

YAMAHA CDX-520 RS / CDX-420

Natural Sound Compact Disc Player
Hi-Bit 8-Fold Oversampling Digital Filter (CDX-520 only)
Digital Output System (CDX-520 only)
24-Track Random Access Programmable Play
Direct Track Access, Index Search, Intro Scan
Random Tape Recording Program Based on Tape Length
Single and Full Repeat Play
Remote Control Operation (CDX-520 only)

Thank you for selecting the YAMAHA Compact Disc Player.



CENTER

CONTENTS

Safety Instructions	2	Manual Search	13
Caution	3	Intro Scan Play	13
Notes about Handling Compact Discs	4	Index Search	13
Controls and Their Functions	7	Random-Sequence Play	14
Remote-control Transmitter	10	Track Programming	14
Connections	11	Repeat Play	18
Loading the Disc / Disc Play	11	Timer Play	18
Direct Play	12	Memory Backup	18
Direct Skip	12	Troubleshooting	19
Skip Play	13	Specifications	20

OWNER'S MANUAL



IMPORTANT!

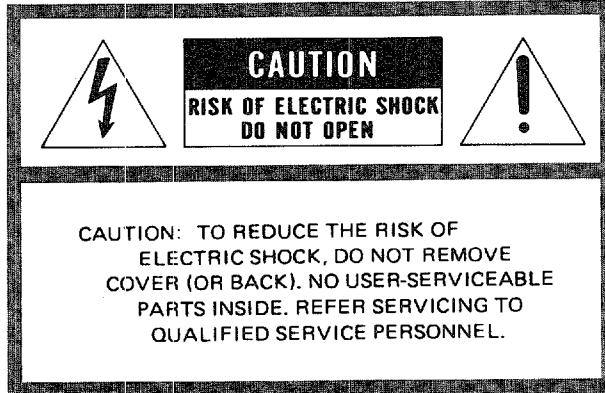
Please make a note of the serial number of this unit in the space indicated below.

Model:

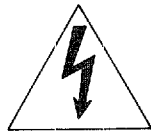
Serial No.:

The serial number is inscribed on the rear of the unit. Keep this Owner's Manual in a safe place for future reference.

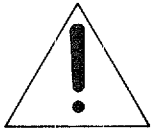
SAFETY INSTRUCTIONS



● Explanation of Graphical Symbols



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



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

WARNING

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

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

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

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

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

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

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

6A 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.



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

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

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

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

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

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

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

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

15 Damage Requiring Service – The appliance 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 appliance; or
- C. The appliance has been exposed to rain; or
- D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
- E. The appliance has been dropped, or the cabinet damaged.

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

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

18 Grounding or Polarization – The precautions that should be taken so that the grounding or polarization of an appliance is not defeated.

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT

- 1** To ensure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- 2** Install your unit in a cool, dry, clean place – away from windows, heat sources, and too much vibration, dust, moisture or cold. Avoid sources of hum (transformers, motors). To prevent fire or electrical shock, do not expose to rain and water.
- 3** Do not operate the unit upside-down. It may overheat, possibly causing damage.
- 4** Never open the cabinet. If a foreign object drops into the set, contact your dealer.
- 5** Do not place records or other objects on top of the unit; this will block the ventilation holes, cause the internal temperature to rise and may result in a failure.
- 6** Do not use force on switches, knobs or cords. When moving the set, first turn the unit off. Then gently disconnect the power plug and the cords connecting to other equipment. Never pull the cord itself.
- 7** Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- 8** Be sure to read the "Troubleshooting" section on common operating errors before concluding that your unit is faulty.

Information about FCC Rules

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate this unit with respect to the radio or TV receiver.

Move this unit away from the radio or TV receiver.

Connect this unit to a different AC outlet so that this unit and the radio or TV receiver are on different electrical 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.

WARNING

DANGER

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

CAUTION

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

- * As the laser beam used in this compact disc player is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.
- * To avoid electrical shock, do not open the unit. Refer servicing to qualified personnel only.


CAUTION

This Owner's Manual covers two models, the CDX-520 and the CDX-420. Before reading this Owner's Manual, therefore, the user should note the differences, described below, between the two models.

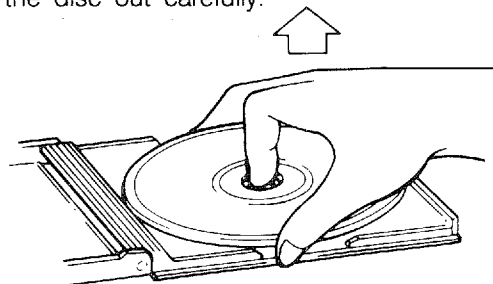
★	CDX-520	CDX-420
Remote-control transmitter	Provided	Not provided
REMOTE-CONTROL sensor (on the front panel)	Provided	Not provided
PHONES LEVEL volume control (on the front panel)	Provided	Not Provided
HI-BIT DIRECT OUT switch and indicator (on the front panel)	Provided	Not provided
DIGITAL OUT terminal (on the rear panel)	Provided	Not provided

The ★ symbol is used in this manual to designate information that is applicable to model CDX-520. Owners of model CDX-420 should therefore note that information so designated is not applicable to their unit.

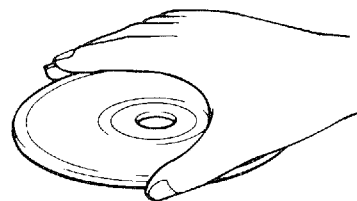
NOTES ABOUT HANDLING COMPACT DISCS

- This compact-disc player is designed only for reproduction of compact discs bearing the  mark. Never attempt to load any other type of disc into the unit. The unit will also play 3-inch (8-cm) compact discs.
- Compact discs are not affected by small particles of dust or fingerprints on their playing surface, but even so they should be kept clean. Wipe by using a clean, dry cloth. Do not wipe with a circular motion; wipe straight outward from the center.

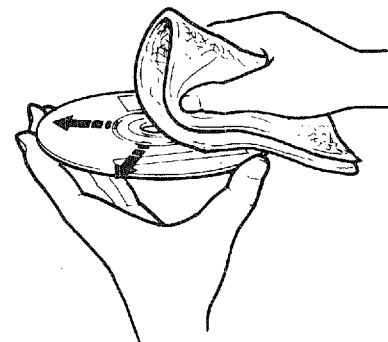
- To remove a disc from its storage case, open the case and then press down at the center; with a finger through the center hole and the outer edges held as shown in the illustration, lift the disc out carefully.



- Always handle the disc with care so that its surface is not scratched.



- Compact discs are not subjected to wear during play, but damage to the disc surface when the disc is being handled can adversely affect the disc's play.



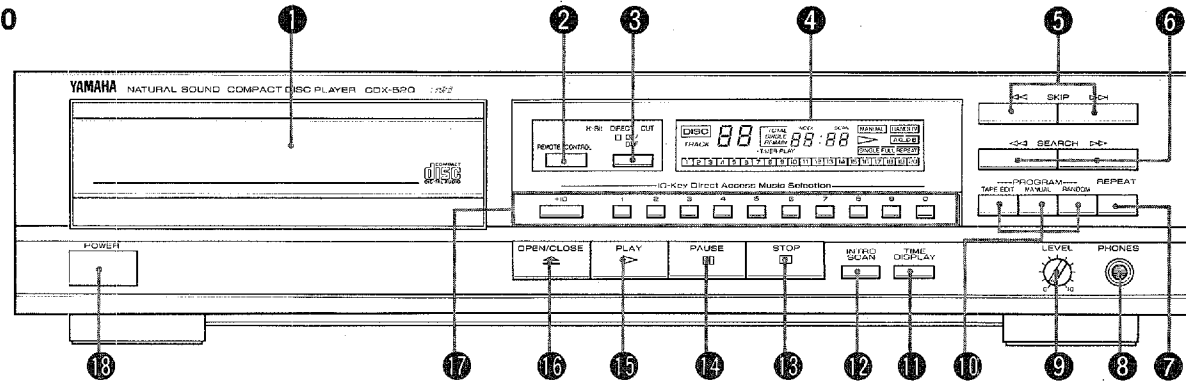
- Do not try to clean the disc's surface by using any type of disc cleaner, record spray, anti-static spray or liquid, or any other, chemical-based liquid, because such substances might irreparably damage the disc's surface.
- Do not expose discs to direct sunlight, high temperature or high humidity for a long period of time, because these might warp or otherwise damage the disc.

NO!

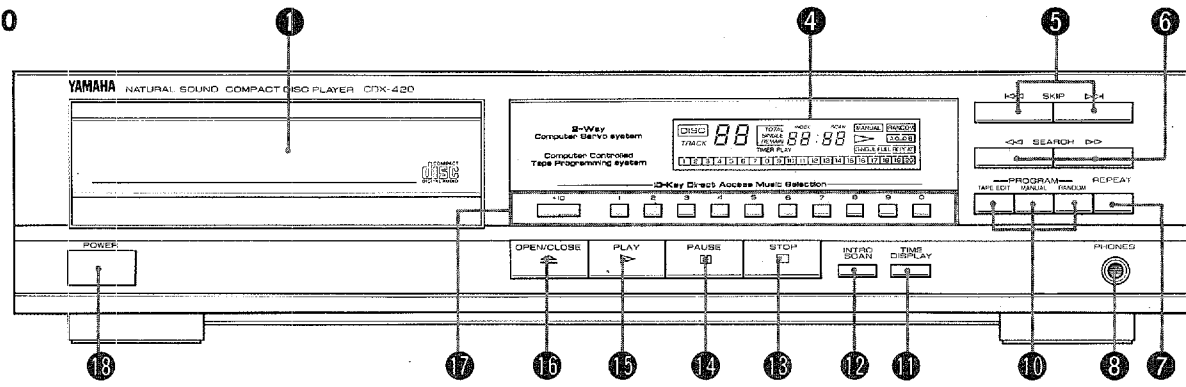


1

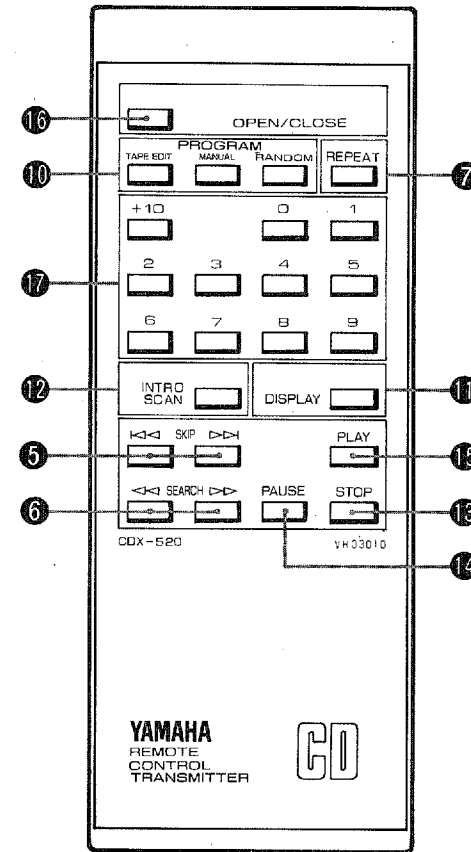
CDX-520



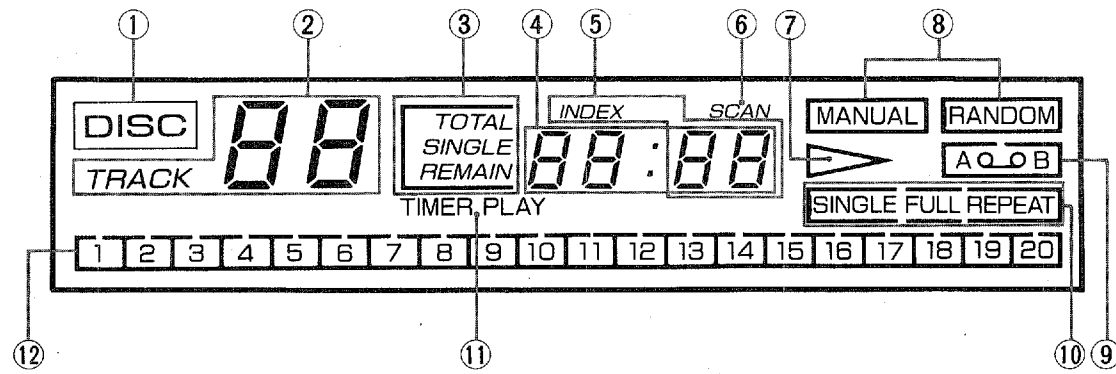
CDX-420



2

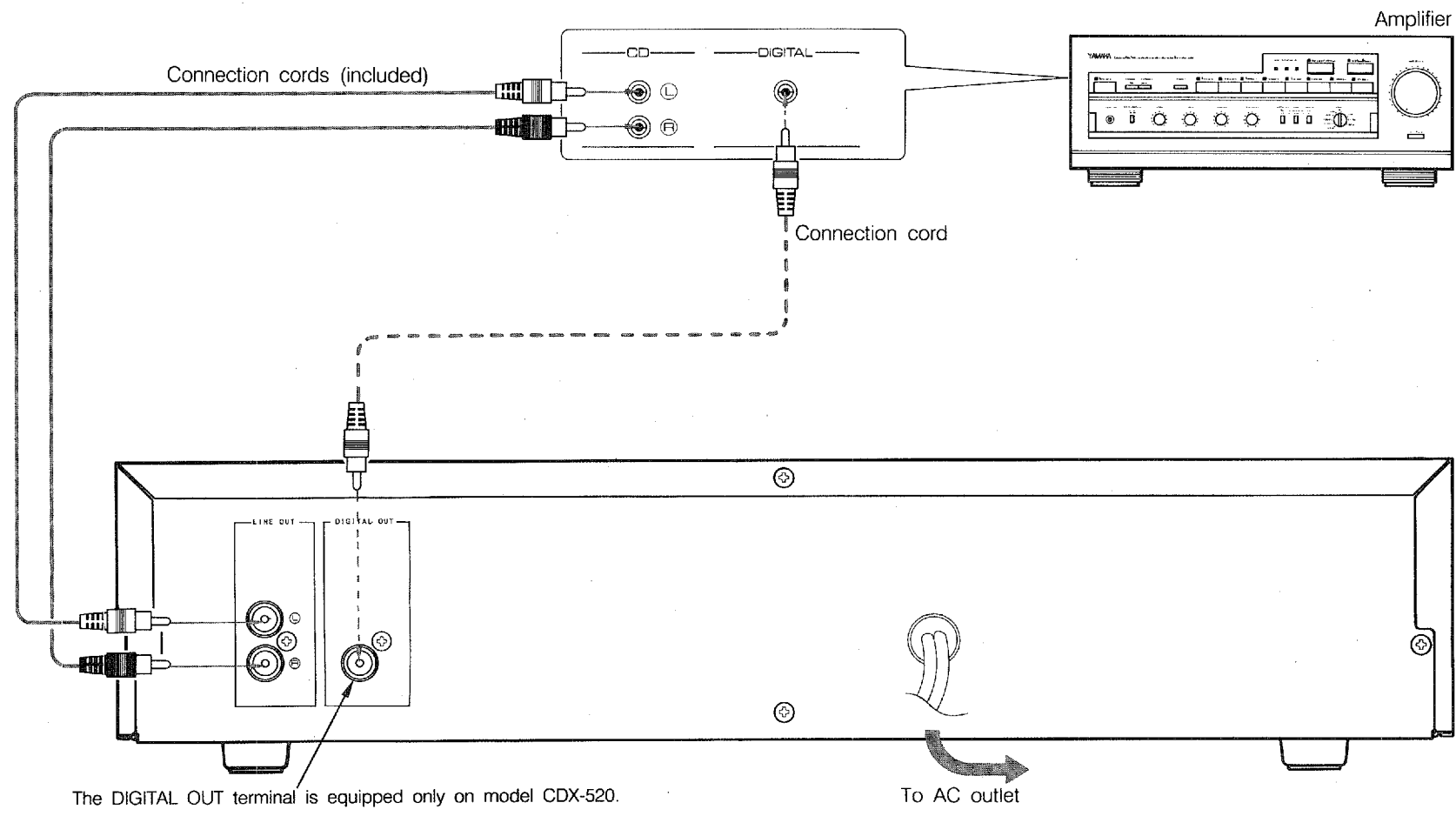


4 Display panel



* The remote-control transmitter is standard accessory only to the model CDX-520.

3 CONNECTIONS



CONTROLS AND THEIR FUNCTIONS

(See Fig. 1.)

① Disc tray

When the OPEN/CLOSE button is pressed, this tray will open. Place the disc carefully in the round recessed part of the tray. Be sure the disc's label faces upward.

The disc tray can be closed by again pressing the OPEN/CLOSE button, or by gently pressing the front edge of the disc tray, or by pressing the PLAY button, or by pressing a numeric button.

★ ② REMOTE-CONTROL sensor (REMOTE CONTROL)

Signals from the remote-control transmitter are received here.

★ ③ HI-BIT DIRECT OUT switch and indicator (Hi-Bit DIRECT OUT)

The indicator illuminates (red) when this switch is pressed (indicating that the switch is ON). This switch is used to select whether the analog signals (converted from digital signals) output from the "LINE OUT" (analog out) terminals on the rear panel are directly output without being filtered through the low-pass filter (when the switch is ON) or are filtered (when the switch is OFF). (Also refer to "CONNECTIONS".)

④ Display panel

The display panel displays all of the data and symbols for operation and programming of the unit.

① Disc-in indicator (DISC)

This indicator illuminates when a disc is loaded.

The indicator flashes continuously when the disc tray is closing (until the unit is ready for play), and when the disc tray is closed (if there is no disc in the tray).

② Track number display (TRACK)

This display shows the track number selected manually, and during play the track number now being played.

③ Time display (TOTAL/TOTAL REMAIN/SINGLE/SINGLE REMAIN)

The TIME DISPLAY button can be pressed to select any of the four time displays described below. Note that the display always returns to "SINGLE" whenever the disc tray is opened.

- **TOTAL:** This display shows the total play time of all tracks on the disc, or the total time of all programmed tracks if the programmed-play feature is being used.
- **TOTAL REMAIN:** This display shows the total play time of all remaining (unplayed) tracks on the disc, or the total time of all remaining (unplayed) programmed tracks if the programmed-play feature is being used.
- **SINGLE:** This display shows the time that has passed since the beginning of play of the track now playing.
- **SINGLE REMAIN:** This display shows the remaining play time of the track now playing.

④ Program number/tape length display (P-/C-)

This display indicates the program number and the tape length.

⑤ Index number display (INDEX)

This display shows the index number within the track now being played.

⑥ INTRO SCAN indicator (SCAN)

This indicator illuminates during the track-introduction scanning operation.

⑦ Play indicator (▷)

This indicator illuminates during play. When the unit is in the pause mode, it flashes continuously.

⑧ Programmed-play indicators (MANUAL/RANDOM)

One of these two indicators will illuminate when the corresponding programmed-play button is pressed.

- **MANUAL:** Indicates that the "MANUAL" programmed-play button has been pressed, and that the unit is in the manual programmed-play mode.
- **RANDOM:** Indicates that the "RANDOM" programmed-play button has been pressed, and that the unit is in the random-sequential-programmed-play mode.

⑨ Tape-programming indicators (A B)

The "A" illuminates when the TAPE EDIT button is pressed during the STOP mode, indicating that the unit is then set to the tape-programming mode. The "A" or "B" illumination indicates which side of the tape is being programmed (during automatic tape programming, manual tape programming or random-sequential tape programming).

⑩ Repeat indicators (SINGLE REPEAT/FULL REPEAT)

These indicators show which, if any, repeat play mode has been selected. There are two variations of the repeat mode: single repeat and full repeat (explained elsewhere).

- **SINGLE REPEAT:** Indicates the single-repeat mode.
- **FULL REPEAT:** Indicates the full-repeat mode.

⑪ TIMER PLAY Indicator (TIMER PLAY)

This indicator indicates that the unit is in the timer play mode. While the STOP button is pressed and held, pressing the PLAY button causes this indicator to illuminate.

⑫ Track calendar (1 - 20)

When a disc is loaded, the numbers that correspond to the numbers of the tracks on that disc remain displayed, and the other numbers disappear. (Thus, if the disc has 16 tracks, "1" through "16" remain displayed and "17" through "20" disappear.) After each track is played, its corresponding number also disappears, so the number of remaining tracks (and their numbers) can be seen at a glance.

⑬ SKIP buttons (SKIP)

These buttons can be used to advance forward or backward directly to the next track during the PLAY, STOP or PAUSE mode. The track number changes by one each time the button is pressed, or continues to change if the button is pressed and held. (If SKIP is pressed once during the PLAY mode, play starts again from the beginning of the same tune now playing.) After this button is released, the unit remains in the same mode as before it was pressed. (Also refer to "DIRECT SKIP" and "SKIP PLAY".)

⑭ SEARCH buttons (SEARCH)

These buttons can be used to advance rapidly forward or backward. The sounds on the disc can be heard (although slightly garbled) if the unit is in the PLAY mode, thus making it convenient to locate a desired position precisely. When pressed during the PAUSE mode, the action is the same but the sounds cannot be heard. After this button is released, the unit remains in the same mode (PLAY or PAUSE) as before it was pressed. (Also refer to "MANUAL SEARCH" and "INDEX SEARCH".)

⑮ REPEAT mode-select button (REPEAT)

This button can be used to activate (or cancel) the automatic repeat play function.

There are two settings (changing each time the button is pressed, and shown by the display): SINGLE repeat and FULL repeat.

⑯ PHONES jack (PHONES)

Headphones can be connected here for listening privately, without disturbing others.

★ ⑰ PHONES LEVEL volume control (PHONES LEVEL)

This volume control can be used to adjust the level of the sound heard through headphones.

**⑩ PROGRAMMING mode-select buttons:
(TAPE EDIT/MANUAL/RANDOM)**

● **TAPE EDIT (tape-programming mode-select button):**

This button can be used to select the tape-programming mode (for random-sequential, manual or automatic tape programming), and makes it possible to then enter (into this unit's memory) the total time (length) of the tape to be used for recording from the disc.

In addition, automatic tape programming is also possible by then once again pressing this button.

(Refer to "TRACK PROGRAMMING".)

● **MANUAL:** This button is used to select the manual-programming mode, and also to select the manual tape-programming mode (for recording to a tape).

● **RANDOM:** This button is used to select the random-sequence play mode, and also to select the random-sequential-tape-programming mode (for recording to a tape).

⑪ TIME DISPLAY mode-select button (TIME DISPLAY)

This button can be used to select the desired time display (elapsed play time for the track now playing, or remaining play time for the track now playing, or total disc play time, or total remaining play time on the disc). Note that the display always returns to "SINGLE" whenever the disc tray is opened.

⑫ INTRO SCAN play button (INTRO SCAN)

When this button is pressed, the first ten seconds of each track on the disc are played (in the sequence of the tracks on the disc). The INTRO SCAN indicator illuminates during this play. If, during this play, you hear a track that you want to listen to in entirety, press the INTRO SCAN play button once again, or press the PLAY button. This will cancel the intro-scan-play mode and the unit will enter into the normal play mode.

⑬ STOP button (STOP)

When this button is pressed, the disc stops. When the PLAY button is next pressed, play will resume from the beginning of the disc (during ordinary play) or from the beginning of the first programmed track (during programmed play).

⑭ PAUSE button (PAUSE)

When this button is pressed during play, the "▷" indicator flashes continuously and disc play is stopped temporarily (without returning to the beginning of the disc). To resume play, press this button again, or the PLAY button; play will begin again from where stopped.

⑮ PLAY button (PLAY)

Press this button to begin play. The "▷" indicator will illuminate.

⑯ OPEN/CLOSE button (OPEN/CLOSE)

The disc tray can be opened and closed by pressing this button.

⑰ Numeric buttons (+10 and 1 - 0)

These buttons are used when selecting the track number(s), either for ordinary play or for programmed play (including programmed play for recording to tapes). These buttons are also used to input the total available time for recording (on a tape to be used for programmed tape recording from a disc).

For a track higher than "9", first press the "+10" button (once for "10" to "19", twice for "20" and higher, etc.) and then press the appropriate button for the second digit.

⑱ POWER switch (POWER)

Press this switch once to switch ON the power; press it again to switch OFF the power.



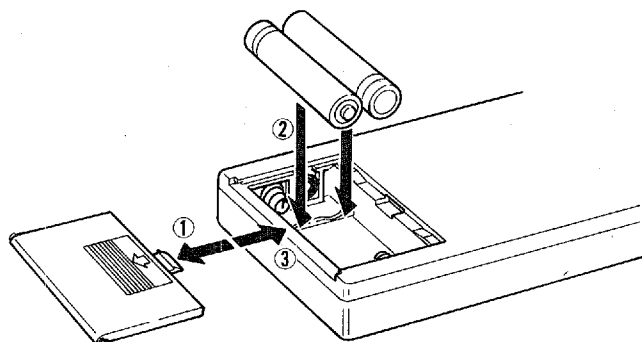
REMOTE-CONTROL TRANSMITTER

(See Fig. 2.)

The control functions on the main unit and on the remote-control transmitter are identical. (Refer to "CONTROLS AND THEIR FUNCTIONS" for details of those controls.)

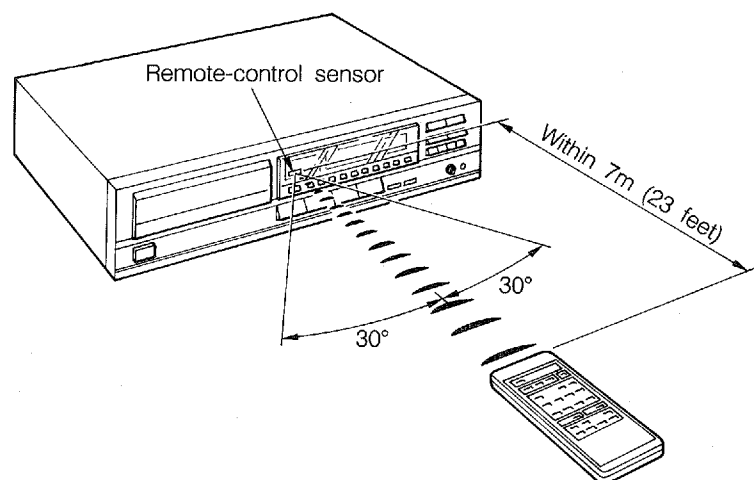
■ Battery installation

- ① Slide out the battery compartment cover in the direction of the arrow and remove it.
- ② Place two batteries (size "AAA", R03) in the battery compartment. Be sure the batteries are placed to face in opposite directions (as shown in the battery compartment) so that the polarities are correct.
- ③ Replace the battery compartment cover and slide it in until it clicks.



■ Remote-control transmitter operation range

Note that the remote-control transmitter should be faced more or less directly toward the main unit when used, and that it should be used within a distance of about seven meters (23 feet); there should be no large obstacles between the remote-control transmitter and the main unit.



■ Battery replacement

If the remote-control transmitter must be used closer to the main unit, the batteries are weak. Replace both batteries with new ones.

Notes:

- Batteries may leak, and damage the remote-control transmitter, if handled incorrectly.
- Use only "AAA" (R03) batteries for replacement.
- Be sure the polarities are correct. (See the illustration inside the battery compartment.)
- Do not mix old and new batteries.
- Do not use different types (alkaline, heavy-duty, manganese, nickel cadmium) of batteries at the same time.
- Remove the batteries if the remote-control transmitter will not be used for an extended period of time.
- Replace batteries at the first indication they are weak.
- Never try to open a battery or heat it or throw it into a fire.
- Never connect the battery terminals by using any type of metal wire, etc.
- Two types of batteries (rechargeable and non-rechargeable) are commercially available. Be sure to read the caution label on batteries before using them.
- If batteries leak, immediately dispose of them. Avoid touching the leaked material or letting it come in contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.

CONNECTIONS

(See Fig. 3.)

- Before making any connections, switch OFF the power to the unit and the amplifier or other component.
- ★● Connect either the LINE OUT analog output terminals, or the DIGITAL OUT terminal, to the amplifier to be used.
- Be sure that the connection from the left ("L") LINE OUT analog output terminal and from the right ("R") terminal are to the correct corresponding (left and right) terminals of the amplifier or other component.
- Connections should be made to the correct input terminals of the amplifier or other component. Refer to that component's operation manual for details.
- If the placement of this unit causes noise from other equipment, such as a tuner, use them farther away from each other.

When the LINE OUT (analog) terminals of this unit are used

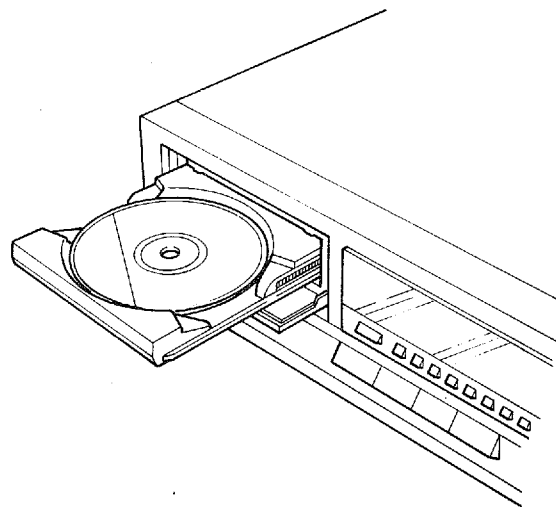
- Make the connections from these terminals to the "CD" (or "AUX") terminals of the amplifier. If it does not have such terminals, use the "TAPE PB" terminals. For additional details concerning these connections, refer to the operation instructions for the amplifier being used.
- ★● The HI-BIT DIRECT OUT switch of this unit can be used to select either direct (unfiltered) analog output signals or filtered analog signals from this unit. When the HI-BIT DIRECT OUT switch is set to ON (pressed in), the output from the LINE OUT terminals is analog signals that have passed through the 8-fold oversampling digital filter and the Hi-Bit converter system. When the HI-BIT DIRECT OUT switch is set to OFF, the output from the LINE OUT terminals is analog signals that have passed through an additional analog low-pass filter.

★ When the DIGITAL OUT terminal of this unit is used

- Make the connection from this terminal to the digital input terminal of an amplifier or D/A (digital-to-analog) converter by using the included connection cord.

LOADING THE DISC / DISC PLAY

1. Press the POWER switch to switch ON the power.
2. Press the OPEN/CLOSE button to open the disc tray.
3. Place a compact disc in the round recessed area of the disc tray, with the label facing upward. Be sure the disc is positioned correctly. The 3-inch (8-cm) type of compact disc should be placed in the smaller, inner recessed area of the disc tray.



4. Close the disc tray (by pressing the OPEN/CLOSE button, or by pressing the PLAY button, or by pressing the front edge of the disc tray gently, or by pressing a numeric button).
 - * If the disc tray is closed by pressing the front edge of the disc tray, or by pressing the PLAY button, or by pressing a numeric button, it is not necessary to press the PLAY button again; play will begin automatically.

DIRECT PLAY

5. After a few moments during which the unit reads the disc's contents, the TRACK display shows the total number of tracks on the disc, and the TOTAL display shows the disc's total recorded time for a few seconds, if the OPEN/CLOSE button was used to close the disc tray. The unit is then ready for play from track 1 (by pressing the PLAY button).

* If the disc tray was closed by pressing the front edge of the disc tray, or by pressing the PLAY button, the total tracks and total time displays mentioned above will not be shown, and the disc will begin playing automatically from track 1.

* If the disc tray is closed by pressing a numeric button, the corresponding track number will be displayed and the disc will begin playing from the beginning of that track.

6. Press the PAUSE button if it is necessary to stop the play temporarily. To resume play, either press the PAUSE button again or press the PLAY button.

7. To stop play completely (and return to track 1), press the STOP button.

- Never place anything other than a disc in the disc tray, because to do so could cause a malfunction.
- Do not use force to open or close the disc tray.
- Keep the disc tray closed except when loading or unloading a disc.
- Never press down on the disc tray or place heavy objects on it.

TRACK CALENDAR DISPLAY

When a disc is loaded, the numbers that correspond to the numbers of the tracks on that disc remain displayed, and the other numbers disappear. (Thus, if the disc has 16 tracks, "1" through "16" remain displayed and "17" through "20" disappear.) After each track is played, its corresponding number also disappears so the number of remaining tracks (and their numbers) can be seen at a glance.

To begin play directly from any desired track, simply press the corresponding numeric button(s). Play will begin automatically from the start of that track.

USING THE NUMERIC BUTTONS

To select track number 10 or higher, press the "+10" button once, and then quickly press the second digit of the track number. (For track "16", therefore, press "+10" + "6".) For track number 20 or higher, the process is the same except that the "+10" button must be pressed two times, etc.

Example

To select track 25: 1. Press "+10" twice.
2. Press "5".

Play will begin automatically from the start of track 25.

- Note that the second button (of a selection that requires two buttons to be pressed) must be pressed soon after the first button is pressed.
- If a track number higher than the highest track number on the disc is selected, the last track on the disc will be played.

DIRECT SKIP

To begin play from any desired track while in the PAUSE or STOP mode, advance (or return) to that track by pressing the SKIP $\triangleright\triangleright$ (or $\triangleleft\triangleleft$) button once for each track to be advanced or reversed. Then press the PLAY button to begin play. An alternative method is to use a numeric button(s).

SKIP PLAY

If the disc is playing, a different track can be selected by pressing the SKIP $\triangleright\triangleright$ (to advance) or the SKIP $\triangleleft\triangleleft$ button (to reverse). Press once for each track to be advanced or reversed (except that, for reverse, the first press returns play to the start of the track now playing).

Therefore:

- Press SKIP $\triangleright\triangleright$ once to advance to the track following the one now playing.
- Press SKIP $\triangleleft\triangleleft$ once to return to the start of the track now playing.
- Press SKIP $\triangleleft\triangleleft$ twice to return to the track before the track now playing.

MANUAL SEARCH

FAST ADVANCE MANUAL SEARCH

When the SEARCH $\triangleright\triangleright$ button is pressed during disc play, the play will be rapidly advanced through the music of each track as long as the button is pressed and held. When it is released, play will resume.

FAST REVERSE MANUAL SEARCH

When the SEARCH $\triangleleft\triangleleft$ button is pressed during disc play, the play will be rapidly reversed through the music of each track as long as the button is pressed and held. When it is released, play will resume.

Manual search notes:

- The search speed will become faster if the SEARCH $\triangleleft\triangleleft$ or $\triangleright\triangleright$ button is pressed and held.
- The music can be heard (although slightly garbled) during manual search in either direction. This is convenient for locating a precise position within a track, or for reviewing the contents quickly.
- When manual search in either direction is initiated during the PAUSE mode, the action is the same, but no sound is heard; you can watch the time display to determine where to stop searching.

INTRO SCAN PLAY

When you know that there is a certain tune(s) on the disc that you want to listen to but don't remember its name or track number, this feature can be used to quickly and easily locate that tune.

1. Press the INTRO SCAN play button during the stop mode. The word "SCAN" will then illuminate. When this button is pressed, the first ten seconds of each track on the disc are played (in the sequence of the tracks on the disc).
2. When, during this play, you hear a track that you want to listen to in entirety, press the INTRO SCAN play button once again, or press the PLAY button. This will cancel the intro-scan-play mode and change the unit to the play mode.

Note:

If the INTRO SCAN play button is pressed while a track is being played, the track will stop playing immediately, and the intro-scan-play mode will begin from the start of the next track.

INDEX SEARCH

If the disc includes index numbers, play can be started from any desired index number by using a SEARCH button ($\triangleleft\triangleleft$ or $\triangleright\triangleright$) to designate that index number.

1. First, select the desired track by using a SKIP button ($\triangleleft\triangleleft$ or $\triangleright\triangleright$) during the STOP mode.
2. Press the SEARCH $\triangleleft\triangleleft$ or $\triangleright\triangleright$ button to select the index number. The INDEX indicator will illuminate and the display will indicate the index number.
3. Press the PLAY button. Play will start from the selected index point.

Notes:

- Some discs have index numbers, and some do not. The index system is a method for sub-dividing tracks into smaller divisions (such as, for example, the movements within classical symphonies) for easier location of those parts. The liner notes with the disc usually tell if such index numbers are included.

TRACK PROGRAMMING

- If an index number is selected that is higher than any index number on that disc, play will start from the last index number point on the disc.
- To cancel the index search function, press the STOP button.
- For some discs, play may begin slightly prior to the actual designated index point.
- If the disc has no encoded index points, play will begin from track 1 of the disc.
- For some discs, the index search operation may require a slightly longer time than for other discs.

RANDOM-SEQUENCE PLAY

Tracks on the disc can be played in a random sequence selected by the unit's microcomputer. This is useful, especially when combined with full repeat play, to provide background music without a predictable sequence of tunes.

To activate this mode, press the PROGRAMMING mode-select button marked "RANDOM" while the unit is in the STOP mode.

The "RANDOM" indicator will illuminate, and random-sequence play will begin.

Notes:

- This feature will not function during programming, or during programmed play.
- The total remaining time cannot be displayed during random-sequence play.
- To cancel random-sequence play, press the "RANDOM" button once again.
- If the STOP button is pressed during random-sequence play, the play will stop and the unit will be in the STOP mode at the beginning of the disc.
- If the SKIP $\triangleright\triangleright$ button is pressed during random-sequence play, the next randomly programmed track will be played. If the SKIP $\triangleleft\triangleleft$ button is pressed, play will return to the beginning of the track now being played.

MANUALLY PROGRAMMED PLAY

This feature can be used to program as many as 24 tracks in any desired order.

1. Press the STOP button.
2. Press the PROGRAMMING mode-select button marked "MANUAL". The "MANUAL" indicator and the "P-01" symbol will then illuminate. At the same time, the track numbers that exist on the disc will begin flashing continuously on the track calendar.
3. Press the numeric button corresponding to the track you want to be played first. That number will illuminate in the track calendar; that track number will also be displayed momentarily by the TRACK number display, and the PROGRAM number display will show "02" (meaning the second track-programming selection is to be made next).
4. Make the second selection in the same way as described in 3. above, and so on. As many as 24 tunes can be selected in this way in any desired order.
5. When all selections have been made, press the PLAY button to start programmed play.

- * Index numbers within tracks cannot be programmed.
- * The total programmed time will be displayed, but the maximum possible time that can be shown by the display is 99 minutes and 59 seconds. If the total play time exceeds that time, the excess time (actual total time minus 100 minutes) will be displayed as both the total time and the total remaining time.
- * If, for a compact disc with 25 tracks or more, track number 25 or higher is programmed, the total time will disappear from the display.

Notes:

- To check, cancel or correct a programmed setting, refer to "CHECKING, CORRECTING AND CANCELING OF PROGRAMMED SETTINGS".
- The SKIP ($\triangleleft\triangleleft$ and $\triangleright\triangleright$) buttons can still be used, but only within the range of the remaining programmed tracks.
- Press the SKIP $\triangleright\triangleright$ button to advance to the programmed selection of the number next larger than the one now playing.
- Press the SKIP $\triangleleft\triangleleft$ button to return to the start of the track now playing.

- Press the SKIP \lll button twice to return to the start of the programmed selection prior to the one now playing.
- The SEARCH (\lll and \ggg) buttons can be used for search throughout all tracks, including unprogrammed tracks.
- If a SEARCH (\lll or \ggg) button is pressed and held beyond the range of a programmed selection(s), the displayed selection will be played and then the unit will continue to the next programmed selection (including unprogrammed tracks).

MANUAL PROGRAMMING (FOR RECORDING TO TAPE)

This feature is helpful when recording to a tape by using the manual-programming mode, because you can program the tracks so they will fit onto the tape with the least amount of unrecorded space remaining at each end of the tape.

1. Press the STOP button.
2. Press the TAPE EDIT button. The "C-" symbol will appear and the "OO" symbol will also appear in the display. (These indicate that the unit is in the tape-programming mode.)
3. Press the appropriate numeric buttons so as to display (after the "C-") the tape's total possible recording time (total time for both sides).
Example:
For a C-46 tape (23 minutes on each side, 46 minutes total), display "46" by pressing the "4" numeric button once or "+10" button four times, and the "6" button once, pressing each button quickly, without a long interval between each press. The time will be displayed (C-46).
* If any mistake has been made in step 3 (that is, if the incorrect time for the tape is displayed), it should be corrected now, because no correction can be made after the "MANUAL" button is pressed in step 4.
4. Press the "MANUAL" button to enter the tape's total time in the memory. [The "A" to the left of the "OO" symbol and the "P-01" symbol will illuminate and the track calendar (only the track numbers on the disc) will begin flashing.]
The TOTAL REMAIN time display will show the amount of time available for programming (on side A).
5. Make the programming settings for the tracks to be recorded (in the same way as for ordinary manual programming).

- * Each time a selection is made, the track number and the tape's remaining time will be displayed, and then the display will change to indicate the number of the next program.
- * On the track calendar, the selected tracks will then illuminate, and the indication of those tracks that will not fit into the remaining time will disappear.

Notes:

- If the total attempted programming time exceeds the time available for side A of the tape (the side that is to be recorded first), the "E : rr" symbol appears in the display, and that track(s) is not programmed. If the "E : rr" symbol appears, it means that although the attempted track is too long to be programmed, there is on the disc a track that can be programmed for the time remaining on side A of the tape, and that track number is continuously flashed on the track calendar display. To continue programming, press the "MANUAL" button again to change to the programming of side B of the tape, and then continue programming.
- If the "E : rr" symbol appears in the TOTAL REMAIN time display, the track for the numeric button just pressed cannot be programmed because there is not enough time remaining on the tape. Either select a shorter track, or use a longer tape.
- The tape remaining time displayed includes a four-second non-recorded interval between tracks.
- 6. Begin recording on the tape deck and at the same time press the PLAY button on this unit.
* When this unit (at the end of side A of the tape) changes to the PAUSE mode, turn the cassette over (to side B). Resume the recording and, at the same time, press the PLAY button or the PAUSE button on this unit.

Notes:

- Normally, the procedures described above can only be used to program track numbers as high as 24, regardless of how many tracks are on the disc. In addition, the maximum number of tracks that can be programmed is 24 (P-01 to P-24). However, when (and only when) the disc has 25 tracks, track number 25 can also be programmed.
- To check, cancel or correct a programmed setting, refer to "CHECKING, CORRECTING AND CANCELING OF PROGRAMMED SETTINGS".

AUTOMATIC PROGRAMMING FOR RECORDING TO TAPE

This feature can be conveniently used to automatically program the unit to play tracks for recording to tape, without following the manual programming steps, so that the tracks on a disc will be recorded to the tape in sequence, beginning with track 1 of the disc, within the time frame of the tape to be used.

1. Follow steps 1 through 3 of "MANUAL PROGRAMMING (FOR RECORDING TO TAPE)".
2. Press the "TAPE EDIT" button once again so that the unit will memorize the total recording time available on the tape.

Notes:

- Because the display indicates (separately for side A and side B of the tape) the programmed track number, the program number, and the sequential number of the programmed selections, it is easy to see the specifics of the programming process at a glance.
- This function also employs the following advanced feature for additional convenience.

Although the unit in principle programs the tracks for sequential play beginning from track 1, it may actually follow some other sequence in order to leave the minimum amount of unrecorded space at the ends of the tape.

If, for example, tracks 1 through 4 would fit onto side A of the tape and track 5 would not fit after track 4, but track 6 would fit after track 4, the unit would automatically program itself to skip track 5, and to play track 6 instead as the final track for side A of the tape. Thus, track 5 would then be automatically programmed to be played as the first track for side B of the tape. The programmed results would then be as follows.

Tape side A: tracks 1, 2, 3, 4, 6

Tape side B: tracks 5, 7, 8 ...

- * If you want the tracks on the disc to be recorded onto the tape in exactly the same order as they are on the disc, either use a tape of a different length, or make the programming manually.

3. Begin recording on the tape deck and at the same time press the PLAY button on this unit.

* The display will then show the number of the track now playing, the sequential number of the programmed selections (1, 2, 3 ...), and the elapsed time ("SINGLE" indicator) for the track. This data will change each time a different track is played.

4. When this unit (at the end of side A of the tape) changes to the PAUSE mode, turn the cassette over (to side B). Resume the recording and, at the same time, press the PLAY button or the PAUSE button on this unit.

Notes:

- Refer to the notes on page 15.
- This function can be used to program up to and including track 20. If the disc has more than 20 tracks, track 21 and thereafter will not be programmed.
- To check, cancel or correct a programmed setting, refer to "CHECKING, CORRECTING AND CANCELING OF PROGRAMMED SETTINGS".

RANDOM SEQUENTIAL PROGRAMMING (FOR RECORDING TO TAPE)

The CCTP (Computer Controlled Tape Programming) system incorporated within this unit can be used for very easily programming the unit for recording tracks in random sequential order to a tape. By simply providing this unit with the data regarding the time length of the tape (both sides' total), this unit will automatically calculate a random sequential order that will nearly fill both sides of the tape without interrupting a tune before it ends.

1. Follow steps 1 through 3 of "MANUAL PROGRAMMING (FOR RECORDING TO TAPE)".
2. Press the "RANDOM" button so that the unit will memorize the total recording time available on the tape.
 - * The display will show (in sequence, from the left) the track number to be played last, the total number of tracks, and the recording track numbers on the track calendar.
3. Begin recording on the tape deck and at the same time press the PLAY button on this unit.
 - * The display will then show the number of the track now playing, the sequential number of the programmed selections (1, 2, 3 ...), and the elapsed time ("SINGLE" indicator) for the track. This data will change each time a different track is played.

Notes:

- Refer to the notes on page 15.
- Because the programming is done by the unit in random sequence, the programmed data changes, and so therefore does the amount of time remaining at the end of the tape also change accordingly.
- To check, cancel or correct a programmed setting, refer to "CHECKING, CORRECTING AND CANCELING OF PROGRAMMED SETTINGS".

CHECKING, CORRECTING AND CANCELING OF PROGRAMMED SETTINGS

To check the programmed settings

1. Press the STOP button.
2. Then press the button corresponding to the settings you want to check:
 - * Press the PROGRAMMING mode-select button marked "MANUAL" to check the settings for the manual-programming mode or of the manual tape-programming mode.
 - * Press the PROGRAMMING mode-select button marked "TAPE EDIT" to check the settings of the automatic tape-programming mode.
 - * Press the PROGRAMMING mode-select button marked "RANDOM" to check the settings of the random-sequential-tape-programming mode.
3. Each time the SKIP $\triangleright\triangleright$ button is then pressed, the track numbers and sequential order of the programmed tracks can be checked one after another.

To correct a programmed setting

1. Follow steps 1 to 3 above.
 2. Wherever necessary, press a numeric button to select a track to replace one you want to replace. The previously programmed track will be cleared (from the memory) and the new one will be programmed.
- Random-sequential-programmed settings and automatic tape-programmed settings cannot be corrected.

To cancel a programmed setting

There are several methods, as described below.

- Press the OPEN/CLOSE button while pressing the STOP button.
- Open the disc tray.
- All programmed settings (except the manually programmed settings) will be canceled by switching OFF the power.

REPEAT PLAY

There are two variations of the repeat-play mode: repeat play of a single track and repeat play of the entire disc.

SINGLE-TRACK REPEAT PLAY

1. Press the REPEAT mode-select button once. Next (or it can be done prior to this step), use the numeric button(s) to select the number of the track to be repeated. (The "SINGLE REPEAT" indicator will illuminate and the number of the track being repeated will appear.) That track will be played repeatedly until canceled.
2. To cancel the single-track repeat-play mode, press the REPEAT mode-select button twice.

Notes:

- If this repeat mode is selected while the unit is in the PAUSE mode, press the PAUSE button or the PLAY button to resume play. In this instance, and if the repeat mode is selected during play, the repeat play will begin from that point.
- If a SEARCH or SKIP button is used to change to another track, that new track will be played repeatedly until canceled.

ALL-TRACK ("FULL") REPEAT PLAY

1. Press the REPEAT mode-select button twice. The "FULL REPEAT" indicator will illuminate, and all tracks will be played repeatedly.
2. To cancel the all-track repeat-play mode, press the REPEAT mode-select button once.

Notes:

- If the all-track repeat-play mode is selected from the STOP mode, press the PLAY button to begin the repeat play. Play will begin from track 1.
- If this repeat mode is selected while the unit is in the PAUSE mode, press the PAUSE button or the PLAY button to resume play. In this instance, and if the repeat mode is selected during play, the repeat play will begin from that point.
- Repeat play is also possible during the programmed-play mode, the random-sequence play mode, and the intro-scan play mode.

TIMER PLAY

Timer play is possible by using a commercially available audio timer with this unit.

1. Prepare the amplifier to be used with this unit.
2. Switch ON the power and load the disc.
3. Press the PLAY button while pressing and holding the STOP button. The TIMER PLAY indicator will illuminate.
4. Set the timer to the time at which you want the play to begin.
5. When the set time is reached, disc play will begin from the first track on the disc (or from the first programmed track).

Notes:

- Be sure to set the amplifier to the desired volume level.
- If tracks are programmed, the programmed play will begin at the time set on the timer.
- To cancel the timer-play mode, press the PLAY button while pressing and holding the STOP button so that the TIMER PLAY indicator illumination stops.

MEMORY BACKUP

Thanks to an incorporated capacitor, the manual-program mode data are retained in the memory even if the power is switched OFF or interrupted. If the power remains OFF for an extended period of time, however, the data may be erased.

Note that the data are retained for about one week if the power was ON for about one hour preceding the power switch-OFF or interruption.

TROUBLESHOOTING

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

SYMPTOM	PROBABLE CAUSE	REMEDY
The player does not switch ON when the POWER switch is pressed.	The power cord is not connected or not completely connected.	Securely connect the power cord.
The disc tray does not close completely.	A foreign object is obstructing the tray.	Carefully check the disc tray and remove the foreign object.
The DISC indicator does not illuminate.	The disc has been loaded upside down.	Load the disc correctly.
	The disc is damaged.	Check the disc carefully; replace it if necessary.
	There is moisture on the laser pickup.	Wait 20 to 30 minutes after switching the unit ON before trying to play a disc.
Play does not begin.	The disc has been loaded upside down.	Reload the disc with the label side up.
	The disc is dirty.	Clean the disc.
Play is delayed, or begins at the wrong place.	The disc may be scratched or damaged.	Check the disc carefully; replace it if necessary.
No sound.	Improper output cable connections.	Connect the cables properly. If the problem persists, the cables may be defective.
	Improper amplifier operation.	Set the amplifier controls to the correct input selection.
Sound "skips".	The player is being subjected to vibrations or impacts.	Relocate the player.
	The disc is dirty.	Clean the disc.
Sound "hums".	Improper cable connections.	Securely connect the audio cables. If the problem persists, the cables may be defective.
Noise from a nearby tuner.	The tuner is too close to the player.	Move the tuner and player farther apart.
Noise from within the disc tray.	The disc may be warped.	Replace the disc.

SPECIFICATIONS

AUDIO SECTION

Frequency response	5 Hz – 20 kHz, ± 0.5 dB
De-emphasis equalization	± 0.5 dB
Harmonic distortion + noise	Less than 0.005% (1 kHz)
S/N ratio	106 dB
Dynamic range	More than 96 dB
Wow & flutter	Unmeasurable
Channel separation	More than 90 dB (1 kHz)
Output voltage	2V
Output impedance	2.2 k-ohms
Headphones output (-20 dB)	
CDX-520	620 mV/150 ohms
CDX-420	125 mV/150 ohms

INTERNAL SYSTEM

Optical pick-up	3-beam laser
Error correction system	CIRC
D/A conversion	
CDX-520	High-speed 18-bit (L, R twin)
CDX-420	16-bit linear
Filters	
CDX-520	Hi-Bit 8-Fold Oversampling Digital filter 3rd Order New Active Filter
CDX-420	Double-oversampling Digital filter 3rd Order New Active Filter

GENERAL

Power requirements

U.S.A. and Canada models	120V, 60 Hz
Europe model	220 – 240V, 50 Hz
Australia model	240V, 50Hz
General model	110 – 130/220 – 240V, 50/60 Hz

Power consumption 20W

Dimensions (W x H x D) 435 x 101 x 297 mm
(17-1/8" x 4" x 11-11/16")

Weight 4.5 kg (9 lbs. 14 oz.)

Accessories Connection cord
Remote control transmitter (CDX-520 only)
Batteries (size "AAA", R03)(CDX-520 only)

Please note that all specifications are subject to change without notice.

YAMAHA