ

2 Press CLOCK for about 4 seconds until the CLOCK indication appears in the display window.

CLOCK

CLOCK

ᴬᴹ *12:00*

ᴬᴹ *- 2:00*

To Change One Digit

Example: To change AM 1:01 to AM 1:00
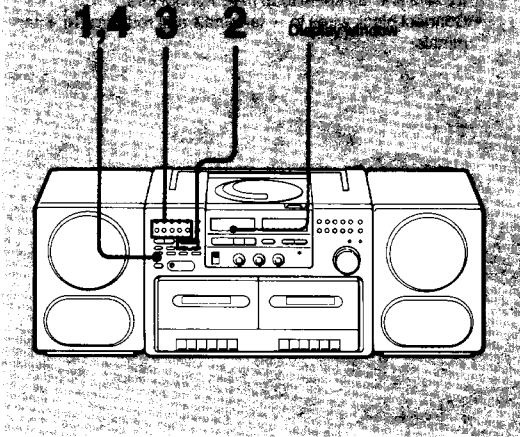
1 Press for about 4 seconds until the CLOCK indication appears in the display window.

CLOCK

CLOCK

ᴬᴹ *- 1:0 1*

2 Press ►►| three times until "—" comes to the last digit.

◄— SEND —►

|◄◄   ►►|
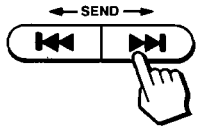
"—" shows the position where the next number will be entered.
"—" moves to the left by pressing |◄◄.

CLOCK   CLOCK

ᴬᴹ *0 -:0 1* ➔ ᴬᴹ *0 1:- 1*

Time indication
AM 12:00 = midnight
PM 12:00 = noon

To set seconds exactly
Ex.: To set the clock to PM7:00 (00 seconds)
Set the clock to PM6:59; then continue to keep CLOCK down. At a signal indicating the exact hour (ex. a radio broadcast or telephone "time" service), release the button.

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3 **Press the number buttons to enter the hour and then the minute.**

If the hour and/or minute has one digit, be sure to press 0 before the number.

Select AM or PM by +10/AM/PM.

Example: To set to PM 8:45.
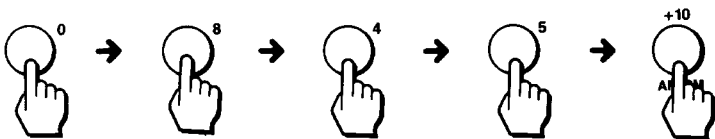

```
CLOCK            CLOCK            CLOCK            CLOCK            CLOCK
"0 -:00   →   "08:-0   →   "08:4 -   →   "08:45   →   ~08:45
```

"—" shows the position where the next number will be entered.

4 **Press CLOCK again.**
The moment you release the button, the clock starts.


```
PM   8:45
```

---
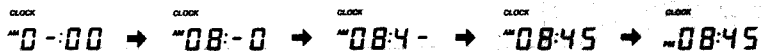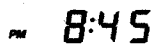
3 Press the number button.

4 **Press CLOCK again.**
The moment you release the button the clock starts.


```
        CLOCK            CLOCK            AM
→ "0 1:0 -   AM"0 1:00        "   1:00
```
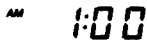
To check the current time

The display window shows the current time except when the CD playing. To check the time while playing the CD, press the CLOCK button.
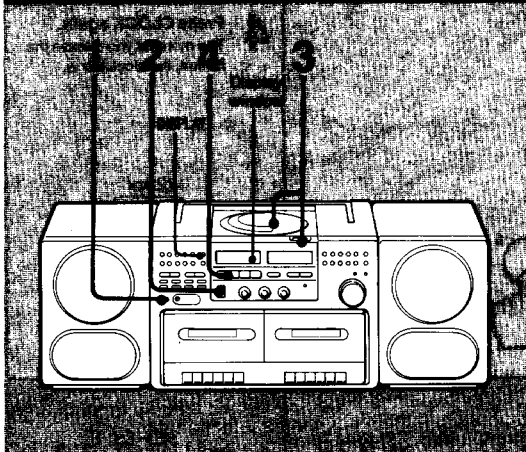
11

1 Press POWER (⊐ ON).

2 Set FUNCTION TO "CD".

POWER

FUNCTION

- CD
- TUNER
- DUBBING
- TAPE
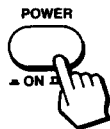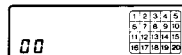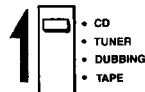
To adjust the volume and tone
Use the VOLUME and ROTARY EQUALIZER controls.
(See page 20.)

CD operating buttons

If you want to	Press
Play	▷
Stop play	☐
pause for a moment	☐☐
resume play after pausing	☐☐
remove a disc	☐→OPEN

After use
Turn the power off (⊐).

Important
Since the CD system offers a wide dynamic range, the peaks of high level inputs are recorded with high fidelity, and the noise level is very low. Do not turn up the volume while listening to a portion with no audio signals or very low level inputs. If you do, the speakers may be damaged when a peak level portion is played.

The selection being played
Press DISPLAY once.

Selection number being played

Remaining time of the selection

The disc being played
Press DISPLAY twice.
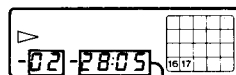
Remaining number of selections

Total remaining time of disc

For normal display, press DISPLAY again.

Note
During shuffle or repeat playing, the remaining time of the disc being played cannot be displayed.

Notes on Compact Disc
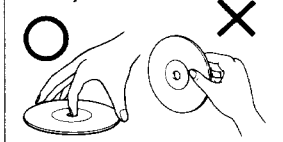
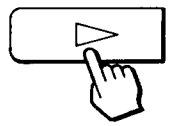| This way	Handle the disc by its edge, and to keep the disc clean, do not touch the surface.	Not this way	Do not stick paper or tape or write anything on the surface.
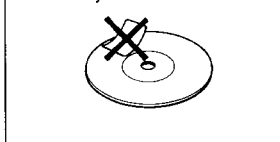
3 ①

Keep the handle down.

Press OPEN.

②

With the labeled surface facing up.
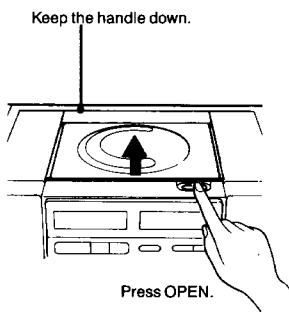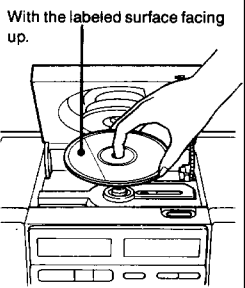
③ Insert the disc and close the holder.

The disc starts to rotate and the indication appears as follows.

Music Calendar

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17			

! 7. 58:! 3.

Total playing time

Total selection number

The indication will return to "00" after about 4 seconds.
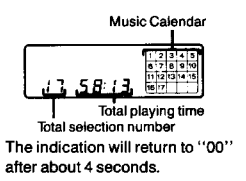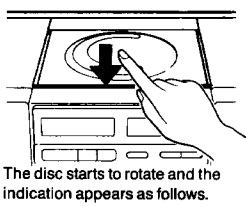
4 Press ▷.

Playing of the first selection starts.

▷
0 ! 00:34

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17			

Elapsed playing time

Selection number being played
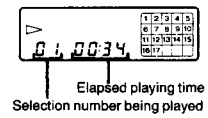
Note
Do not open the disc holder while playing the disc.

Information Display

While CD player is set in pause

▷ ⏸
05 0 !:! 7

| | | | | 5 |
| 6 | | | | |
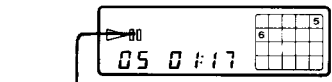
Pause indicator appears.

Between selections
The remaining time for the next selection is displayed.

▷
06 - 00:0 3

| | | | | |
| 6 | | | | |
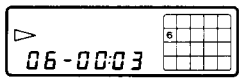
Notes
• If the disc is played near a TV or radio, noise may occur on the TV or radio.
• If there is no disc in the disc holder, the following indication appears in the display window.

no d !5C
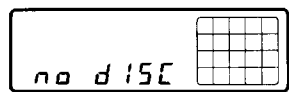
• Up to 20 selections are displayed in the music calendar.
• If the disc has more than 21 selections, OVER 20 appears in the display window.

OVER20

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

00
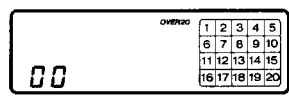
The remaining time of the selection from the 21st selection appears as "——:——". Elapsed playing time is displayed during playing. To see the "total selection number" and "total playing time" while the CD player is set in the stop mode, press DISPLAY.
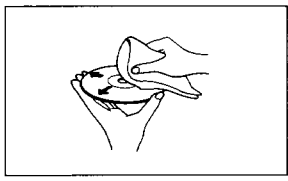
Before playing, clean the disc with the optional CD cleaner. Wipe the disc from the center out.

Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for analog discs.

After playing, store the disc in its case.

Do not expose the disc to direct sunlight or heat source such as hot air ducts, or leave it in a car parked in direct sunlight where there can be considerable rise in the temperature.
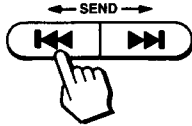
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To Locate the Beginning of a Selection (AMS*)

Be sure the SHUFFLE and PROGRAM EDIT indications are not displayed in the display window. Otherwise, press the SHUFFLE/PROGRAM button.

Press |◄◄ or ►►| during play or pause.

To locate a previous selection

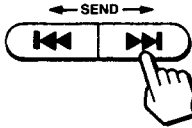Press |◄◄ once to locate the beginning of the selection being played.
Press continuously to locate a previous selection.

←— SEND —→

(|◄◄   ►►|)

To locate a selection ahead

Press ►►| once to locate the next selection after that being played.
Press continuously to locate a selection ahead.

←— SEND —→

(|◄◄   ►►|)

In pause mode

The player pauses at the beginning of each selection. To start playing, press ▯▯.

During program play

If you press |◄◄ or ►►| the player plays the selections in the memorized order.

During shuffle play

The disc does not locate a previous selection but the beginning of the selection being played when the |◄◄ button is pressed.

*AMS: Automatic Music Sensor

For Selecting Directly

If a selection number is less than 10
Press a selection number by using the number buttons.

If a selection number is more than 10
Press +10 first then the number buttons.

| Example: To select the 10th selection	To select the 33rd selection	To select the 30th selection
Press ◯ +10 / AM/PM `1 -`	Press ◯ +10 / AM/PM `1 -`	Press ◯ +10 / AM/PM `1 -`
Press ◯ 0 `10`	Press ◯ +10 / AM/PM `2 -`	Press ◯ +10 / AM/PM `2 -`
	Press ◯ +10 / AM/PM `3 -`	Press ◯ +10 / AM/PM `3 -`
	Press ◯ 3 `33`	Press ◯ 0 `30`

To search for a Particular Point in a Selection (Search)

Press ◄◄ or ►► during play or pause.

To review disc playing   **To advance disc playing**

INTRO SCAN   PGM CHECK
(◄◄   ►►)

INTRO SCAN   PGM CHECK
(◄◄   ►►)
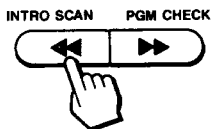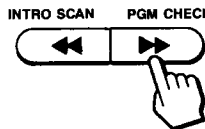
Release the button at the point desired, located by monitoring the high-speed sound.

In the pause mode, you can search rapidly. However, you cannot hear the sound. Observe the time counter.

14

Various Disc Playing Modes

Each time you press the SHUFFLE/PROGRAM button, the playing mode changes in sequence as indicated in the display window: SHUFFLE → PROGRAM EDIT → normal play.

To Play Selections In Random Order (Shuffle Play)
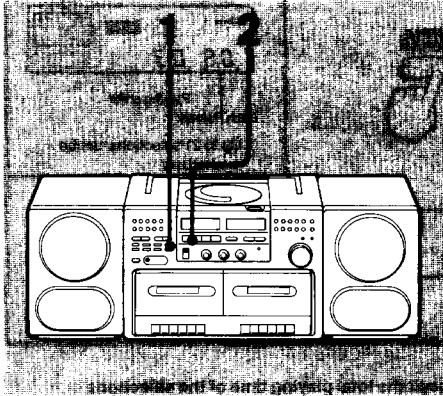
1 Press SHUFFLE/PROGRAM until SHUFFLE indication appears.

SHUFFLE PROGRAM

2 Press ▷.

The selection number will disappear from the music calendar when the selection is finished.

To stop shuffle play
Press □.

To release shuffle play
Press SHUFFLE/PROGRAM until the SHUFFLE or PROGRAM EDIT indication disappears from the display window.
Normal play begins from the selection being played.

To start shuffle play from normal play
Press SHUFFLE/PROGRAM during normal play.
Shuffle play begins from the selection being played.

To display the remaining time of the selection being played
Press DISPLAY once.
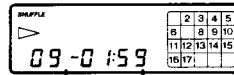
The remaining time of the selection being played.

To return to the normal display, press DISPLAY again.
From the 21st selection, the remaining time will be displayed as "——:——".

Note
During shuffle play, the remaining time of the disc is not displayed.

15

To Play the Selections in the Order Desired—Program Play
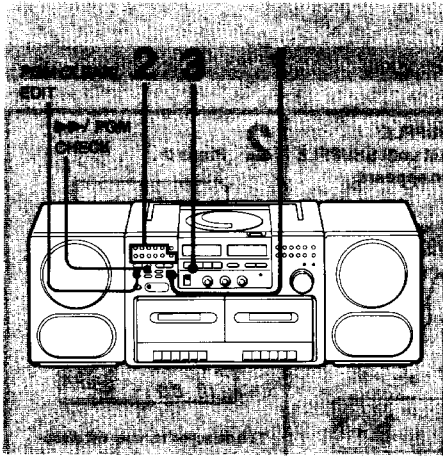
1 Press SHUFFLE/PROGRAM until PROGRAM EDIT appears.

SHUFFLE PROGRAM

2 Press the number buttons in the order desired.

The selections programmed

Playing order
Track number

Up to 21 selections can be memorized.

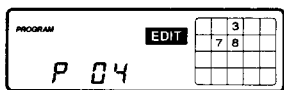**3** Press ▷.

To stop program play
Press □.

To reprogram the selections
• Open and close the disc holder to erase the previous program and repeat the steps from the beginning. Be sure the OPR/BATT indicator lights up; otherwise, the selections programmed cannot be erased.
• Press PGM CLEAR/EDIT to erase the last selection programmed.
Each press of PGM CLEAR/EDIT erases one selection. Press the number button to program in a new order.

To program a pause
Be sure that the AUTO SPACE indication does not appear in the display window. Press ❚❚ at the position desired. Each press of ❚❚ counts as one selection.

During program play the player will be set in pause when it comes to *P.* To resume playing, press ❚❚ again.

To check the programmed selections
During programming, press ▶▶/PGM CHECK. You can check the selections from the beginning. Each press of ▶▶/PGM CHECK shows the programmed selections in order.

To check the total playing time of the selections programmed
During programming, press DISPLAY. The total playing time of the selections programmed appears in the display window.

Selection number   Playing time
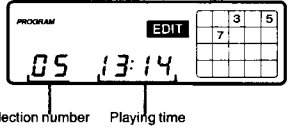
If there is a PAUSE in the programmed selections, the playing time after the PAUSE appears.
To return to the normal display, press DISPLAY again.

When the programmed selections are finished
The selection number in the music calendar disappears one by one, but the programmed selections are memorized until the lid of the disc holder is open.
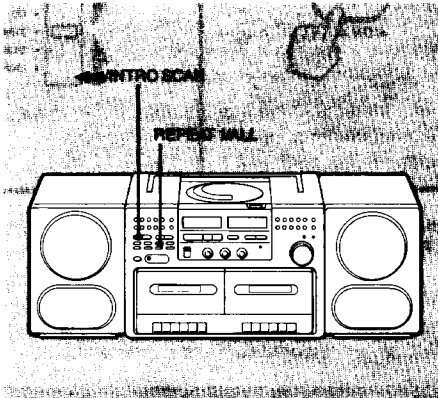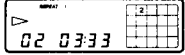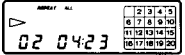
To release program play
Press SHUFFLE/PROGRAM until the PROGRAM EDIT indication disappears from the display window.

Press REPEAT 1/ALL.
Each time you press the REPEAT 1/ALL button, the repeat mode changes in sequence as indicated in the display window: REPEAT 1 → REPEAT ALL → normal play.

To repeat only one selection — Repeat 1 play	To repeat the entire disc — Repeat all play
While playing the selection you want to repeat. **REPEAT 1/ALL**	While playing the disc you want to repeat. **REPEAT 1/ALL**
Be sure REPEAT 1 indication appears in the display window.	Be sure REPEAT ALL indication appears in the display window.
`02 03:33`	`02 04:23`

To stop repeat play
Press □.

To release the repeat play
Press REPEAT 1/ALL until the REPEAT indication disappears from the display window.

To repeat the program play
During program play, press REPEAT 1/ALL. The PROGRAM REPEAT indication appears in the display window, and the programmed selections will be repeated.

To repeat the shuffle play
During shuffle play, press REPEAT 1/ALL. The SHUFFLE REPEAT indication appears in the display window, and the shuffle play will be repeated.

Note
During repeat play, the remaining time of the disc being played cannot be displayed.

You can scan the beginning of the selections in normal play, shuffle play and program play for 10 seconds by pressing ◄◄/INTRO SCAN while the disc player is in the stop mode.
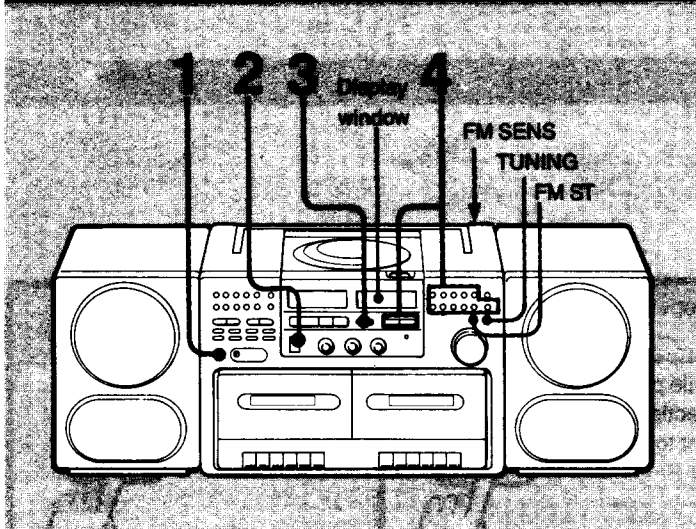
INTRO SCAN

Press

To release INTRO SCAN, press any button for disc play.

Notes
• If PAUSE is programmed in program play, the INTRO SCAN function skips the PAUSE.
• During REPEAT 1 play, the INTRO SCAN function does not work.

17

Listening to Radio Programs

1 Press POWER (☐ ON).

POWER

2 Set FUNCTION to "TUNER".

FUNCTION
- CD
- TUNER
- DUBBING
- TAPE

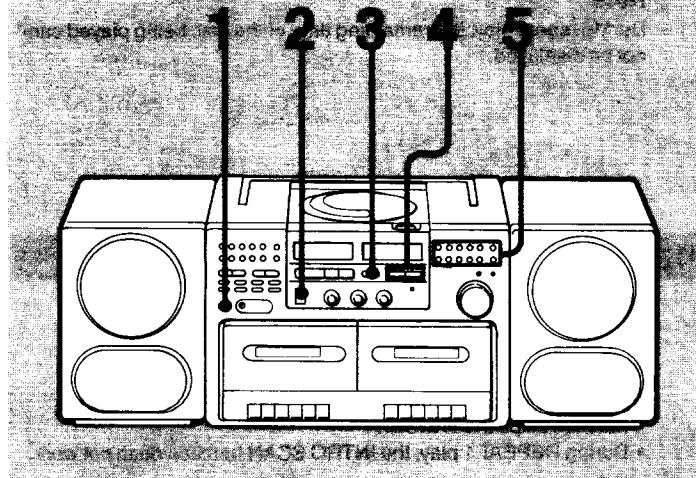**To adjust the volume and tone**
Use the VOLUME and ROTARY EQUALIZER controls.
(See page 20.)

To turn off the radio
Press POWER (☐ OFF).

Memory Preset Tuning

Once you preset the stations, you can listen to the station desired just by pressing the number buttons. You can preset up to 20 stations at random.

Ex. To memorize 89.2 MHz FM at preset 2

1 Press POWER (☐ ON).

POWER

2 Set FUNCTION to "TUNER".

FUNCTION
- CD
- TUNER
- DUBBING
- TAPE

To tune in a preset station
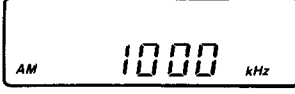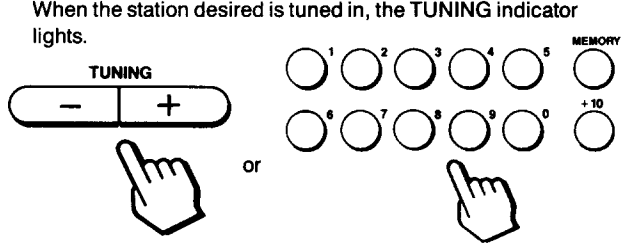After memorizing in the example above: press the preset tuning button 2. Memorized station FM 89.2 MHz will be tuned.

To erase the previous station
Enter a new station on the preset button, and the previous station will be erased automatically.

18

3 Select the band desired, FM or AM.

BAND

530 kHz
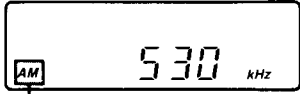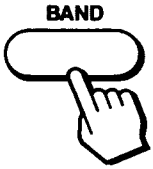
AM or FM

(If the station desired is preset, skip this step.)

4 Tune in a station desired, or press the number button if the stations are preset.

When the station desired is tuned in, the TUNING indicator lights.

TUNING

$-$ | $+$

or

MEMORY

1 2 3 4 5

6 7 8 9 0 +10

AM 1000 kHz

The frequency increases (or deceases) by 10 kHz for AM and by 0.1 MHz for FM each time you press + (or −) of TUNING.

If a preset number is more than 10

Ex. Preset number: 15
Press +10, then press 5 within 5 seconds.

When an FM stereo program is tuned in

FM ST indicator lights up.

If the received FM stereo is too weak

The reception becomes monaural, and the FM ST indicator will go out.

FM SENS selector

While listening to FM programs, normally, set the selector to DX.

However, if a very strong station signal causes noise or if multipath signals are heard, set it to LOCAL. The noise will be reduced.
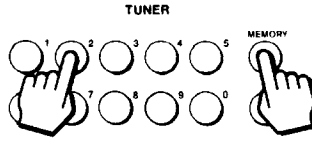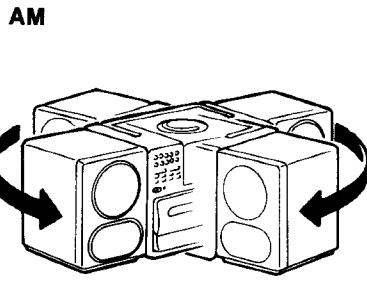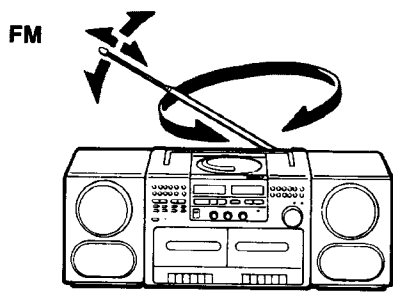
---

3 Select the band desired, FM or AM.

BAND

FM 87.5 MHz

4 Tune in a station desired.

TUNING

$-$ | $+$

FM 89.2 MHz
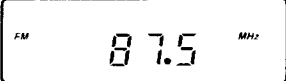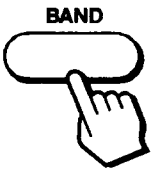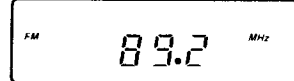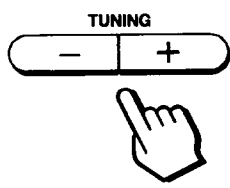
5 While keeping MEMORY pressed, press a preset number desired.

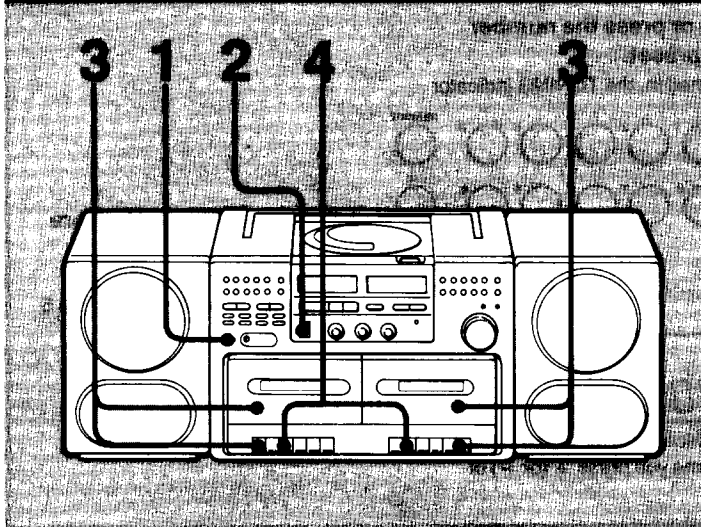TUNER

1 2 3 4 5 MEMORY

7 8 9 0

PRESET 2

FM 89.2 MHz

"2" appears.

If a preset number desired is more than 10

Ex. Preset number desired: 15
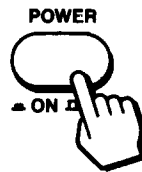While keeping MEMORY pressed, press + 10, then press 5.
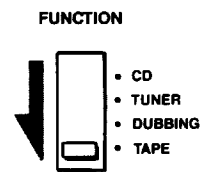

Antenna adjustment

FM

AM

19

Playing Back Tapes (on either deck)

1 Press POWER (⊓ ON).

POWER

⊓ ON

2 Set FUNCTION to "TAPE".

FUNCTION
- CD
- TUNER
- DUBBING
- TAPE

To adjust the volume and tone
Use the VOLUME and ROTARY EQUALIZER controls.

Tape operating buttons

| If you want to	Press
play	▶
stop play	■▲
pause for a moment	II
resume play after pause	II
remove a cassette	■▲ (twice)

After winding with ◀◀ or ▶▶ press ■▲ to release ◀◀ or ▶▶.

After use
Turn the power off (⊓).

For private listening, connect stereo headphones to PHONES jack.

When both decks A and B are in moving mode
When both decks are in playback mode, only playback from deck B will be audible.

20

3 Insert a cassette into deck A or B.

Tape side down

STOP/EJECT

→

Close the holder.
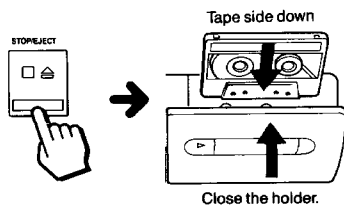
Use the TYPE I (normal) tape.
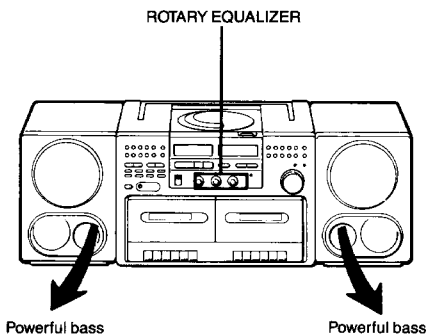
4 Press PLAY.

PLAY

On the deck with the tape inside

Adjusting Sound

To Obtain Powerful Bass

The "MEGA BASS" system produces a powerful bass with the use of a bass reflex system added to a normal speaker system.

ROTARY EQUALIZER

Powerful bass   Powerful bass

To Equalize the Sound Reproduced

Turn each ROTARY EQUALIZER control toward +10 or −10. When the equalizer is not used, set the controls to o (center position).
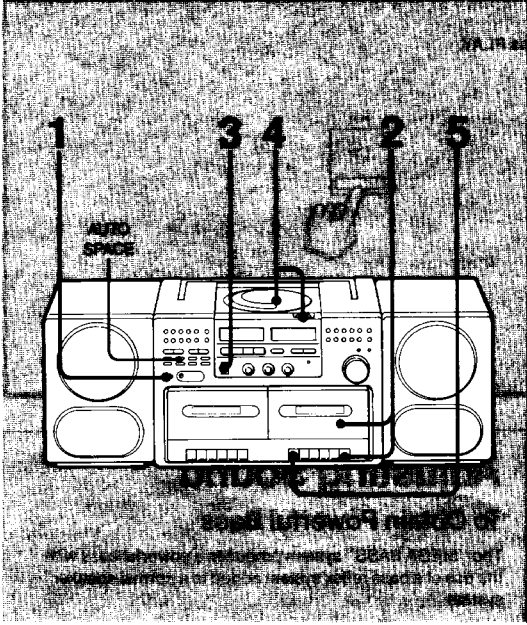
ROTARY EQUALIZER
100 Hz   1 kHz   10 kHz
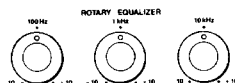
100 Hz: Boost or cut heavy bass.

1 kHz: Provide more presence for vocals.

10 kHz: Adjust the brightness of the sound or reduce tape hiss.

21

Recording CD Sound (Deck B)

1 Press POWER (⌐ ON).

POWER

2 Insert a blank cassette into deck B.
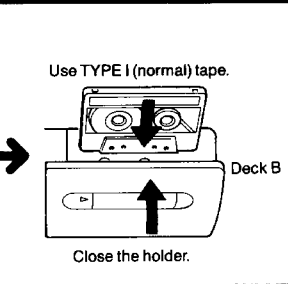
STOP/EJECT

4 Insert a disc.

Press OPEN.

To stop recording
Press □ of CD player and ■▲ of deck B.

After recording
Turn the power off (⌐).
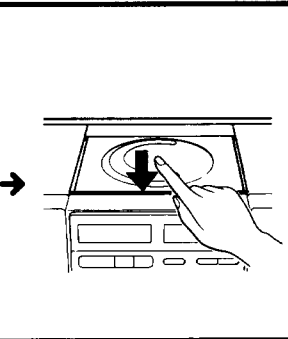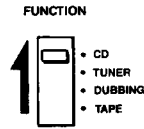
The recording level is adjusted automatically.
The settings of VOLUME and ROTARY EQUALIZER will not affect the recording level.

Note
You cannot turn off the power even if you press POWER during recording.
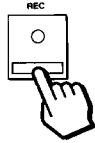

To prevent accidental erasure
Break off the tab corresponding to side which has been recorded. Recording will be protected.

Recorded side

Tab

To re-record cassette

22

3 Set FUNCTION to "CD".

Use TYPE I (normal) tape.

Deck B

Close the holder.

FUNCTION

- CD
- TUNER
- DUBBING
- TAPE

5 Press REC.

REC

► is pressed automatically.
After approx. 8 seconds, CD
starts automatically and the
recording starts. (CD syn-
chronized starting system)

To Record in Shuffle/Program Mode

1 Press POWER and set FUNCTION to "CD".
2 Select shuffle or program play.
3 Press the REC button.
Playback of the disc and recording starts automatically after
a few seconds.

To insert the four-second spaces for the tape while recording CD programs

Press AUTO SPACE.
A Four-second blank space is automatically recorded on the
tape.

AUTO SPACE

AUTO
SPACE

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

00

Press AUTO SPACE again for normal recording.

23

This CD radio cassette-recorder automatically edits the selections on a disc according to the tape length (recording length).
The recording length can be specified up to 99 minutes.

To edit automatically, use the PGM CLEAR/EDIT button. Each time PGM CLEAR/EDIT you press, the editing mode change in sequence as indicated in the display window:
EDIT 1 → EDIT 2 → normal recording.

EDIT 1: This unit programs the selections beginning from the first one on the disc, summing up the playing time. When the accumulated playing time exceeds half of the specified tape length (= tape length of the front side), the last selection is arranged to be recorded on the reverse side of the tape.

EDIT 2: This unit programs the selections beginning from the first one on the disc, summing up the playing time. When the accumulated playing time exceeds half of the specified tape length (= tape length of the front side), the last selection will be eliminated. Then, the unit looks for a selection whose length is within the remaining tape length of the front side, and substitutes it for the one eliminated.
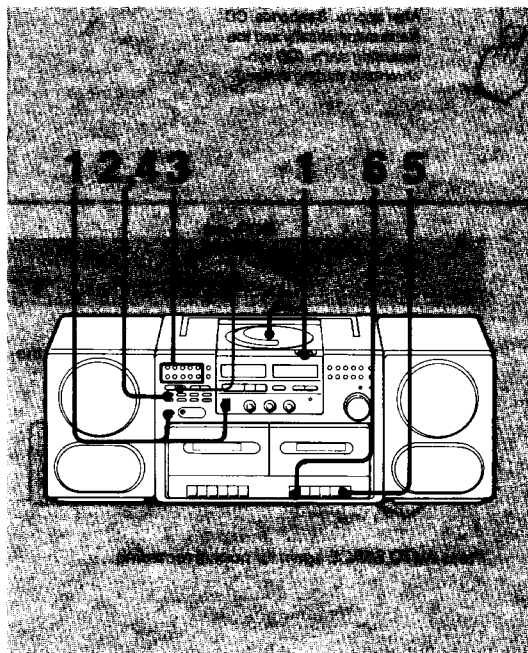
1

Insert a disc.
(Steps 1 through 3 in "Playing Discs")

Be sure the SHUFFLE, the PROGRAM ▮EDIT▮ or AUTO SPACE indication disappears in the display window; otherwise, press SHUFFLE/PROGRAM or AUTO SPACE.

2 Select EDIT 1 or EDIT 2.

EDIT 1

PGM CLEAR EDIT

Press once.
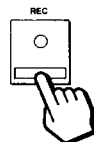
EDIT 2

PGM CLEAR EDIT

Press twice

5

Insert a blank cassette in deck B.
Use TYPE I (normal) tapes.

6 Press REC.
► is pressed automatically.

REC

To check the programmed selections
Press ►►/PGM CHECK. You can check the selections from the beginning one by one.
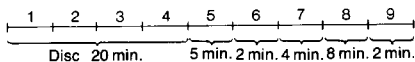
When recording on the front side is finished
The CD player is set to the pause mode and the cassette deck is set to the stop mode. Operate as follows:
① Take out the cassette and reverse the recording side.
② Reinsert the cassette and press REC of the cassette deck and ▮▮ of the CD player.
The CD player starts to play and the cassette deck starts to record on the reverse side.

Example: To record on a 46-minute-tape
(23 minutes for each side)

```
  1    2    3    4    5    6    7    8    9
|--+--+--+--+--+--+--+--+--+--|
     Disc  20 min.      5 min. 2 min. 4 min. 8 min. 2 min.
```

EDIT 1: Front side: ①②③④

total 20 minutes

Reverse side: ⑤⑥⑦⑧⑨

total 21 minutes

EDIT 2: Front side: ①②③④⑥

total 22 minutes

Reverse side: ⑤⑦⑧⑨

total 19 minutes

Notes
- Use a tape which is longer than the total playing time.
- Up to 20 selections can be edited automatically.
- When PGM CLEAR/EDIT is pressed, the selection order memorized for program play will be erased.
- To record the selections which cannot be recorded on the specified tape, after the selection programmed for automatic editing, press SHUFFLE/PROGRAM and record them in the program play.
- When the disc holder is open, the selection order programmed for automatic editing will be erased.

3 Enter the total length by pressing the number buttons.

Ex. 46-minute tape
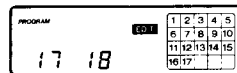Press "4", then "6".

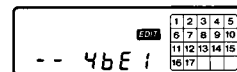Ex. 90-minute tape
Press "9", then "0".

4 Press PGM CLEAR/ EDIT.

When the total playing time is shorter than the tape length, the CD player will be set in the program mode.

PGM CLEAR
EDIT

When the total playing time is longer than the tape length, change the tape for a longer one and repeat from step 3.

After approx. 8 second, CD starts automatically and the recording starts. (CD synchronized starting system.)
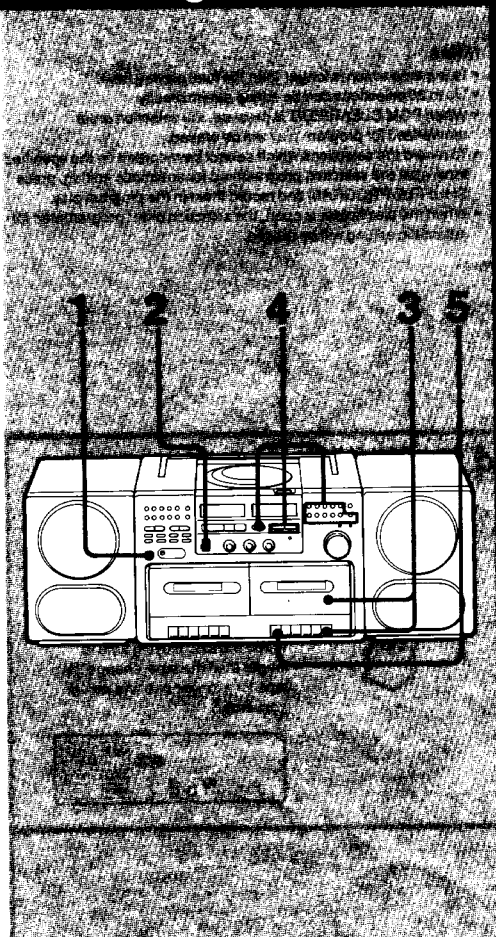
To stop recording
Press □ of the CD player and ■ ▲ of the cassette deck.

After recording
Turn the power off (⌐).

25

Recording Radio Sound (Deck B)

1 Press POWER (▭ ON).

POWER

2 Set FUNCTION to "TUNER".

FUNCTION
- CD
- TUNER
- DUBBING
- TAPE

3 Insert a blank cassette into deck B.
Use TYPE I (normal) tape.

STOP/EJECT

→ Deck B

Deck B   Close the holder.

4

Select the band desired, FM or AM and tune in the station desired.
(See page 19.)

5 Press REC.

REC

▶ is pressed automatically.

To stop recording
Press ■ ▲.

After recording
Turn the power off (▭).

**The settings of VOLUME and ROTARY EQUALIZER will not affect the recording level.**

Note
- You cannot turn off the power even if you press POWER during recording.

To reduce noise during AM recording
If a whistling noise is heard, which was inaudible before the REC button is pressed, set the ISS switch on the rear panel to 1, 2 or 3, depending on which one best reduces the noise.
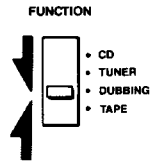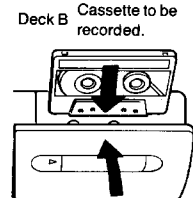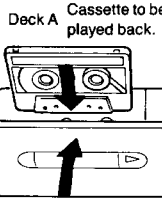
26

Tape Dubbing (from deck A to deck B)
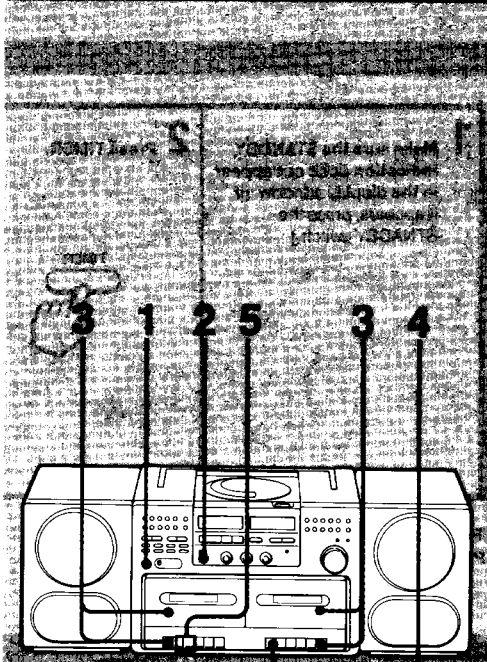
1 Press POWER (⌐ ON).

POWER
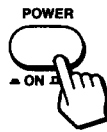
2 Set FUNCTION to "DUBBING".

FUNCTION

- CD
- TUNER
- DUBBING
- TAPE

3 Insert a recorded cassette into deck A.
Insert a blank cassette into deck B.

Deck A — Cassette to be played back.

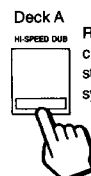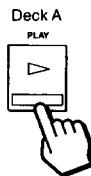Deck B — Cassette to be recorded.

Use TYPE I (normal) tape.

4 Press REC.

REC

Deck B

▶ is pressed automatically.
The unit will stand by.

5 For normal dubbing   For high-speed dubbing

Deck A
PLAY

Deck A
HI-SPEED DUB

Recording standby is automatically released and dubbing starts. (synchronized starting system)

To stop dubbing
Press ■▲ of deck A and then deck B.

After dubbing
Turn the power off (⌐).

No volume adjustment is necessary during dubbing
Recording level is automatically set. So turn down the volume if you do not want to hear the high speed sound during high speed dubbing.

Notes
- If deck A's tape finishes first, ▶ will automatically be released and deck B will also stop. ● and ▶ are still depressed. To release them, press ■▲.
- If deck B's tape finishes first, ● and ▶ will automatically be released. Deck A will continue to play.
- You cannot turn off the power even if you press POWER during dubbing.
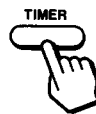
27

To Set the Timer-on Time

Only the starting time can be preset. The power turns itself off automatically after two hours.
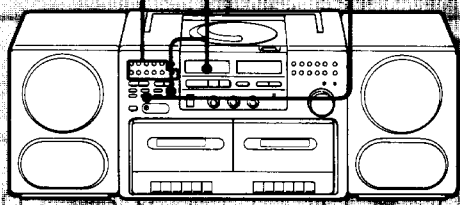
1 Make sure the STANDBY indication does not appear in the display window. (If it appears, press the STNADBY switch.)

2 Press TIMER.
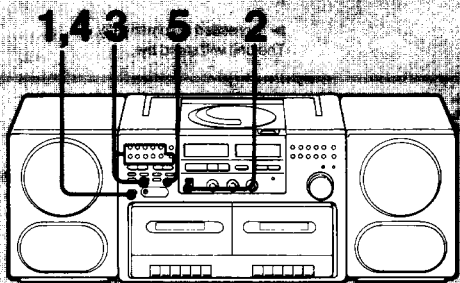
TIMER

If the timer is preset by mistake
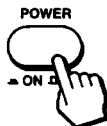Repeat the above steps. The previous preset goes off.

To check the preset time
Press TIMER in the standby mode.

To Listen to the Sound at the Time Desired

Check that the clock shows the current time. If it does not, see "To set the Timer-on Time".

1 Press POWER (⌐ ON).

POWER

⌐ ON ⌐

2 Select the sound source desired.

FUNCTION

• CD
• TUNER
• DUBBING
• TAPE
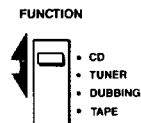
At the preset time
The sound will come on automatically at the preset time, and will turn off automatically after two hours have elapsed.

To release the timer standby mode
Press STANDBY. The STANDBY indication disappears from the display window.

To listen to the discs in various playing modes at the time desired
1 Press POWER (⌐ ON).
2 Set FUNCTION to "CD".
3 Be sure that the disc player is in the stop mode and select the playing mode desired from REPEAT 1/ALL, SHUFFLE and PROGRAM. (See page 15–17.)
4 Set the timer.
5 Turn the power off (⌐ OFF (TIMER/SLEEP)).
6 Press STANDBY so that the STANDBY indication will appear in the display window.

The playing will start automatically at the preset time.

28
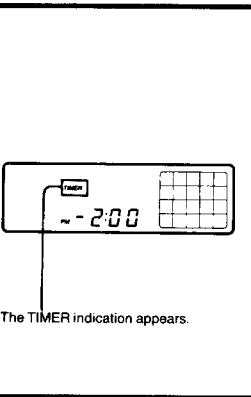
3 Press the number buttons to program the starting time.
Ex. Set to 6:15 a.m.

The TIMER indication appears.
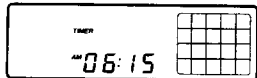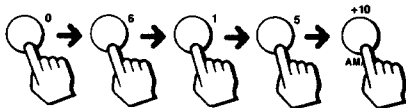
4 Press TIMER.

TIMER

The current time appears in the display window.

Note

Be sure to program AM and PM correctly.

AM 12:00=midnight
PM 12:00=noon

	FUNCTION selector	Preparation
To listen to a disc	CD	Insert a disc into the disc holder
To listen to a radio	TUNER	Select the band and tune in the station desired.

3

Set the timer.
(See above.)

4 Turn the power off(□ OFF (TIMER/SLEEP)).

POWER

5 Press STANDBY.

STANDBY

STANDBY indication

Make sure that the STANDBY indication appears in the display window.

If you want to listen to the sound at the same time in the next day

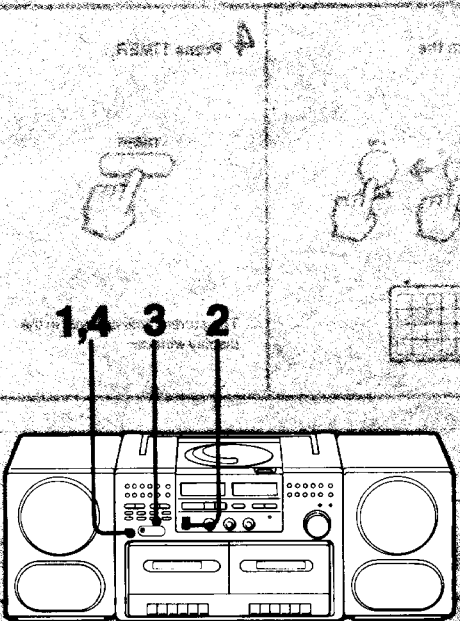The preset time is memorized once you set it so that you do not need to set it again. Press STANDBY again if STANDBY indication does not appear in the display window.

29
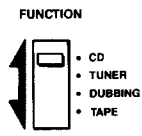
To Fall Asleep with the Sound Desired—Sleep Function

1 Press POWER (⊐ ON).

POWER

2 Select the sound source desired and play it.

FUNCTION

- CD
- TUNER
- DUBBING
- TAPE
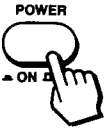
3 Press SLEEP to start the sleep function.

SLEEP

SLEEP appears.

The sound source will turn itself off after 60 minutes.

4 Turn the power off (⊐ OFF (TIMER/ SLEEP)).

POWER

To release the sleep function before 60 minutes have elapsed
Press SLEEP again to erase the SLEEP indication.

You can fall asleep with the sound desired and you will be awaked by the same program at the preset time.
1 Follow the steps as described in "To Fall Asleep with the Sound Desired".
2 Follow the steps as described in "To Listen to the Sound at the Time Desired" (See page 28).

The SLEEP and STANDBY indications are displayed in the display window.

30

1
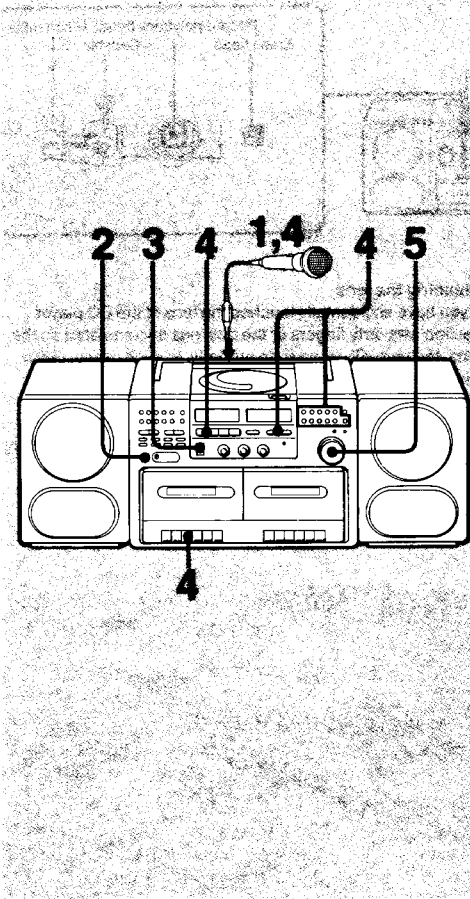
Connect a microphone (not supplied) to MIX MIC.

If the microphone has a power switch, set it to on.

Use a monaural microphone.

2 Press POWER (_ ON).

POWER

3 Select the sound source desired.

FUNCTION

Sound source	FUNCTION selector
CD sound	CD
Radio programs	TUNER
Tape sound *	DUBBING

* Insert a cassette to be played back into deck A.

4

Play the sound source and speak or sing into the microphone.

5

Adjust VOLUME.

To record mixed sounds

Insert a cassette into deck B and press the REC button.

Public address system

1 Connect a microphone to MIX MIC.
  If the microphone has a power switch, set it to on.
2 Press POWER (_ ON).
3 Set FUNCTION to "TAPE".
4 Adjust VOLUME.

Notes

• If a howling (acoustic feedback) occurs, move the microphone away from the speakers.
• It is not recommended to use a microphone equipped with echo function.

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Cleaning the heads and tape path

Contaminated heads cause insufficient recording or sound drop-out in playback.

We recommend cleaning after every 10 hours of operation. To make the best possible recordings, however, you should clean all surfaces over which tape travels before making each recording.

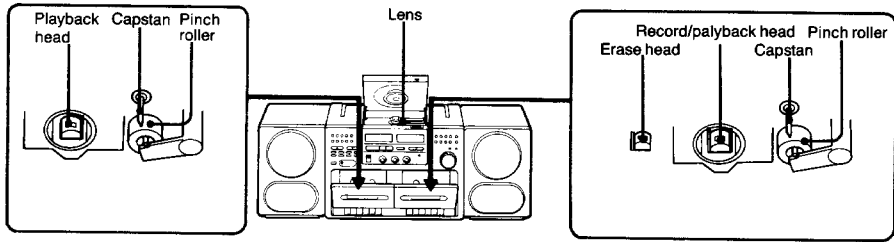Wipe the heads, the pinch rollers and the capstans with a cleaning tip slightly moistened with cleaning fluid or alcohol.

After cleaning the heads, rollers and tape path, insert a cassette when the areas cleaned are completely dry.

Demagnetizing heads

After 20 to 30 hours of use, enough residual magnetism will have built up on the heads to begin to cause loss of high frequencies and hiss. At this time you should demagnetize the heads and all metal parts in the tape path with a commercially available head demagnetizer.

Cleaning the lens

If you have accidentally touched the lens of the CD player section with dirty fingers or the dust has accumulated on the lens, the unit will not operate properly. In such cases, clean the lens with lens cleaning kit (not supplied).

Cleaning the cabinet

Celan the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

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Specifications

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 6-ohm loads, both channels driven from 500-10,000Hz: rated 2W per channel-minimum RMS power, with no more than 10% total harmonic distortion in AC operation.

OTHER SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs
	Wavelength 780nm
	Emission duration: Continuous
	Laser output: Less than 44.6μW *
	*This output is the value measured at a distance of about 200mm from the objective lens surface on the optical pick-up block.
Spindle speed	200 r.p.m. to 500 r.p.m. (CLV)
Error correction	Sony Super Strategy Cross Interleave Read Solomon Code
Number of channels	2
Frequency response	20—20,000Hz $^{+0}_{-2}$ dB
Wow and flutter	Below measurable limit

Radio section

Frequency range	FM: 87.5—108MHz
	AM: 530—1,710kHz
Antennas	FM: Telescopic antenna
	AM: Built-in ferrite bar antenna

Tape recorder section and general

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 2 min, with Sony cassette C60
Frequency response	• Total with TYPE 1 (NORMAL) cassette: 80—10,000Hz
	• Playback with TYPE 1 (NORMAL) cassette: 60—12,000Hz
Speaker	Two-way speakers:
	Full-range: 10cm dia., cone type
	Woofer: 8cm dia.
Power output	Model for Canada
	Two-way speakers: 6W + 6W (at 3.2 ohms, 315Hz, 10% harmonic distortion)
Inputs	Mixing microphone input jack (minijack)
	Sensitivity 2.5mV
	For low impedance microphone
Outputs	Headphones jack (stereo minijack)
	For 16—68 ohms impedance headphones
Power requirements	120V AC, 60HZ
	DC 15V, 10 size D (R20) batteries for CD radio cassette-corder
	DC 4.5V, 3 size AA (R6) batteries for clock/timer/memory
Power consumption	25W

Battery life   Batteries for CD radio cassette-corder

	Recording	Playback	CD playing
Sony SUM-1 (NS)	approx. 9H	approx. 4H	approx. 1.5H
Sony Alkaline AM 1 (N)	approx. 16H	approx. 8H	approx. 4H

Dimensions	696 × 255 × 236mm (w/h/d)
	(27^1/2 × 10^1/8 × 9^3/8 inches)
	not incl. projecting parts and controls
Weight	Approx. 9.4kg, incl. batteries
	(Approx. 20 lb 12 oz)
Supplied accessory	AC power cord (1)

Design and specifications subject to change without notice.

OPTIONAL ACCESSORIES

Stereo headphones	Sony "MDR" Headphone Series
Dynamic microphone	Sony "DYNAMIC MICROPHONE" series
Cassette erase	BE-A200
Head demagnetizer	HE-5C
Head cleaning stick	CLH-5
Cleaning kits	KK-4
CD cleaner	XP-CD1, XP-CD4

Troubleshooting Guide

General

Trouble	Cause and remedy
The unit does not operate.	• The AC power cord is not connected (for AC operation). • Incorrect polarity of batteries (See page 8.) • Weak batteries (See page 8.)
No audio	• Turn the VOLUME control toward MAX. • Check the FUNCTION selector setting. • The headphones are plugged into PHONES jack (when listening through the speakers). • Speakers are not connected. (See page 9.)
The sound is cracked or distorted.	• Turn down the VOLUME control.

CD Player Operation

Trouble	Cause and remedy
The unit does not operate.	• The disc inserted with the labeled surface facing down. • Dusty or defective disc (See page 13.) • Dirty or dusty lens (See page 32.) • The disc holder lid is not closed. • Moisture condensation • When the CD operation buttons cannot be activated, turn off the unit and begin again. • Improper setting of the FUNCTION selector.
Skipping of sound	• Dusty or defective disc (See page 13.) • Dirty lens (See page 38.) • Strong vibrations

Cassette-Corder Operation

Trouble	Cause and remedy
Tape does not move.	• The cassette is being inserted improperly. • The tape is slack. • The cassette holder lid is not closed.
The REC button cannot be activated.	• No cassette in the cassette holder. • The tab is removed from the cassette. (See page 22.)
Recording or playback cannot be made or there is a decrease in sound level.	• Dirty heads (See page 32.) • Improper setting of the FUNCTION selector.
Unsatisfactory erasing	• Dirty erase head (See page 32.) • Weak batteries (See page 8.)
Excessive wow or flutter, or sound drop-out	• Contamination of the capstan or pinch roller (See page 32.) • Magnetic contamination of the head (See page 32.) • Weak batteries (See page 8.)

Clock Operation

Trouble	Cause and remedy
Clock does not operate correctly.	• Incorrect polarity of batteries for clock/tuner/memory. (See page 8.) • Weak batteries. (See page 8.)
Timer does not operate correctly.	• Check if the clock is correctly set. (See page 10.) • Check if timer setting is correct. (See page 28.) • Weak batteries. (See page 8.)