HiFi ENGINE®

TEAC®

COMPACT
disc
DIGITAL AUDIO

P-500

CD DRIVE UNIT

Contents

OWNER'S MANUAL

Thank you for purchasing this TEAC product.
Read this manual carefully to get the best performance from the CD Drive Unit.

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.

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

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

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

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

SAFETY INSTRUCTIONS

CAUTION:
- Read all of these instructions.
- Save these instructions for later use.
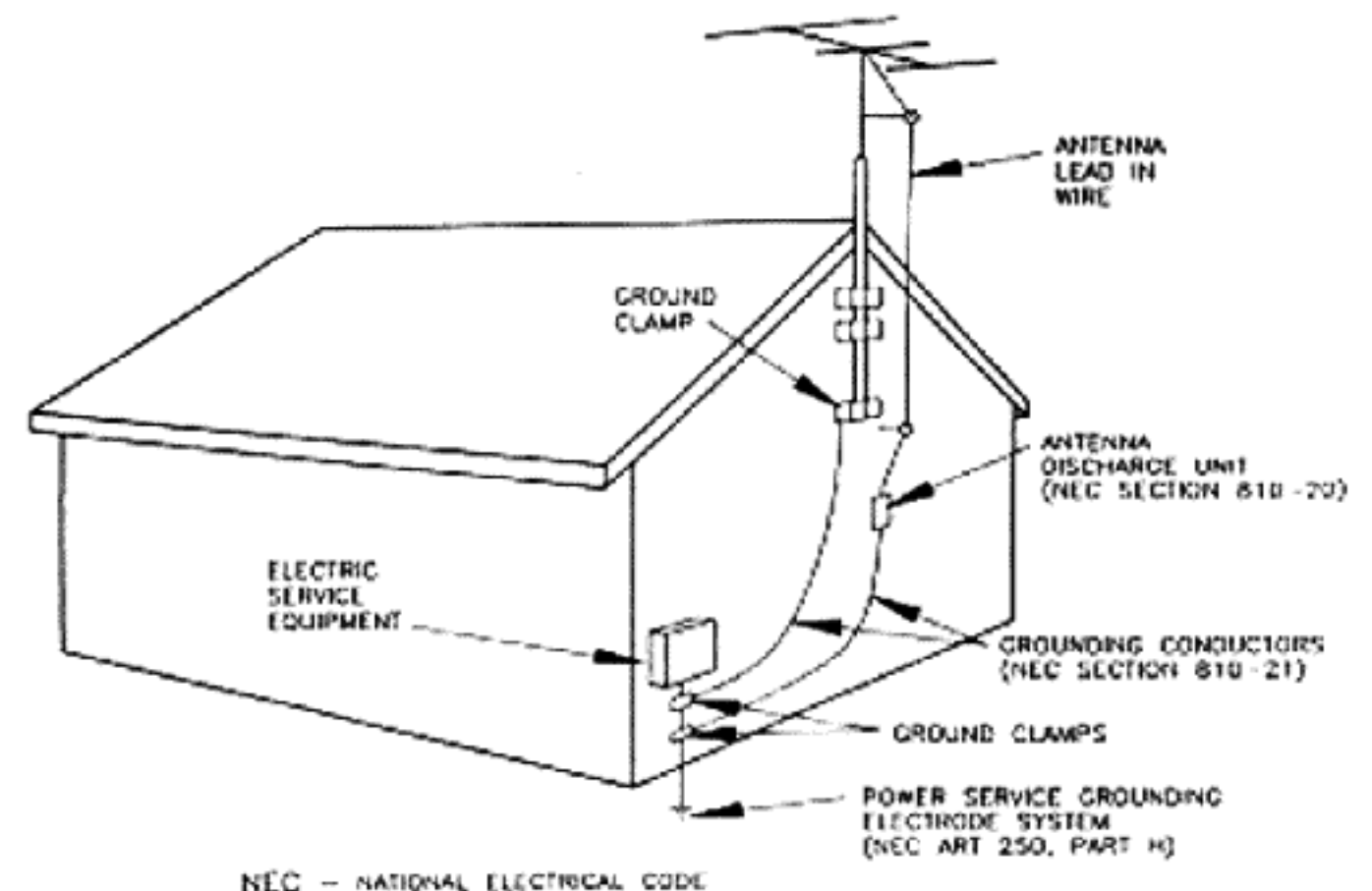- Follow all warnings and instructions marked on the audio equipment.

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 use 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, heat registers, stoves, or other appliances (including amplifiers) 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. **Grounding or Polarization** — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

12. **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.

13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.

14. **Power Lines** — An outdoor antenna should be located away from power lines.

15. **Outdoor Antenna Grounding** — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 — 1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure below.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE

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

17. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

18. **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 enclosure damaged.

19. **Servicing** — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
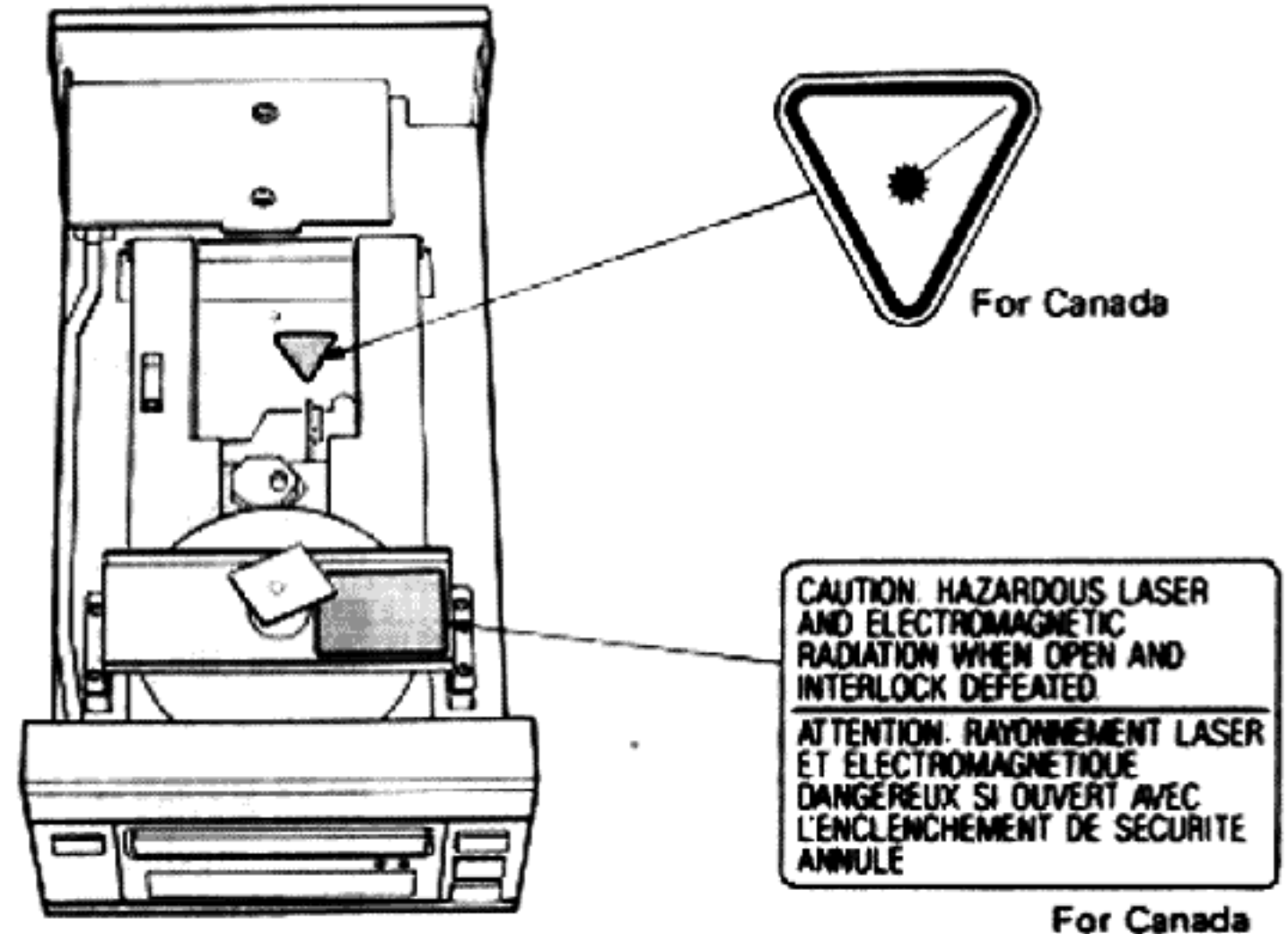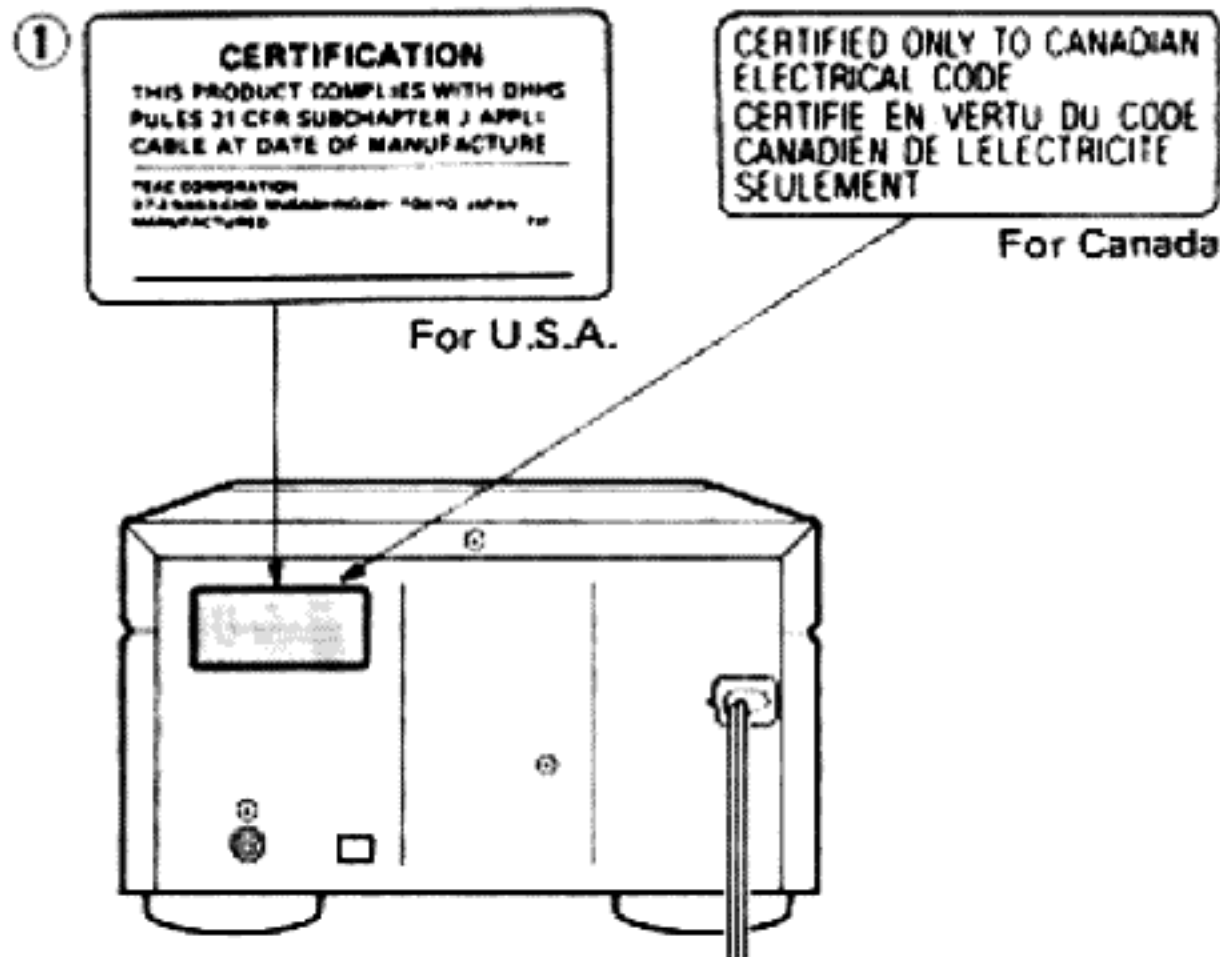
This product has been designed and manufactured according to FDA regulations "title 21, CFR, chapter 1, subchapter J, based on the Radiation Control for Health and Safety Act of 1968", and is classified as class 1 laser product. There is not hazardous invisible laser radiation during operation because invisible laser radiation emitted inside of this product is completely confined in the protective housings.
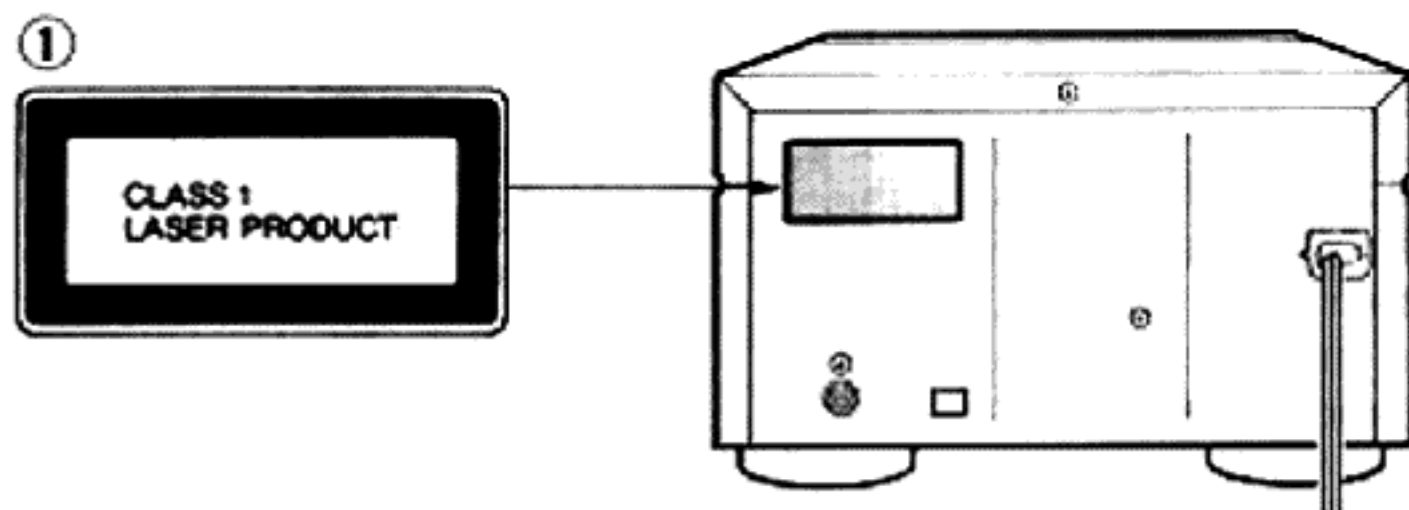
The label required in this regulation is shown ①.

● CAUTION
- DO NOT REMOVE THE PROTECTIVE HOUSINGS USING SCREWDRIVER.
- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
- IF THIS PRODUCT DEVELOPS TROUBLE, MAKE A CONTACT WITH OUR SERVICEMAN, AND DO NOT USE THE PRODUCT IN A TROUBLED STATE.

① CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE

For U.S.A.

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE
CERTIFIE EN VERTU DU CODE CANADIEN DE L'ELECTRICITE SEULEMENT
For Canada

For Canada

CAUTION. HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED
ATTENTION. RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ENCLENCHEMENT DE SECURITE ANNULE
For Canada

Optical pickup:	Type	: KSS-151A
	Manufacturer	: SONY Corporation
	Laser output	: 0.2 mW or less on the objective lens
	Wavelength	: 780 nm ±20 mm

●CAUTION ●ACHTUNG ●OBSERVERA ●ADVARSEL

① CLASS 1 LASER PRODUCT

For Europe only

②
Caution ...
VAROITUS! Suojakoteloa ei saa avata. Laite sisaltaa laserdiodin. joka lahettaa (nakymatonta) silmille vaarallista lasersateilya.

① THIS LABEL IS ATTACHED TO THE PLACE AS ILLUSTRATED TO INFORM THAT THE APPARATUS CONTAINS A LASER COMPONENT.

① DIESE AUFKLEBEMARKE IST AN DEM IN DER ABBILDUNG GEZEIGTEN ORT ANGEBRACHT UM DARAUF HINZUWEISEN, DASS IM INNERN DES GERATS EINE LASER-KOMPONENTE BEFINDET.

① PÅSKRIFTEN SITTER PÅ APPARATEN SOM VISAS SOM UPPMANING OM ATT APPARATEN OMFATTAR EN INBYGGD LASERKOMPONENT.

① DETTE MÆRKAT ER ANBRAGT SOM VIST I ILLUSTRATIONEN FOR AT ADVARE BRUGEREN OM AT APPARATET INDEHOLDER EN LASERKOMPONENT.
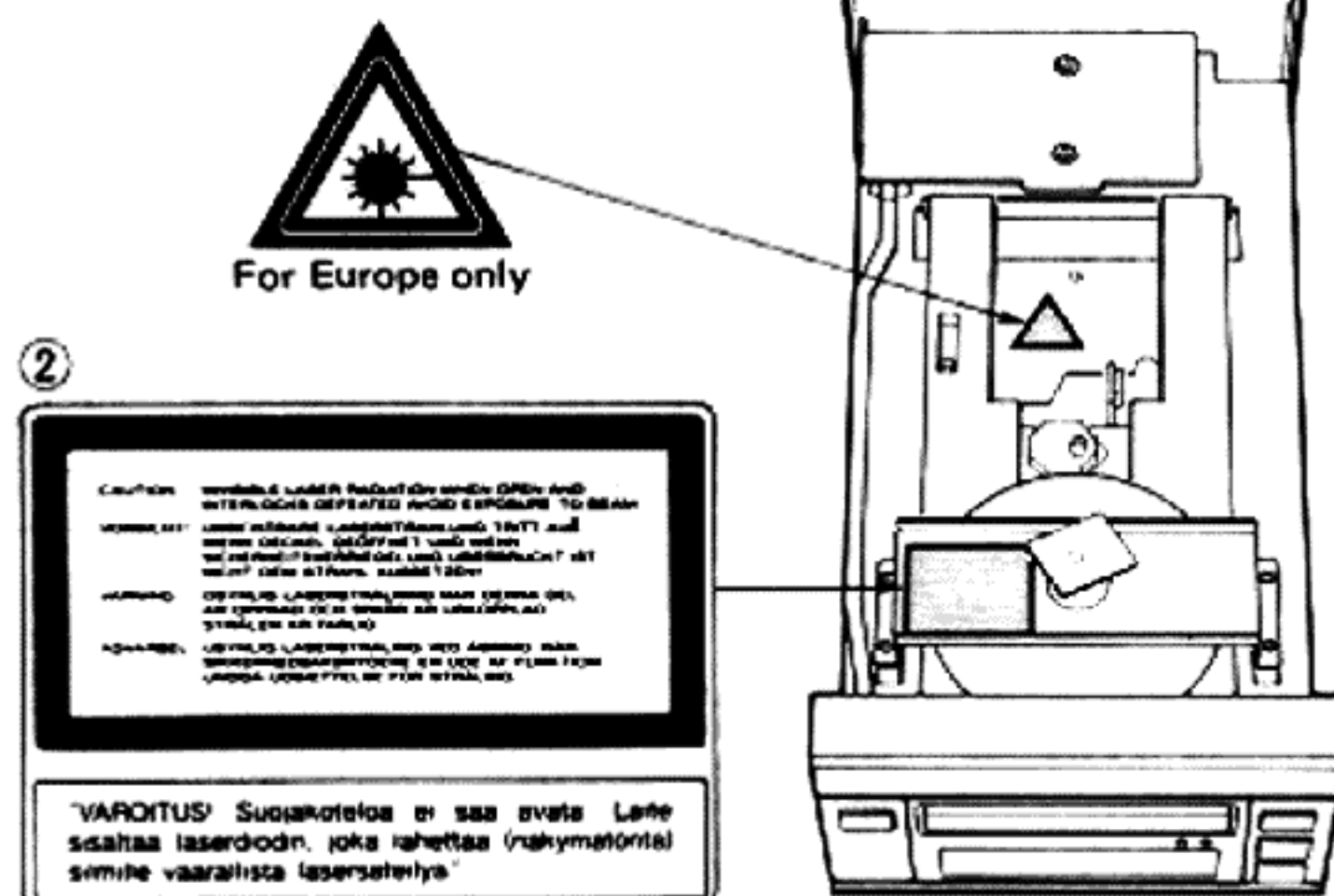
② DETTE MÆRKAT ER SOM VIST PÅ ILLUSTRATIONEN ANBRAGT PÅ INDERSIDEN AF TOPDÆKSLET FOR AT ADVARE BRUGEREN OM AT YDERLIGERE FREMTRÆNGEN VIL VÆRE FORBUNDET MED FARE FOR AT UDSÆTTE SIG FOR LASERSTRÅLING.

ADVARSEL – BETJENING AF ANDRE KONTROLLER OG REGULATORER ELLER BENYTTELSE AF ANDRE FREMGANGSMÅDER END BESKREVET HERI ER FORBUNDET MED FARE FOR UDSÆTTELSE FOR LASERSTRÅLING.

VARNIG: APPARATEN INNEHÅLLER LASER KOMPONENT MED STRÅLNING ÖVERSTIGANDE KLASS 1

"ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING"

"VAROITUS! SUOJAKOTELOA EI SAA AVATA. LAITE SISALTAA LASERDIODIN. JOKA LAHETTAA (NAKYMATONTA) SILMILLE VAARALLISTA LASERSATEILYA"

Before Use

■Precautions on Installation and Use

Installation
Pay careful attention when installing the P-500 CD Drive Unit otherwise sound could be degraded and trouble could occur.
- Make sure that the P-500 is installed on a stable level surface.
- The P-500 may not maintain normal operational quality at excessively high temperatures, when exposed to direct sunlight or near a heater (at an ambient temperature of over 40°C/104°F), or at excessively low temperatures (less than −5°C/23°F).
- If used in a place with excessive humidity (more than 90%), metallic parts may rust.
- Use in a dusty atmosphere may cause defective contacts, resulting in noise.
- If condensation occurs, the P-500 may not work correctly.
- Do not place the P-500 near a power transformer or motor which may cause induced hum. Install the P-500 away from equipment incorporating such components. Also, do not place the P-500 in a place subject to excessive vibrations.

Maintenance of the unit
Do not use benzine, thinner or chemical solvent to clean the unit. Do not wipe with chemically treated cloth, and do not use an insecticide spray near the unit.
To clean the unit, wipe with a dry soft cloth.

Operate carefully
When using the unit, do not operate the switches and knobs with too much force.

Use correct power supply
Be sure to use the P-500 with the rated power supply, as indicated on the rear panel. Handle power cords carefully. Especially, when unplugging the power cord from the wall outlet, be sure to hold the plug, not the cord.
If set to a voltage other than that used in your area, reset to the correct voltage as described in "Voltage Conversion" on the right.

Cautions on lightning
If there is any possibility of the unit being struck by lightning, be sure to unplug the power cord immediately.

Discs that shouldn't be used
Do not load cracked discs in the player, and be careful not to allow the discs to be contaminated by fingerprints or dust when handling them.

Laser pickup
The optical laser pickup is one of the most important parts of the player and determines the performance of the CD player. Never touch the lens surface of the laser pickup. To keep the surface of the laser pickup clean, be sure to close the disc tray when not in use.

When exposed to water
If the unit is exposed to water, immediately unplug the power cord and consult your dealer. If the power is turned ON again in this condition, it may cause an electric shock or fire hazard.

Do not open the cover
Do not open the top cover or bottom plate of the unit and do not insert your fingers as it may result in an electric shock or damage internal parts. If a foreign object gets into the unit by mistake, immediately unplug the power cord and consult your dealer.

When moving the unit
When moving the unit, be sure to unplug the power cord and disconnect all cords attached to other components, to prevent short-circuits.

Never use a stabilizer
Never use a commercially available CD stabilizer with this unit as it may make it impossible to play CDs, or damage the internal mechanism and cause it to malfunction.

Beware of condensation
When the player or a compact disc is moved from a cold place to a warm place, or if used after a sudden temperature change, condensation may occur. Water vapor in the air could condense on the mechanism or the laser pickup. If droplets of water form on these parts, correct operation will be impossible because the laser will not read the information from the disc correctly.
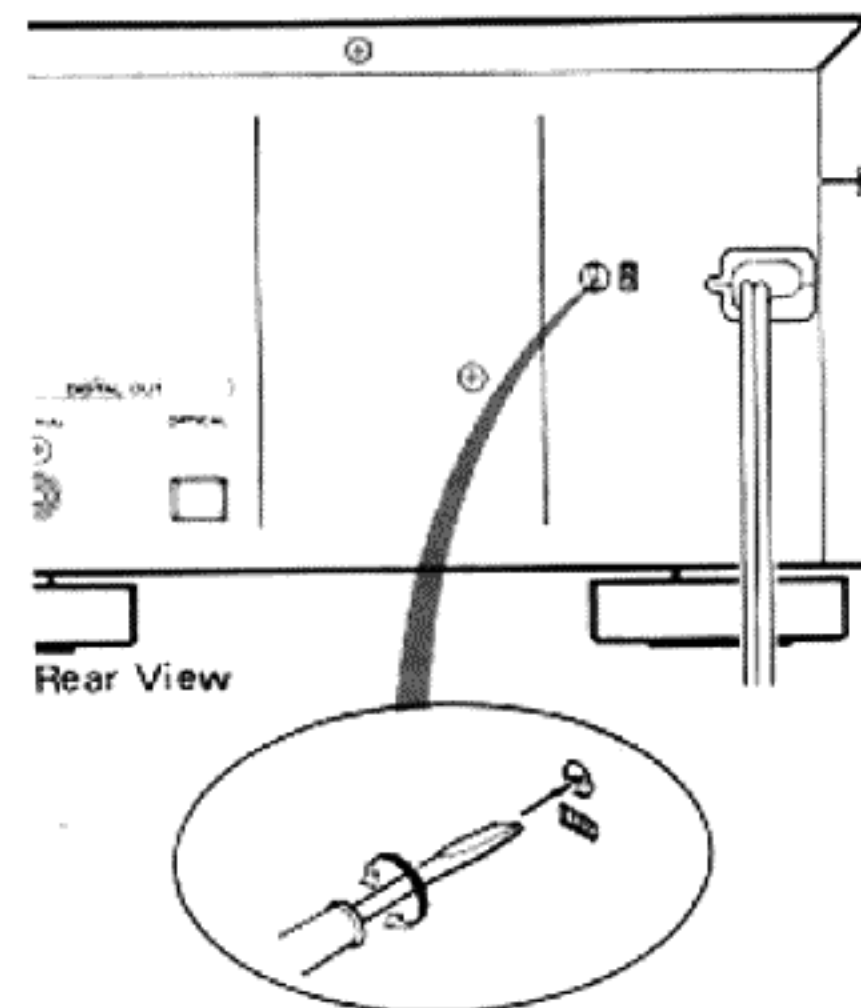If condensation occurs, leave the player for one or two hours after turning the power switch on, depending on the amount of condensation. If this is done, the player will stabilize at the temperature of its surroundings, and correct operation will be possible.

■Voltage Conversion
(For general export models only)

If it is necessary to change the voltage setting of the unit to match your area, proceed as follows:
1. DISCONNECT THE POWER LINE CORD.
2. Using a screwdriver, turn the selector until the required voltage marking appears.

Rear View

IMPORTANT (for U.K. Customers)

The wires in this mains lead are coloured in accordance with the following code:
BLUE: NEUTRAL
BROWN: LIVE
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

In the U.K., this unit is sold without an AC plug.

This product is manufactured to comply with the radio interference of EEC directive "82/499/EEC".
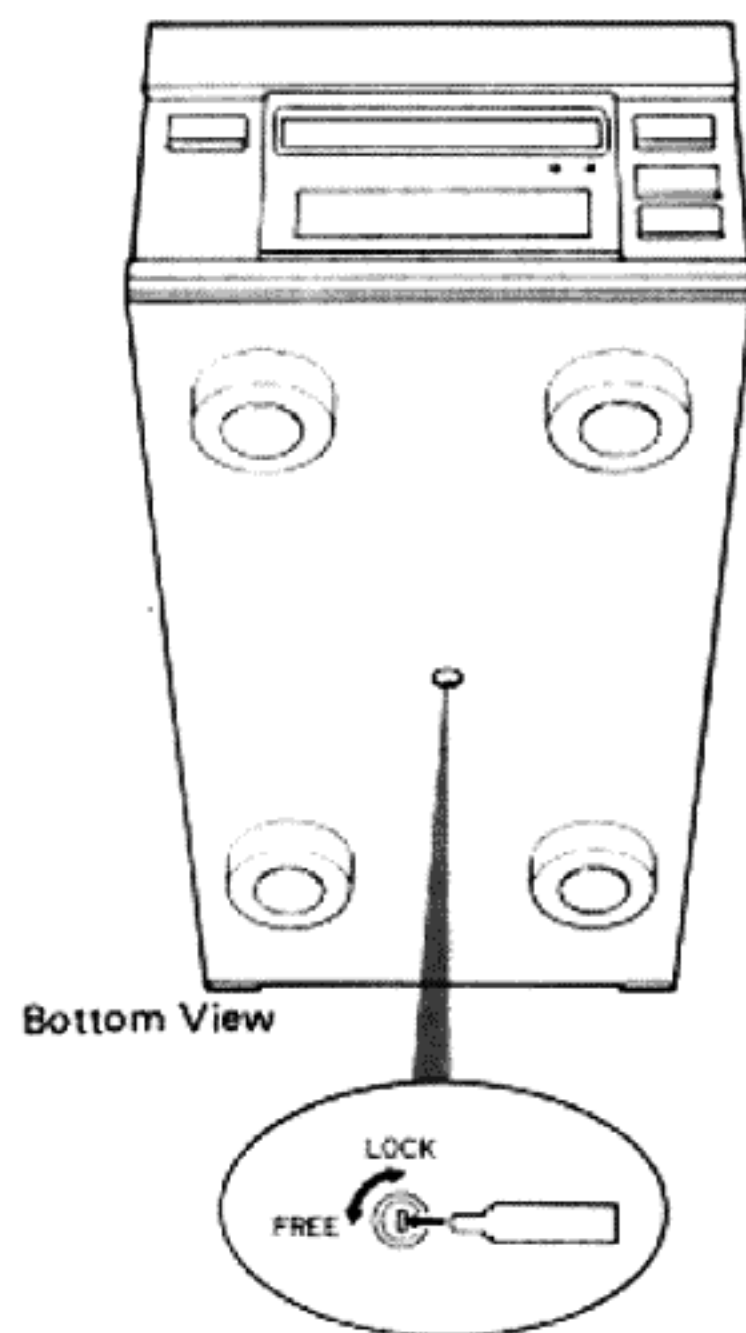
■ Anti-Shock Bracket

To protect the laser pickup mechanism from shocks and movement during transit, it is secured by a special anti-shock bracket. Before starting operation, be sure to release this bracket, which is accessed from the bottom of the P-500.

• Releasing the anti-shock bracket
The anti-shock bracket must be released before the player is turned ON. To do this, place the player with its rear panel down on a firm, smooth surface as shown in the diagram. Then insert the lock key (metal plate) provided into the hole and turn it toward "FREE" (by about 35°). When doing this, be careful not to damage the cabinet.
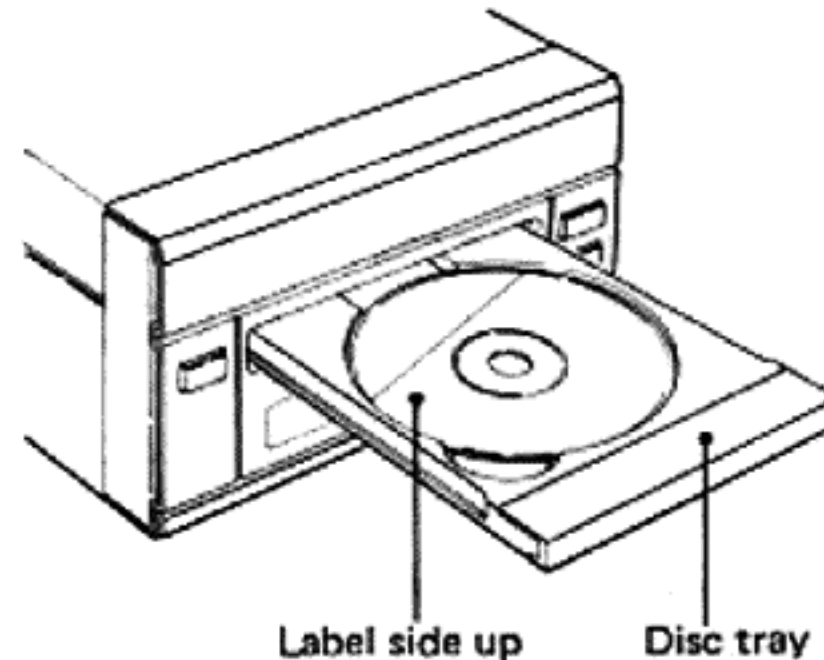
• Transporting the player
If the player is to be transported for a long distance, the anti-shock bracket should be fixed again. Before doing this, first turn the power ON and open the disc tray to make sure that a disc is not loaded, then close the tray. Turn the player's power OFF and secure the anti-shock bracket by turning the screw toward "LOCK".
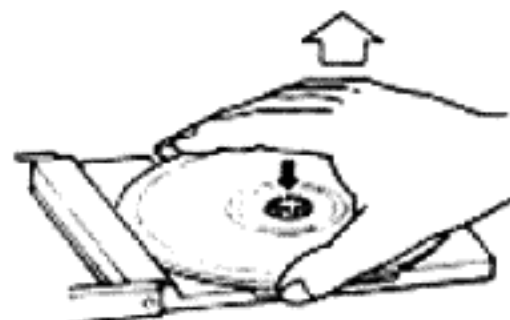

Bottom View

■ Handling Compact Discs

This unit has been designed specifically for the reproduction of compact discs bearing the " ▦ " mark. No other discs can be reproduced by this unit.
• Always place the compact disc in the disc tray with the label facing upward. (Compact discs can only be played on one side.)

Label side up   Disc tray

• To remove a disc from its plastic storage case, release the disc by pressing the plastic tab in the center of the case, and lift the disc out, holding it carefully by its edges.
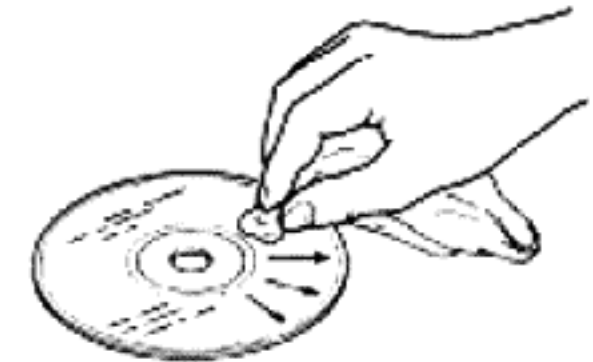
How to remove the disc

How to hold the disc

• Fingermarks and dust should be carefully wiped off the disc's recorded surface with a dry soft cloth, in the radial direction.
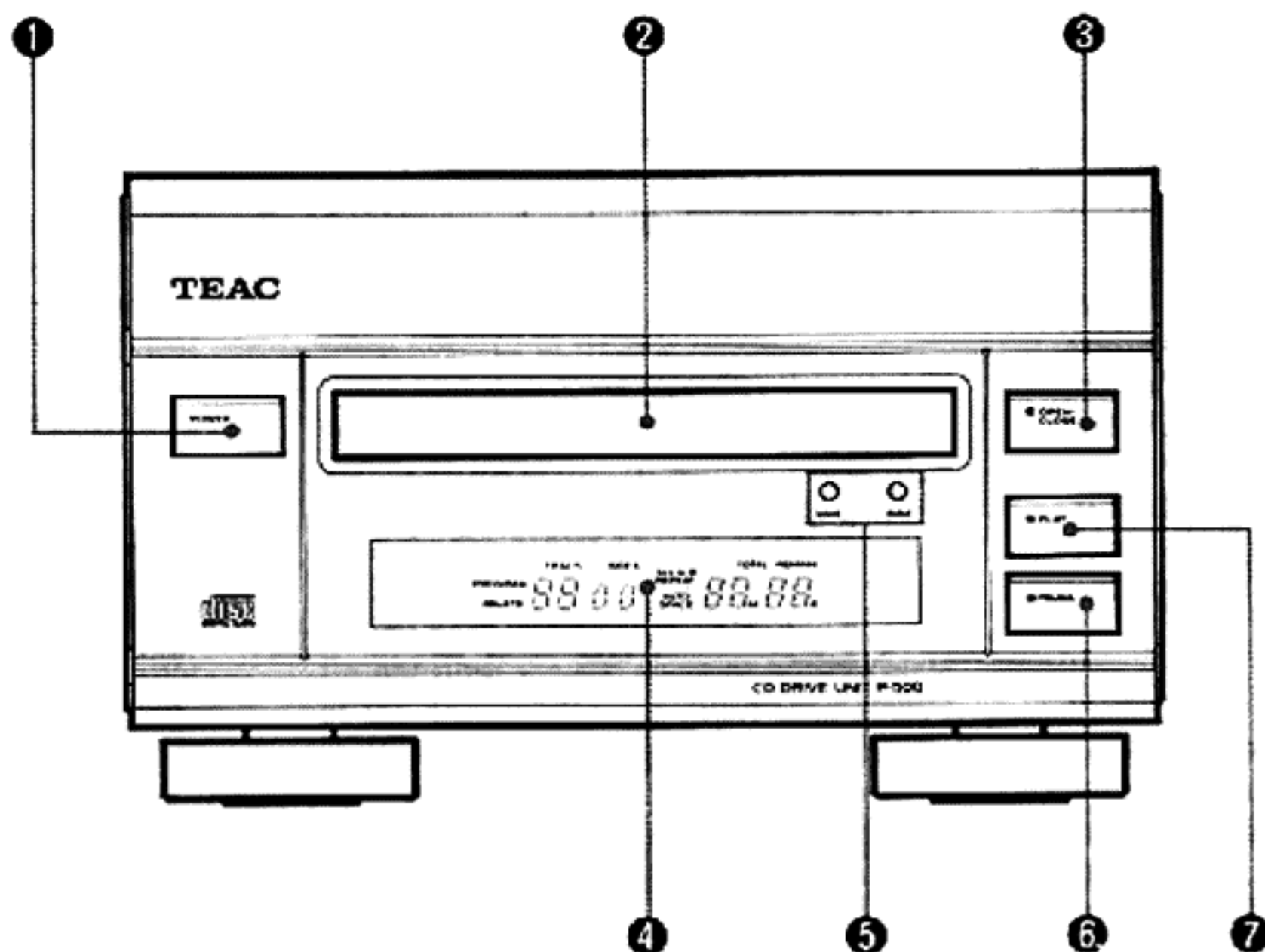
Wipe radially

Unlike conventional records, the compact disc has no grooves which collect dust and microscopic debris, so gently wiping with a soft cloth should remove most particles. Wipe straight from the inside to the outside of the disc. Small dust particles and light stains will have absolutely no effect on the quality of reproduction.
• Never use chemicals such as record sprays, antistatic sprays or fluid, or benzine or thinner to clean compact discs. Such chemicals may irreparably damage the disc's plastic surface.
• Discs should be returned to their cases after use to avoid serious scratches that could cause the laser pickup to "skip", and "dropout" of the recorded signal.
• Be careful not to expose discs to direct sunlight or high humidity and temperatures for extended periods.
• Never stick a paper label or write anything with a ballpoint pen, etc. on the label side of the disc.

Front Panel

❶ POWER Switch

Press to turn the power to the P-500 ON (▭); the display window will light. Pressing it again turns the power OFF (▭); the display will go out.

• If a disc is loaded in the disc tray, when the power is turned ON, play will start automatically.

Caution:

The P-500 incorporates a number of microcomputers and when it is turned on for the first time, it may not operate correctly because of external noise, etc. In such a case, turn the POWER switch OFF, then turn it ON again to restart operations.

❷ Disc Tray

Set a disc on this tray with its label side up. The tray slides out toward you when the OPEN/CLOSE button is pressed in any operation mode. When the OPEN/ CLOSE button, PLAY (►) button or PAUSE (∥) button is pressed, the disc tray will move in.
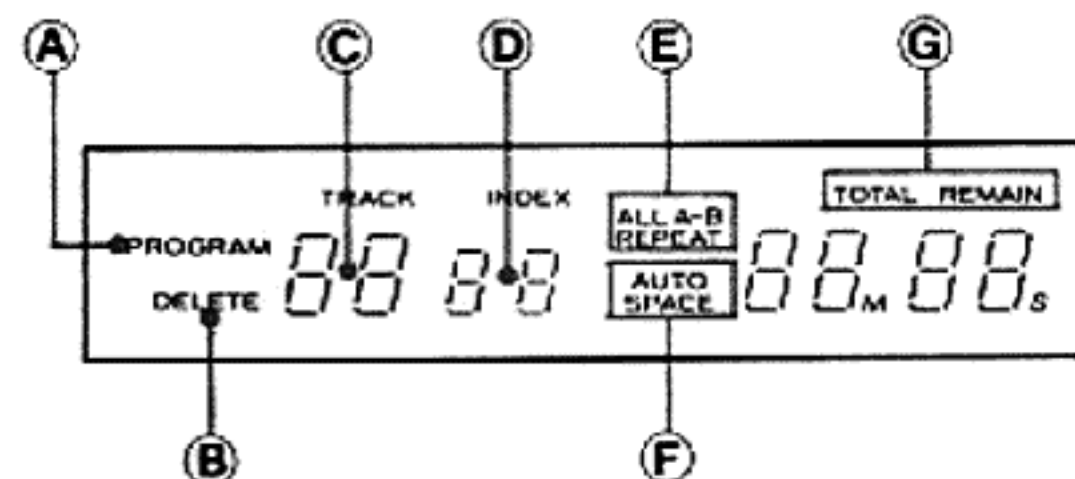
❸ OPEN/CLOSE Button

When this button is pressed, the disc tray will slide out. When it is pressed again, the disc tray will slide back into the player. During the opening and closing the disc tray, the " ∎ " indicator blinks; the indicator light continuously when the loading operation is complete.

❹ Multi-Function Display Window

This display shows the state of play and each operation mode, as described below. (In the pause mode, these indica-

tors remain as they are, but in the stop mode, they will go off.)

Ⓐ PROGRAM Indicator

This indicator lights in the program play mode.

Ⓑ DELETE Indicator

This indicator lights in the "delete" (track skip) play mode.

Ⓒ TRACK Indicator

When a disc is loaded in the player, this indicates the total number of tracks (tunes) on the disc. This display is held until the PLAY button is pressed. When a disc is playing or when tunes are being programmed into memory, it shows the track (tune) number.

Ⓓ INDEX Indicator

This indicates the index number of the tune (track or movement) being played. It also indicates the program number in the programmed playback mode.

Ⓔ REPEAT Indicators

REPEAT: Lights when repeat play of a single tune is engaged.

REPEAT ALL: Lights when repeat play of an entire disc is engaged.

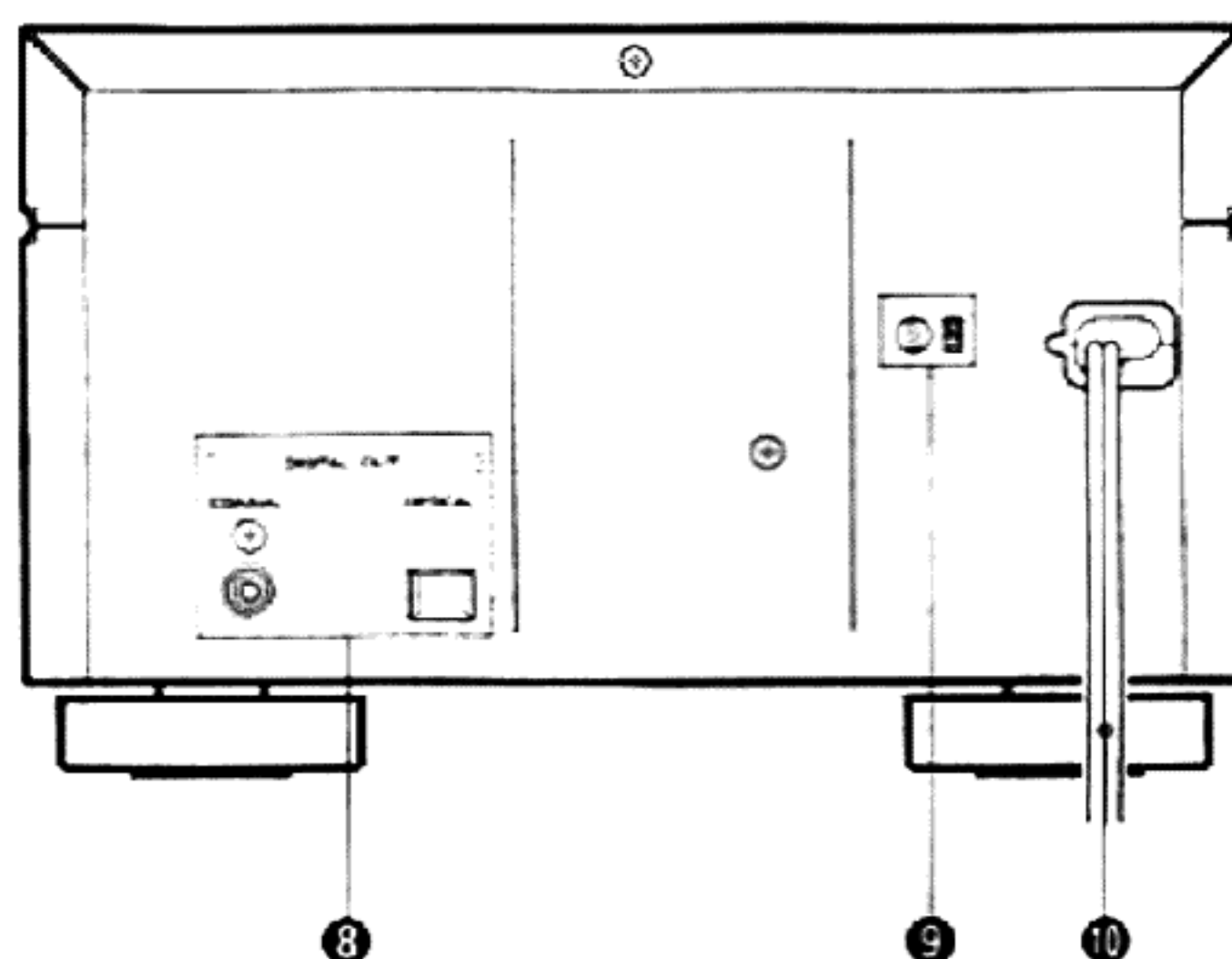REPEAT A-B: Lights when repeat play of the portion between points A and B is engaged.

Ⓕ AUTO SPACE Indicator

This indicator lights when the Auto Space function is activated to leave a fixed interval between tracks (tunes).

Ⓖ REMAIN/TOTAL REMAIN Indicators

"REMAIN" lights when the time counter is set to the remaining time display mode, and "TOTAL REMAIN" lights when it is set to the total remaining time display mode.

Rear Panel

❺ SKIP Buttons (|◄◄/►►|)

These buttons make it possible to move the pickup quickly to the beginning of tracks (tunes) in the forward and reverse directions. (For more details, see page 14.)

They are also used in the stop mode for the selection of required track (tune) numbers for programmed playback, etc.

|◄◄ : Each time this button is pressed, the pickup will return to the beginning of the track (tune) currently being played. Holding the button depressed skips to previous tracks (tunes) in sequence.

►►| : Each time this button is pressed, the pickup will advance to the beginning of the next track (tune). Holding the button depressed skips to subsequent tracks (tunes) in sequence.

❻ PAUSE Button (II)

Press this button to suspend play. To restart play, press the PLAY (►) button. The " ■ " indicator will light during the pause mode.

❼ PLAY Button (►)

Press this button to start normal play, or programmed play. The " ► " indicator will light while the disc is being played.

❽ DIGITAL OUT Terminals

The P-500 has two types of digital signal output terminals; one is coaxial and the other is optical.

COAXIAL: This terminal is used for connection using a coaxial cord having RCA-type pin plugs at both ends (with an impedance of 75 ohms).

OPTICAL: This terminal is used for connection using the optional optical fiber cable.

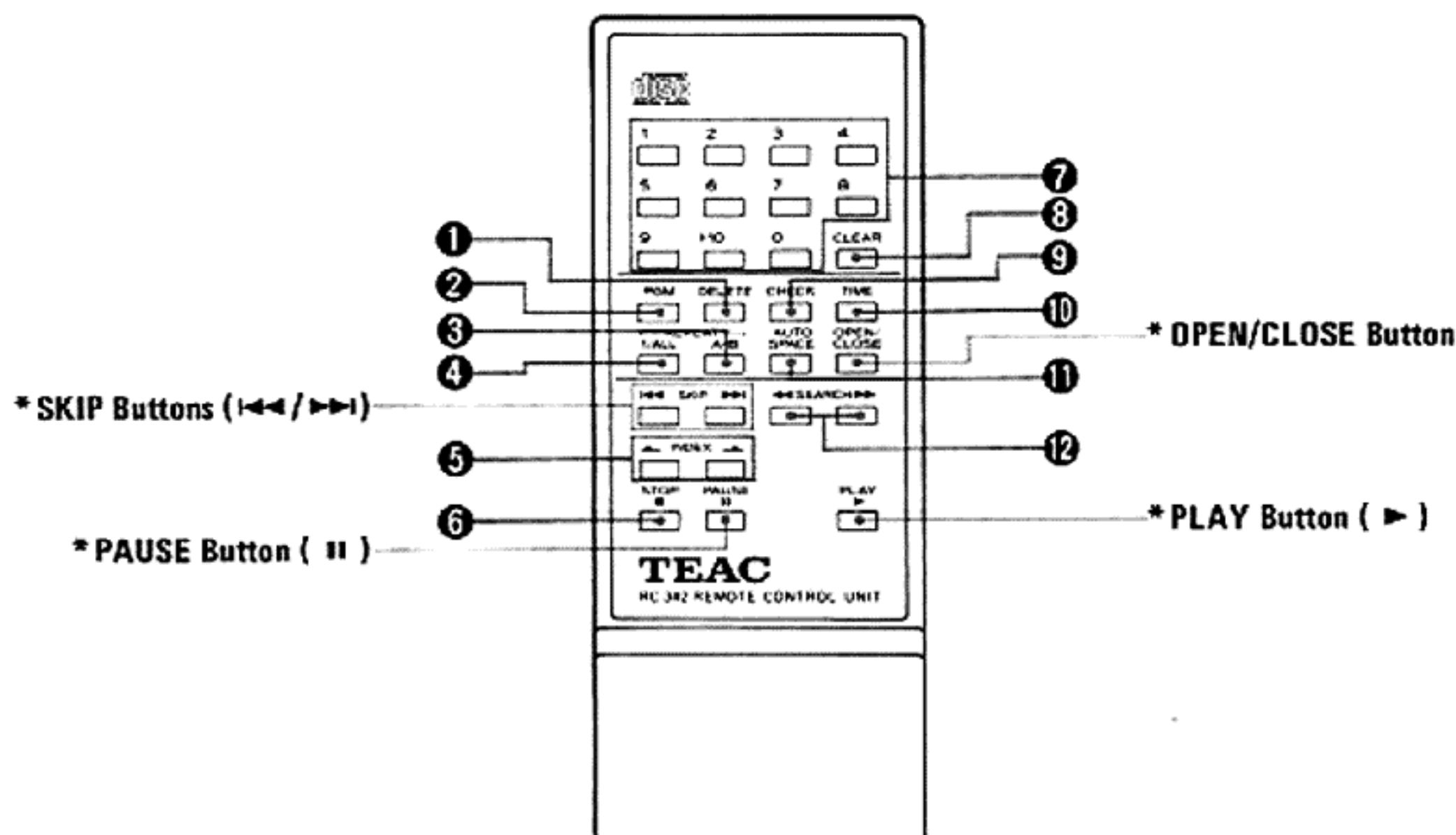## ❾ Voltage Selector (General export models only)

See "Voltage Conversion" on page 4.

❿ AC Cord

Plug into an AC wall receptacle, after confirming that the supplied power voltage has been set correctly for your area.

Remote Control Unit

Buttons with an asterisk (*) have the same functions as those on the front panel of the P-500. (Refer to page 6 – 7.)

* SKIP Buttons (⊷/⊶)

* PAUSE Button (‖)

* OPEN/CLOSE Button

* PLAY Button (►)

❶ DELETE (Track Skip) Button
When pressed in the stop mode, the "DELETE" indicator lights in the display of the P-500, and the delete (track skip) mode is engaged. With this, you can specify the tunes that are not required to be played, so that only the required tunes will be played. To release the delete (track skip) mode, press it again. (See page 12.)

❷ PGM (Program) Button
Press this button in the stop mode, to activate the programming operation. When this button is pressed, the "PRO-GRAM" indicator lights in the display of the P-500. To release the program-ming mode, press this button again. (See page 11.)

❸ REPEAT A-B Button
Used to activate repeat play of the section between two designated points (block repeat play). (See page 13.)

❹ REPEAT 1/ALL Button
Used to activate repeat play of a single tune or an entire disc. (See page 13.)

❺ INDEX Buttons (◄-/-►)
Used to select the required index point by moving the index upward (with-► button) or downward (with◄-button) when a disc with index codes is being played. After the required point has been designated, the pickup moves to the designated point and play starts automatically. (See page 13.)

❻ STOP Button (■)
When this button is pressed, play stops and "TRACK 0" will be displayed on the P-500. This button is also used to release any programming mode.

❼ Numeric Buttons (0 – 9, +10)
These buttons are used to designate the track (tune) numbers for programming playback or "direct access" play.

❽ CLEAR Button
In the stop mode, this button is used to cancel tunes which have been programm-ed. (See page 12.)

❾ CHECK Button
In the stop mode, this button used to check the programmed contents (tune numbers and playing times of tunes, etc.). (See page 12.)

❿ TIME Mode Button
Used to select the time counter mode to be displayed by the P-500. (See page 14.)

⓫ AUTO SPACE Button
When this button is pressed, the "AUTO SPACE" indicator lights in the display of the P-500, and an interval of approx. 4 seconds will be inserted between tracks (tunes) during play. This "auto spacing" function will be released when this button is pressed again or the STOP (■) button is pressed. (See page 15.)

⓬ SEARCH Buttons (◄◄/ ►►)
When one of these buttons is pressed during play or in the pause mode, the pickup is moved quickly in the forward or reverse direction while slightly muted sound is output (audible cueing).
Use the ►► button to move the pickup in the forward direction, and the ◄◄ button to move it in the reverse direc-tion. (See page 13.)

Connections

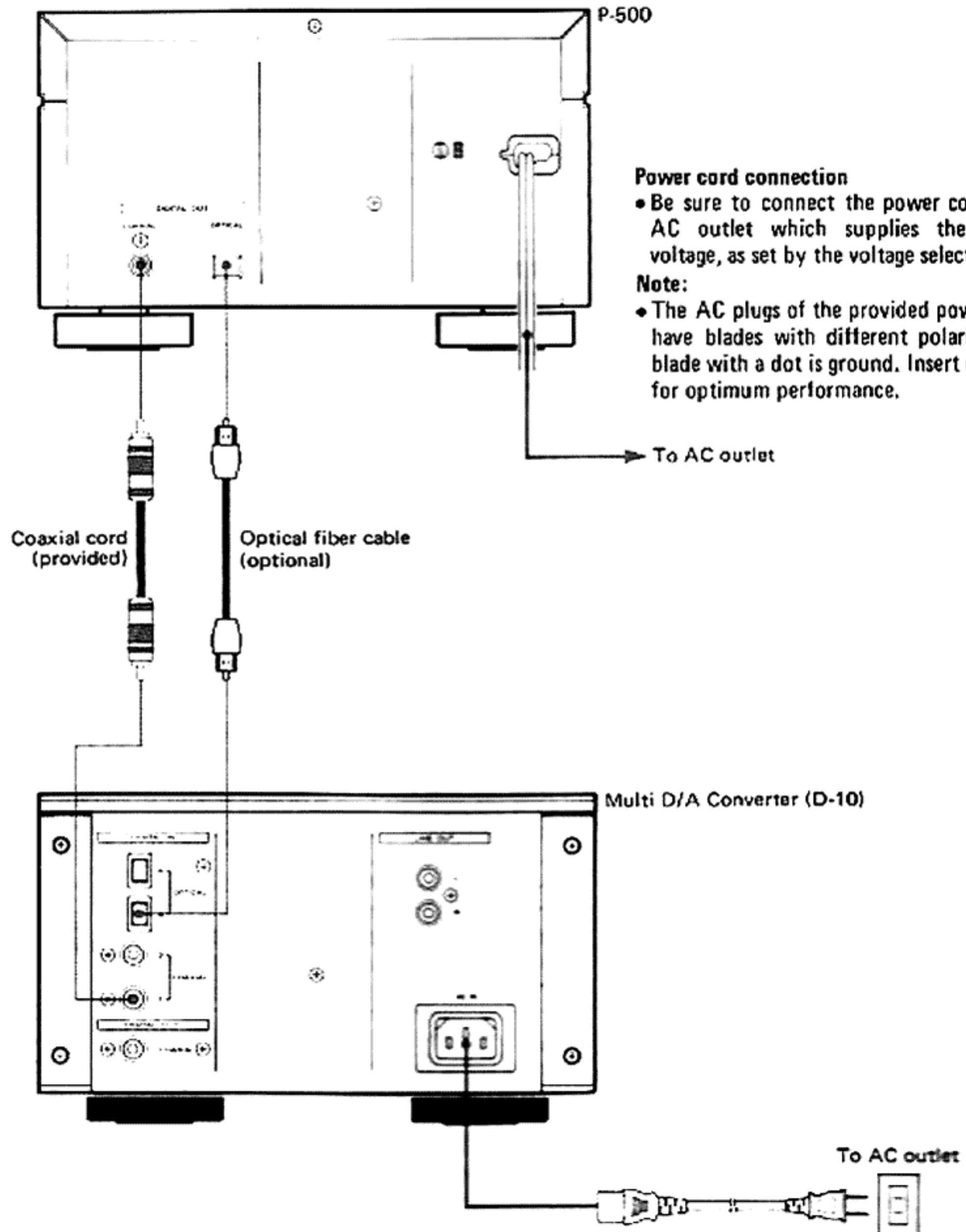## ■ Connection to the Multi D/A Converter (D-10)

- Before connecting, be sure to read this instruction manual carefully; be sure to perform connection with the power of the units turned off.
- Using the coaxial cable provided with the P-500, connect one end to the DIGITAL OUT "COAXIAL" connector of the P-500 and the other end to the DIGITAL INPUT "COAXIAL" connector of the multi D/A converter (D-10).

If your multi D/A converter has a connector exclusively for an optional optical fiber cable, optical digital interfacing is also possible; in this case, connect one end to the DIGITAL OUT "OPTICAL" connector of the P-500 and the other to the DIGITAL INPUT "OPTICAL" connector of the multi D/A converter (D-10).
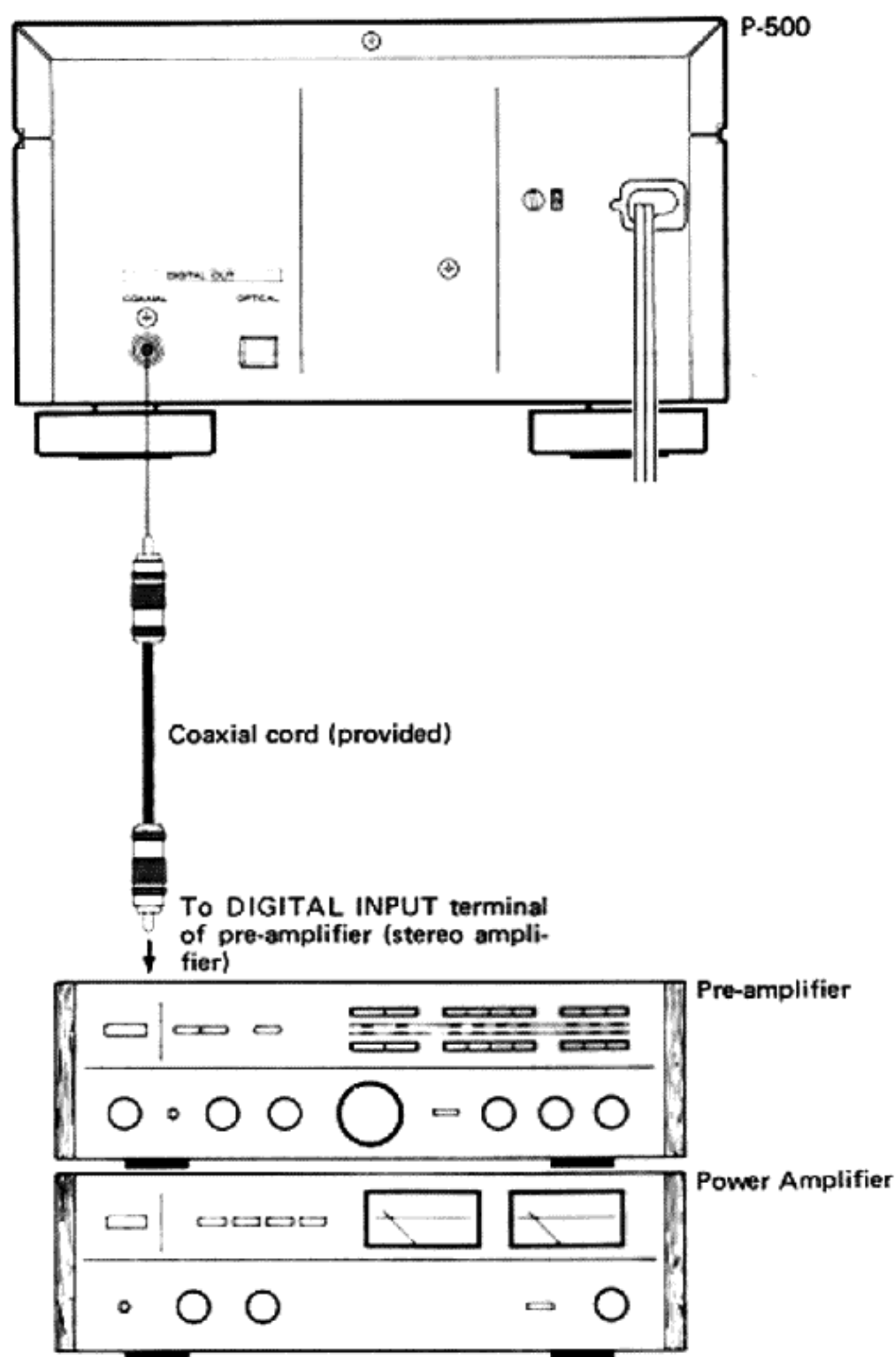
Note:
- When an optical fiber cable is used for connection, remove the caps protecting both ends of the optical cable and the connectors. When an optical fiber is not used, leave the caps in place.

P-500

Coaxial cord (provided)

Optical fiber cable (optional)

Power cord connection
- Be sure to connect the power cord to an AC outlet which supplies the correct voltage, as set by the voltage selector.

Note:
- The AC plugs of the provided power cords have blades with different polarities; the blade with a dot is ground. Insert correctly for optimum performance.

To AC outlet

Multi D/A Converter (D-10)

To AC outlet

■ Connection to stereo amplifier (for digital interfacing)

- Before making connections, be sure to read the instruction manual of the stereo amplifier (or pre-amplifier) carefully and turn the power of the stereo amplifier and the P-500 OFF.

- If the amplifier incorporates a D/A converter conforming to the Digital Audio Interface Format, connect a coaxial (or optical) cable between the DIGITAL OUT connector of the P-500 and the DIGITAL INPUT connector of the amplifier.

P-500

DIGITAL OUT

COAXIAL   OPTICAL

Coaxial cord (provided)

To DIGITAL INPUT terminal of pre-amplifier (stereo amplifier)

Pre-amplifier

Power Amplifier

Disc Play

■ Basic Operations

The RC-342 Remote Control Unit provided with the P-500 has all the control buttons required to operate the P-500 (except for the POWER switch). Use this remote control unit following the explanations given here. The control buttons on the front panel have the same functions as those with the same names on the remote control unit.

Preparations

< P-500 >
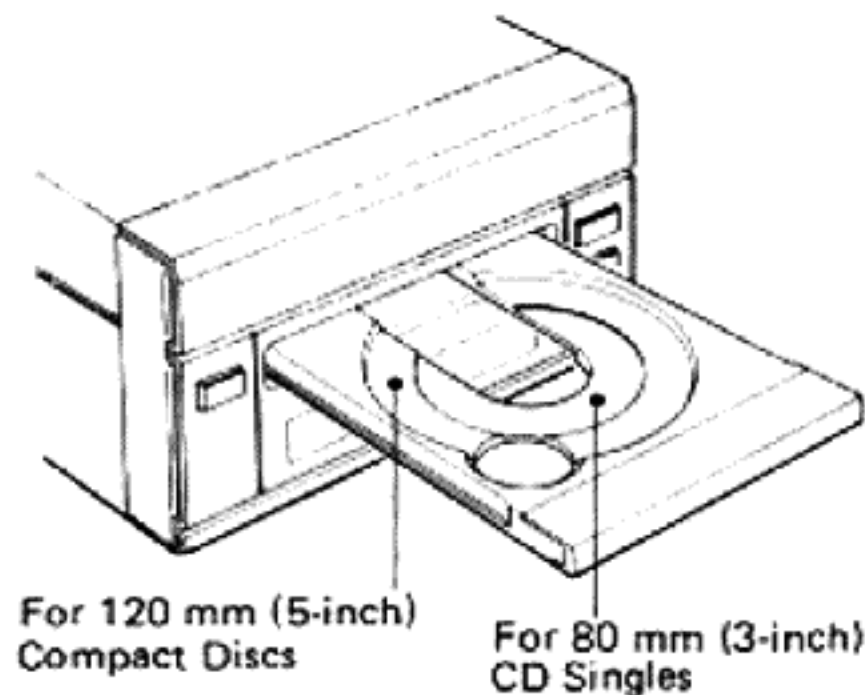● Press the POWER button to turn the power ON.

< Multi D/A converter (D-10) >
● Press the POWER button to turn the power ON.
● Set the input selector to the position corresponding to the jacks to which the P-500 is connected.

< Stereo Amplifier with built-in D/A converter >
● Turn the power of the amplifier ON and set its source selector to "CD" or "DIGIT-AL" (to correspond to the digital input terminal to which the P-500's DIGITAL OUT terminal is connected).
   * For details, refer to the instruction manual of the stereo amplifier to which the P-500 is connected.

For 120 mm (5-inch) Compact Discs
For 80 mm (3-inch) CD Singles

1. Press the OPEN/CLOSE button.
● The disc tray slides out.
   The disc tray will not open if power has not be switched on.

2. Place the disc to be played on the disc tray with its label side up.
● Set the disc correctly using the disc guides at the center of the disc tray (especially when an 80 mm (3-inch) CD single is used).

3. Press the OPEN/CLOSE button.
● The disc tray slides in and the total number of tunes on the disc and their total playing time will be displayed on the P-500. (This display remains lit until the PLAY (►) button is pressed.)

4. Press the PLAY (►) button.
● The LED indicator in the PLAY button lights and play starts from the first tune on the disc.

5. Adjust the volume with the VOLUME control of the amplifier to set to an appropriate level.

6. To stop play, press the STOP (■) button.

■ Even if the disc tray is open

When the PLAY (►) button is pressed:
The disc tray is automatically closed and play starts from the first tune on the disc.

When the numeric buttons are pressed:
The disc tray is automatically closed and play starts from the tune designated by the buttons pressed.

When the PAUSE (II) button is pressed:
The disc tray is automatically closed and the player enters the pause mode at the beginning of the first tune on the disc.

■ Direct access play

By pressing the numeric buttons corresponding to the required tune, play starts from the specified tune directly, without your pressing the PLAY (►) button.
Example 1: To play from the 5th tune
   Press 5 .
Example 2: To play from the 12th tune
   Press +10 , then 2 .

■ To stop play

To unload the disc:
Press the OPEN/CLOSE button.
Playback stops and the disc tray will slide out. Remove the disc after the tray has opened fully. (In this way, the disc loaded in the player can be removed at any time.)

To temporarily suspend playback:
Press the PAUSE (II) button.
Play stops at the current position of the pickup. To resume playback from the same position, press the PLAY (►) button.

To halt play:
Press the STOP (■) button.
The player enters the stop mode; the disc stops rotating and all functions are reset to their initial settings.

CAUTIONS:
● Do not insert any objects other than discs into the tray as this can damage the mechanism.
● Do not apply any force to the tray with your hand during opening and closing operations.
● Do not leave the disc tray open when the player is not in use to prevent dirt and dust from entering the mechanism.
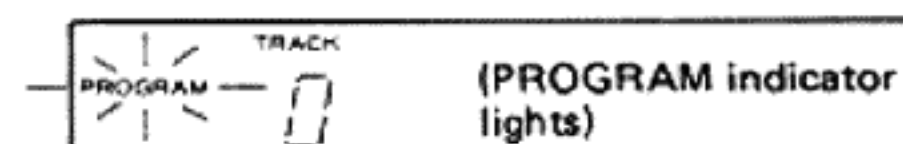
Program Play

The program playback function allows you to program up to 20 tracks (tunes) for playback in any desired order, while "pause" can also be programmed so that the play stops at the specified point during programmed play. Programming must be done in the stop mode.

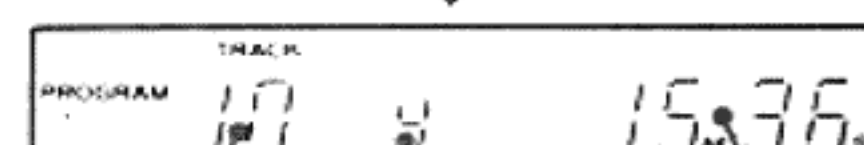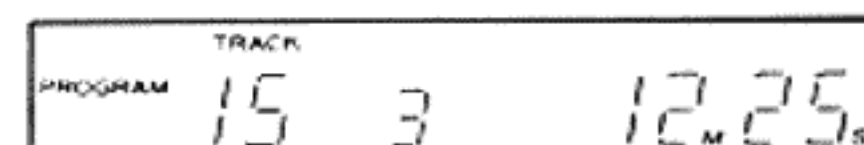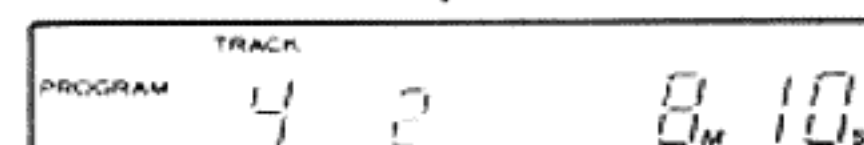## ■ Programming required tracks
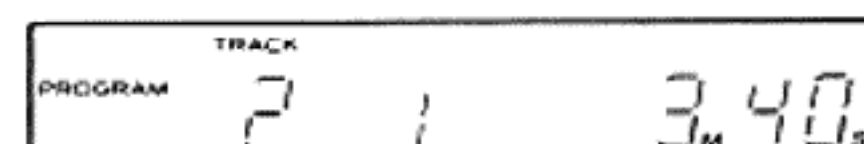
Example: To program tracks in the order
   2 → 4 → 15 → 10

1. Press the STOP button.
2. Press the PGM button on the remote control.

(PROGRAM indicator lights)

3. Press the numeric buttons in the following order:

2 → 4 → +10 5 → +10 0

Tune number (TRACK NO.) on the disc

Program number (playing order)

Total program playback time

● Each time a tune is programmed, the display indicates the tune number (track number on the disc), program number (playing order) and the total program playback time, as shown above.

Notes:
● The programmed contents will be held in memory even after programmed playback is over.
● Even when programmed playback is stopped by pressing the STOP (■) button, the programmed contents will still remain in memory. However, if the STOP (■) button is pressed again, the "PROGRAM" indicator in the display will go out and the programmed contents will be erased from memory.

- After programming has been completed, any time the PGM button is pressed or if the STOP (■) button is pressed before starting play, the program will be cleared.
- When the DELETE button is pressed during programming, the contents of the memory in which tunes have been stored will be cancelled.

■ Checking the programmed contents

Before starting programmed playback, the contents of the program can be checked by pressing the CHECK button. When the CHECK button is pressed, the track number of the tune programmed first, its program playback order and the total program playback time will be displayed on the P-500. Each time the CHECK button is pressed, the display will show the details of the next programmed tune in sequence.

■ Changing the program

After programming is complete, new tunes can be added after the last tune originally programmed, or unnecessary tunes can be deleted from the original program, in the following way.

Addition

Before starting programmed playback, new tunes can be added to the last tune in the current program.
To add a new tune, input the number of the tune using the numeric buttons, in the same way as in normal programming (described above).

Deletion
Example:
With the original program set as follows;

$$\boxed{2} \rightarrow \boxed{4} \rightarrow \boxed{15} \rightarrow \boxed{10}$$

To delete $\boxed{15}$ from the above program:
1. Press the CHECK button repeatedly so that the TRACK No. shows "15".

```
PROGRAM   TRACK
          15   3        15ₘ36ₛ
```

2. Press the CLEAR button.
- The track (tune) number "15" is deleted and the display now shows the next tune number.

```
PROGRAM   TRACK
          10   3        11ₘ21ₛ
```

3. In the same way, repeat steps 1 and 2 to delete other unnecessary tunes.

■ Pause program

Pauses can also be programmed in the program memory to stop programmed playback in the middle. This function is convenient for turning the cassette over when recording a CD onto both sides of a cassette.
Example: To program a "pause" between 3rd and 4th tunes

$$\boxed{2} \rightarrow \boxed{4} \rightarrow \boxed{PAUSE} \rightarrow \boxed{15} \rightarrow \boxed{10}$$

1. Press the STOP button.
2. Press the PGM button.

```
PROGRAM   TRACK
            0              (PROGRAM indicator
                            lights)
```

3. Press the numeric buttons for programming in the order $\boxed{2}$, $\boxed{4}$, then press the PAUSE button.

```
PROGRAM   TRACK
          PA   3
```

- "PA" will appear in the tune number display with the program number "3". This shows that the "PA" code (indicating a "pause") has been programmed as the third program.
4. For programming subsequent tunes, press the numeric buttons in the order $\boxed{+10}$ $\boxed{5}$, then $\boxed{+10}$ $\boxed{0}$.
At this time, the time display shows the total playback time of the tunes after the "PA" code.
Now, the resulting program will be "2" → "4" → "PA" → "15" → "10". (This can be checked by pressing the CHECK button.)

When the above programs is played back, programmed playback will be suspended after tune "4" is finished, while the tune number, playing time, etc. of the next programmed tune ("15" in this case) will appear in the display.
To restart program playback, press the PLAY (►) button.
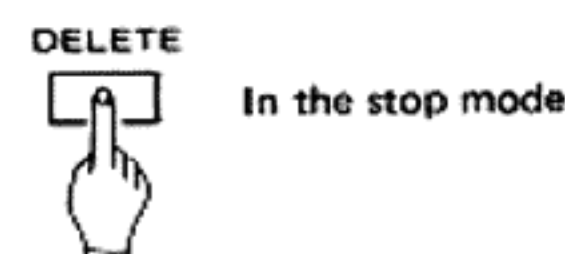
Notes:
- During program playback, when the "PA" code is programmed, initially the TOTAL REMAIN shows the total remaining time up to the point at which the "PA" code is programmed. Then, when program playback is restarted after pausing, the TOTAL REMAIN will show the total remaining time to the end of the program.
- More than two "PA" codes can be programmed in one program, however, it is impossible to program two "PA" codes one after the other.

■ Delete (Track Skip) Function

"Delete play" has the opposite function to normal programming, and is used to program tunes which are not to be played. Use this function when there are tunes on the disc you don't want to listen to.
In the same way as in normal programming, you can specify up to 20 tunes (tracks) that are to be skipped.
1. Press the DELETE button.
The "DELETE" indicator lights in the display.

```
         DELETE
         ┌──┐          In the stop mode
         └──┘
```

```
             TRACK
DELETE       12              49ₘ18ₛ
```

- When the disc is loaded, the total number of tunes on the disc and the total playing time will appear.

2. Press the numeric button(s) corresponding to the tune numbers which you don't want to listen to.
The display shows the following:

```
             TRACK
DELETE        5              45ₘ10ₛ
```

Tune number
not to be played   Total playback
                                    time remaining
                                    (except for
"Delete program" number   track "5")

To specify more tunes that are not to be played, input the required tune numbers using the numeric buttons.
3. Press the PLAY (►) button.
Only the tunes that have not been "deleted" will be played back, in numerical order.

Notes:
- After programming tunes to be deleted, pressing the CHECK button will recall the numbers of tunes which will not be played, in the order in which they were programmed.
- In the same way as in normal programming, new tunes can be added (or even deleted) to (from) the Delete Program memory.

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Repeat Play

The repeat function allows repeat playback of any single tune (track), of the entire disc, or of any desired portion on the disc, designated by its start and end points.

■ To repeat one tune (Single repeat play)

1. Press the 1/ALL button.
   The "REPEAT" indicator lights in the display.

2. Press the numeric button(s) corresponding to the required tunes.

- Playback of the selected tune starts automatically, and when it is finished, the player returns to the beginning of the selected tune and starts playback again. In this way, the selected tune will be played back repeatedly.
- Single repeat play can also be engaged during playback. When the 1/ALL button is pressed once (so that the "REPEAT" indicator lights), the current tune being played will be repeated.

■ To repeat an entire disc (All repeat play)

1. Press the 1/ALL button twice.
   The "ALL" and "REPEAT" indicators light in the display.

2. Press the PLAY (►) button.
- Playback starts from the first tune on the disc, and when the end of the disc is reached, the player will return to the beginning of the first tune, and then playback continues repeatedly.
- All repeat play can also be engaged after playback has started normally, by pressing the 1/ALL button twice (so that the "ALL" and "REPEAT" indicators light).

■ To repeat a designated section (Block repeat play)

1. Press the numeric button(s) or the PLAY (►) button to start playback.
2. When the player reaches the point from

which repeat playback is required, press the A-B button.
The "A-B" indicator starts blinking in the display to show that point A for block repeat play has been entered.
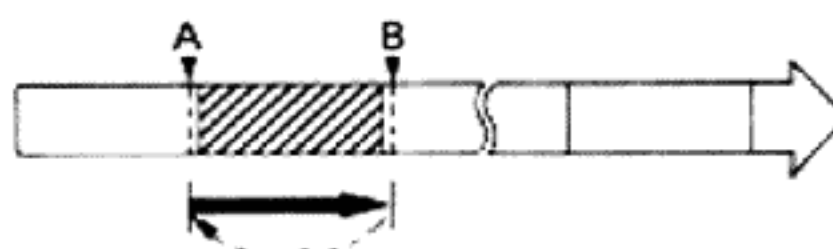

3. When the point at which the block repeat play should end is reached, press the A-B button again to designate point B.
   The "A-B" indicator lights steadily and the "REPEAT" indicator lights in the display to show that the A-B repeat (block repeat) function has been activated.

4. The player automatically returns to point A and restarts playback.
   When play reaches point B, the player returns to point A and restarts playback, repeatedly.
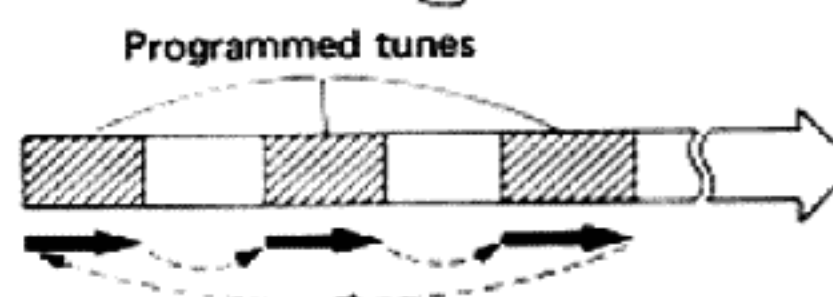

Notes:
- Be sure to leave an appropriate length of time between points A and B for block repeat play to function correctly.
- After designating point A, to search for point B quickly, use the SEARCH or SKIP buttons instead of normal playback.
- When the A-B button is pressed again during block repeat play, the block repeat playback will be released.
- During programmed playback or in the "delete program" play mode, the block repeat function is possible only within one tune.

■ Programmed repeat playback

The repeat function can also be activated even in the programmed playback mode.
To repeat all programmed tunes, press the 1/ALL button twice so that the "ALL" and "REPEAT" indicators light in the display.
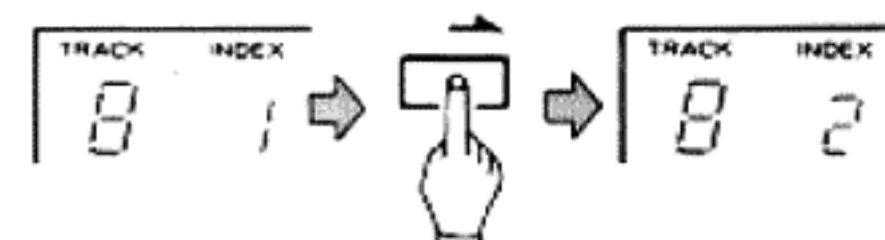

Programmed tunes

Convenient Functions

■ Index Search Play

This function is provided to access specified points on the disc, where Index Codes have been recorded within tunes. These Index Codes are usually found on recordings of classical music. With such discs, a "tune" corresponds to an entire symphony (so the entire symphony can be played back uninterruptedly, as a single tune), while the movements within the symphony are separated by Index Codes.

Index search during play
1. Play the required track within which the desired Index Code is recorded, using the numeric buttons.
2. Select the desired index point using the INDEX ◄— (down) or —► (up) button so that the required index number will appear in the INDEX display.
   ◄— : To decrease the Index No. (4 → 3 → 2 ...)
   —► : To increase the Index No. (1 → 2 → 3 ...)

3. The player searches the designated index point and play starts from that point.

Index search in the stop mode
1. Press the SKIP (I◄◄ or ►►I) key to select the required track within which the required Index Code has been recorded.
2. Select the required index point using the INDEX ◄— (down) or —► (up) button in the same way as above.
3. Press the PLAY (►) button.
4. The player searches the designated index point and play starts from that point.

Note:
- If the Index number designated exceeds the highest index number in the selected track, playback will start from the highest Index number in the track.
   For example, if INDEX "4" is selected when "3" is the highest index number in a tune, playback will start from the position of INDEX "3".
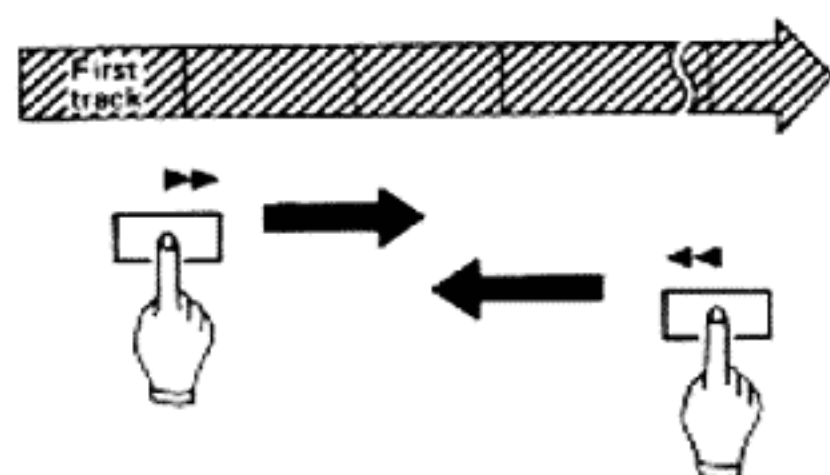
■ Fast Forward and Backward

During playback or in the pause mode, pressing the SEARCH (◄◄/►►) buttons will activate the manual search operation to move the pickup quickly.
Hold down the "►►" button to move the pickup quickly in the forward direction, and hold down the "◄◄" button to move it quickly in the reverse direction.
During the manual search operation (in the forward or reverse direction), sound will be audible but the output level is lowered (to avoid peaks whick could damage the amplifier or speakers).

This lets you search for any required part of the program while checking the recording at a slightly lower level.

When the desired position is reached, release the button to reenter the previous mode (playback or pause).

Notes:
- During the normal playback mode (or in the programmed playback mode), when the player reaches the end of the disc (or program) after the "►►" button has been pressed, the player enters the pause mode at that position. Or when the player reaches the beginning of the disc (or program) when the "◄◄" button has been pressed, the player automatically starts playback from that position.
- In the single-tune repeat mode, holding the "◄◄" or "►►" button will move the pickup within the current tune.
- In the program playback mode, holding the "◄◄" or "►►" button will move the pickup to the next or previous programmed tune, respectively.

■ **Skip Search Operation**

With the SKIP (I◄◄ / ►►I) buttons, the beginning of any tune can be located easily during playback.

In the stop mode or in the pause mode, after designating the tune (track) number using the "I◄◄" or "►►I" button, pressing the PLAY (►) button will start play automatically from the designated track (tune).
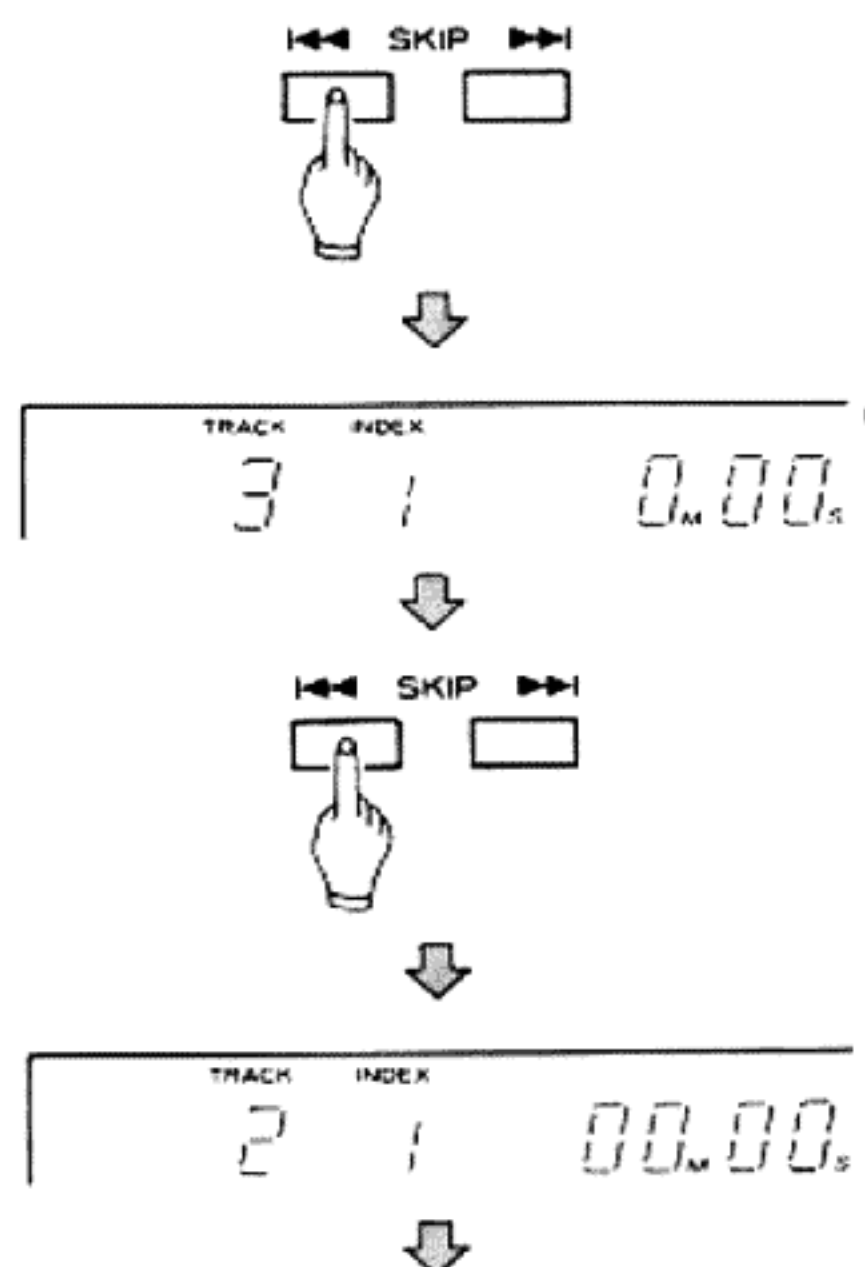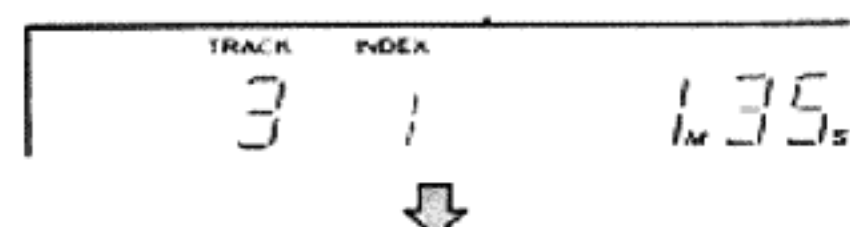
To skip back to the previous tune

When the "I◄◄" button is pressed during play, the player returns to the beginning of the current tune. When it is pressed again, the player returns to the beginning of the previous tune.

In this way, the player can be returned to the beginning of any tune before the current tune by pressing the "I◄◄" button repeatedly.

Example: To skip back to the beginning of the 2nd tune while the 3rd tune is being played.
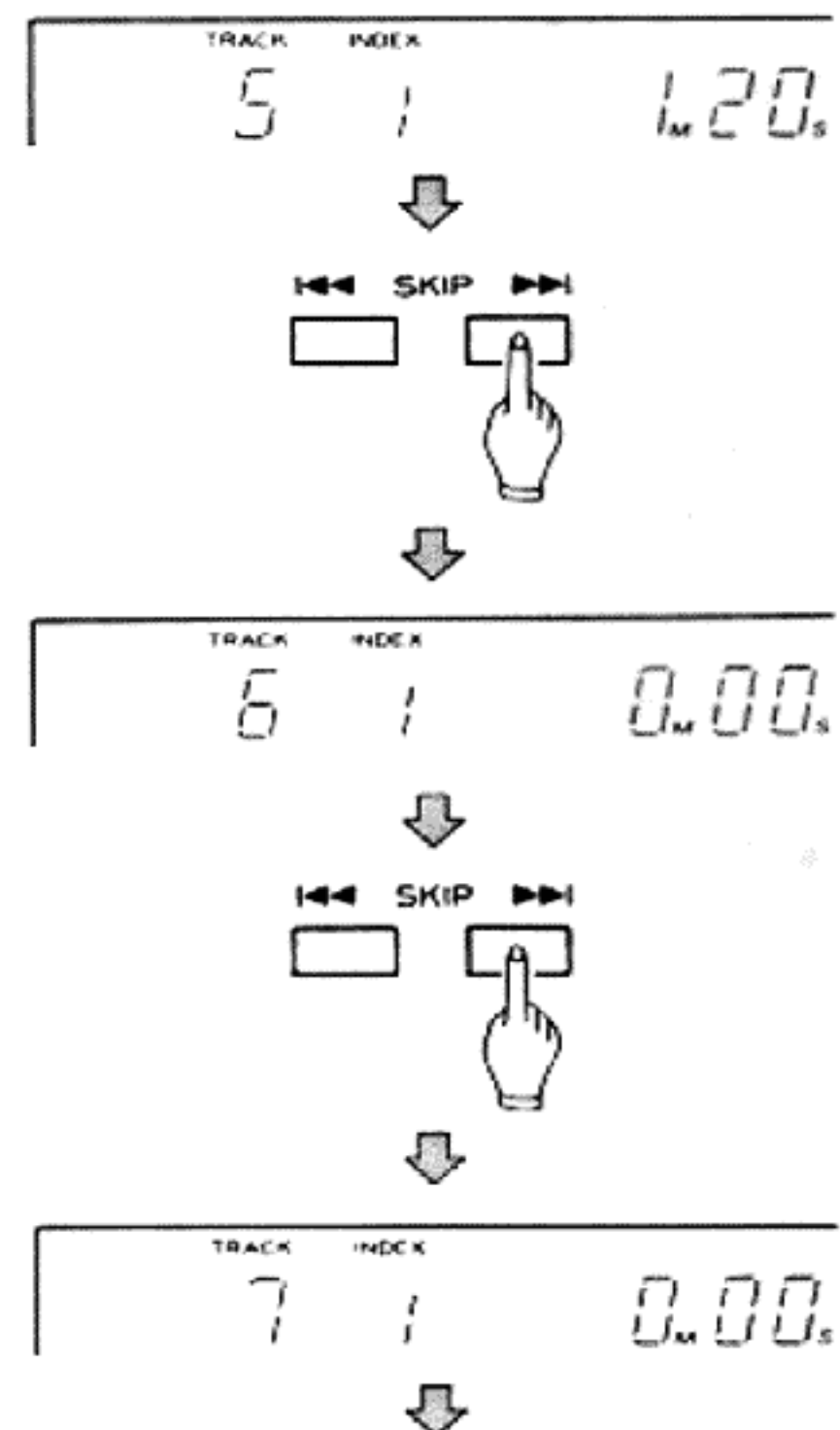- Press the "I◄◄" button twice.

To skip to the next tune

When the "►►I" button is pressed during play, the player will skip to the beginning of the next tune.

Each time the "►►I" button is pressed, the player skips forward by one tune.

Example: To skip ahead to the beginning of the 7th tune while the 5th tune is being played.
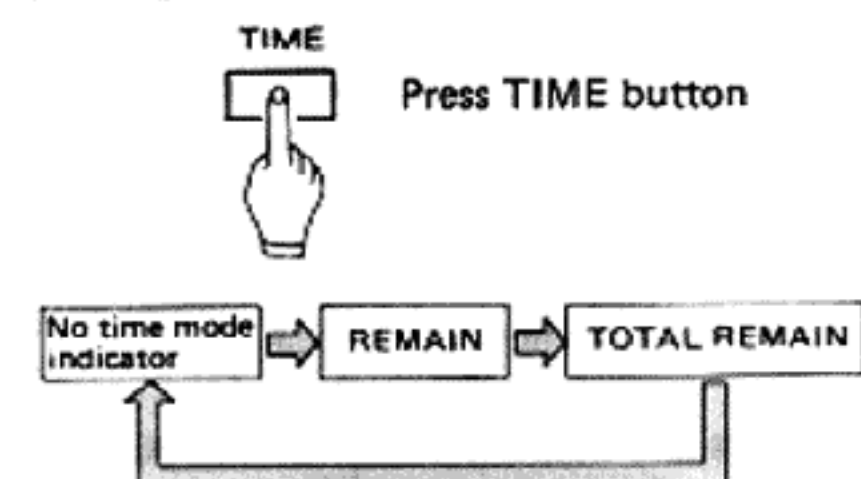- Press the "►►I" button twice.

Note:
- This operation is possible even in the program playback mode, however, only programmed tunes will be detected.

■ **Time counter Display**

The time counter display on the P-500 shows various time readouts; the elapsed time of the current tune, the remaining time of the current tune, and the total time remaining on the disc.
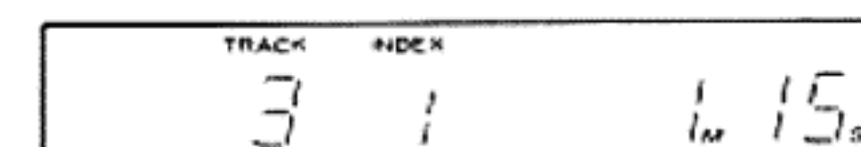
The time display mode can be changed by pressing the TIME button.

(A) Elapsed time display (normal mode)

When no time mode indicators are lit in the display (except for "M" and "S"), the time counter shows the elapsed time of the current tune.
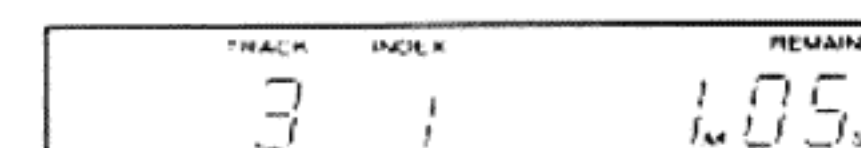
This mode can also be entered by pressing the TIME button so that the "REMAIN" and "TOTAL" indicators in the display go off.

Example: 1 minutes 15 seconds of the 3rd tune have elapsed

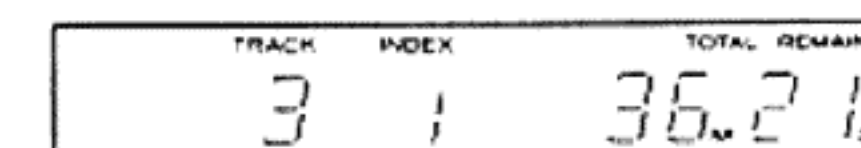**(B) Remaining time display (REMAIN mode)**

When the TIME button is pressed once; the "REMAIN" indicator lights in the time counter, and the remaining time of the current tune will be displayed.

Example: 1 minutes 5 seconds remain till the end of 3rd tune.

(C) Total remaining time display (TOTAL REMAIN mode)

When the TIME button is pressed twice, the "TOTAL" and "REMAIN" indicators light in the display, and the total remaining time of the disc is displayed. This tells you the total time required to finish the disc (the time from the current position to the end of the disc).

Example: 36 minutes 21 seconds remain till the end of the disc.

Notes:
- During the repeat play mode, no numerals are displayed in the time counter (only the bars ("– – – –") are shown).

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- When the STOP button is pressed, the elapsed time display mode resumes, without any time mode indicators lit.
- When a new disc is loaded, the "TOTAL" indicator lights automatically to show the total playback time of the disc.
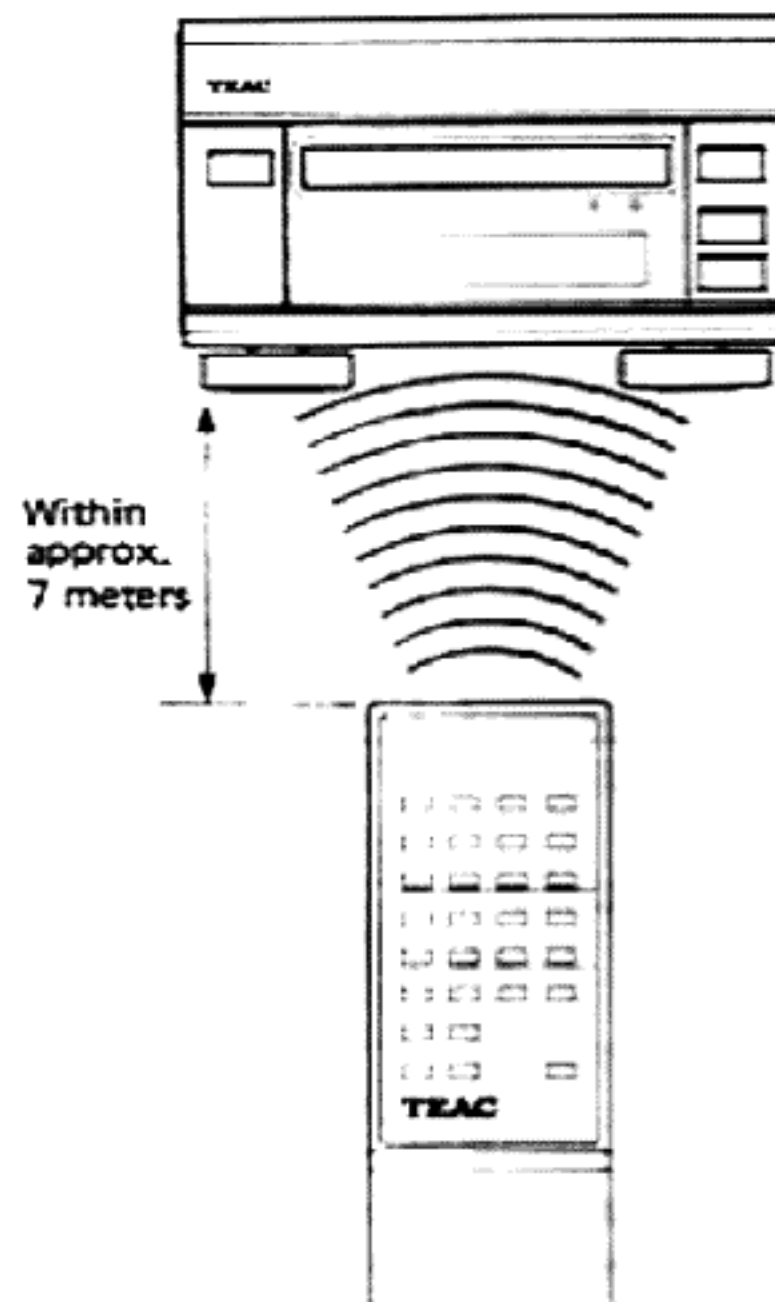
■ Auto Spacing

When this function is activated, an interval of approx. 4 seconds will be inserted automatically between tunes so they are played back with a fixed interval between them.

To activate this, press the AUTO SPACE button so that the "AUTO SPACE" indicator lights in the display.

When the AUTO SPACE button is pressed again, the indicator goes off and the auto spacing function is released. Pressing the STOP button also releases the auto spacing function.

The RC-342 Remote Control Unit provided with the P-500 allows the P-500 CD Drive Unit to be operated from a distance. Not only does it control all the functions of the P-500 except for turning the POWER ON and OFF, but it also can be used for programming, direct access play, etc.

When operating with the remote control unit, point the top of the remote control unit at the display window of the P-500, within the effective range shown in the diagram.
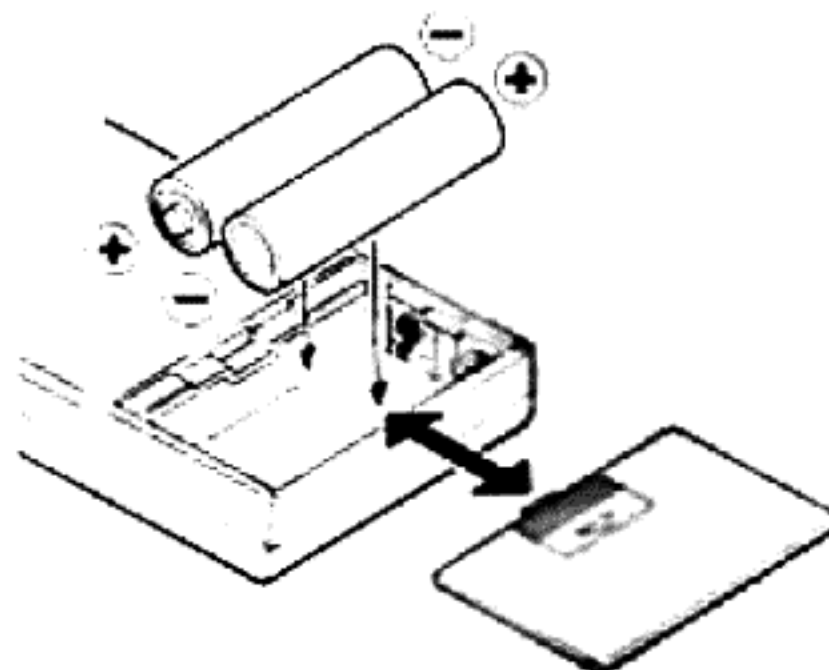
Within approx. 7 meters

Within an angle of 30 degrees from a straight line between the remote control unit and the P-500

■ Batteries

Battery installation

1) Open the battery compartment cover on the rear of the remote control unit, as shown in the figure.

2) Insert two "AA" (R6/SUM-3) batteries. Make sure that the batteries are installed with their positive ⊕ and negative ⊖ poles positioned correctly.

3) Reinstall the battery compartment cover in place.

Battery replacement

If you notice that the distance between the remote control unit and the P-500 for correct operation becomes shorter, it indicates that the batteries are nearly exhausted. In this case, replace both batteries with new ones.

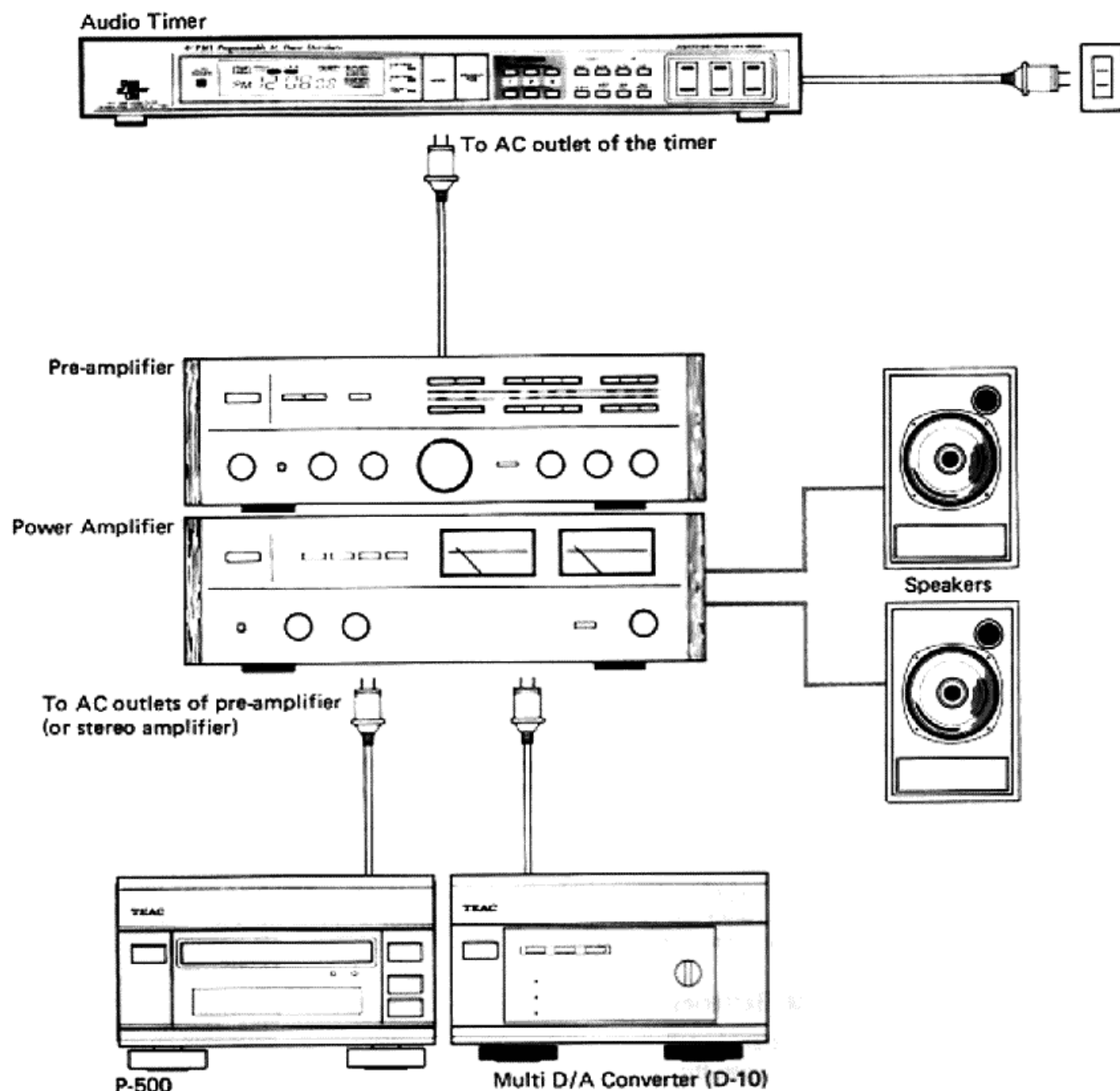### Precautions concerning batteries

- Be sure to insert the batteries with correct positive ⊕ and negative ⊖ polarities as indicated in of the battery compartment.
- Do not use an old and a new batteries at the same time.
- Use batteries of the same type. Never use batteries of different types together, even when they have the same shape.
- Both rechargeable and non-rechargeable batteries can be used. Refer to the precautions on their labels before use.
- Do not heat or disassemble batteries and never dispose of old batteries by throwing them in a fire.

■ Notes on Use

- Even if the remote control unit is operated within the effective range, remote control operation may be impossible if there is any obstacle between the P-500 and the remote control unit or if it is outside the effective angle.
- If the remote control unit is operated near other appliances which generate infrared rays, or if other remote controls using infrared rays are used near the P-500, the P-500 may operate incorrectly. The opposite is also true, and other appliances may work incorrectly.
- If the distance cover which remote control is possible becomes too short, replace the batteries with new ones.
- Do not place books or other objects on the remote control unit as they could press its buttons and the batteries would become exhausted more quickly.
- When the remote control unit is not to be used for an extended period (more than a month), remove its batteries to prevent them from leaking. If leakage occurs, wipe away the liquid inside the battery compartment and replace the batteries with new ones.

Timer Play

When a commercially available audio timer is used together with the P-500, playback can be started at any desired time.

Audio Timer

To AC outlet of the timer

Pre-amplifier

Power Amplifier

Speakers

To AC outlets of pre-amplifier
(or stereo amplifier)

P-500

Multi D/A Converter (D-10)

1. Connect the power cords of the various components as shown in the diagram.
• For the connection of signal cords, refer to "Connections" on page 9 – 10.
2. Set the audio timer so that power is supplied to the audio components, and turn the POWER switches of each component ON.
• At this time, power is supplied to each component.
3. Load the disc to be played into the P-500.
4. Set the input selector of the stereo amplifier to the position corresponding to the terminals to which the output terminals of the P-500 or Multi D/A

Converter are connected.
At this time, also adjust the volume control to the required level.
5. Set the "preset time" when playback is to start with the audio timer.
• When the preset time is set, power supplied to the amplifier and the P-500 will be cut off. Be sure to leave the power switch of the P-500 in its ON position.
6. When the preset time is reached, power is supplied to each component and playback will start automatically.

Note:
• After completion of timer playback, be sure to remove the disc from the P-500.

Troubleshooting

Basic troubleshooting of a CD player is similar to troubleshooting any other electronic equipment. Always check the most obvious possible causes first.
To give you a few ideas of what to look for, check the following:

Problem	Probable Cause	Remedy
No power when POWER is pressed	Power plug not inserted securely.	Plug in securely.
No playback when disc is loaded	Disc loaded upside down.	Load with label side up.
	Anti-shock bracket set to "LOCK".	Set it to "FREE".
	Disc dirty.	Clean disc surface.
No sound (or too low level output)	Connections are made incorrectly or imperfectly.	Check connections.
	Misoperation of amplifier.	Check amplifier's control/switch setting.
Play starts when power is switched ON	A disc has been left in the player.	Remove the disc. (With the disc loaded in the P-500, play will start automatically when power is switched ON.)
Only a single tune can be played	1/ALL button pressed and single repeat play engaged.	Press 1/ALL button twice to disengage it.
Program playback impossible	PGM button not pressed.	Press PGM so "PROGRAM" indicator lights.
	PLAY (►) button not pressed.	Press PLAY (►) button.
Mistracking (sound jumping)	P-500 is subject to vibrations or shocks.	Change the installation position of P-500.
	Disc dirty.	Clean disc surface.
Hum	Connection cord not connected securely.	Re-connect plug securely.
Noise in tuner	P-500 is too near the tuner.	Leave a reasonable distance between them, or switch the P-500 OFF.
Remote control operation impossible	POWER switch of P-500 is set to OFF.	Turn switch to ON.
	No battery installed in remote control unit.	Insert batteries.
	Batteries in the remote control unit are exhausted.	Replace with new ones.

Features

**■High-precision mechanism featuring Vibra-
tion-Free Rigid Disc Clamping System**
In our newly developed Vibration-Free Disc
Clamping System (VRDS) mechanism, the
slightly concave turntable is above the disc
which is held against it by upward pressure
exerted by a large-diameter disc clamper, for
higher stability. This new disc clamping
system, with the disc held tightly between
the turntable which has the same diameter
as the disc and a precisely aligned clamper,
corrects any warping or eccentricity of the
disc, so that the microscopic pits are always
traced accurately by the center beam of the
laser pickup. Another advantage of the
system is that it minimizes any undesirable
vibrations of the disc.

**■Newly developed floating suspension
system for the ultimate stability**
The optical system and the mechanism
which supports it are the most important
parts of any CD player, and are critical if
it is to operate at peak performance. In the
P-500 CD Drive Unit, the laser pickup drive
system uses a newly developed floating
suspension which completely isolates it
from internal resonance, external vibrations
and any influence of external sound pres-
sure, so it can read the digital signals from
the microscopic pits with high precision and
extreme stability.

**■High-precision 3-beam linear tracking laser
pickup for ultimate tracing ability**
The 3-beam linear-tracking laser pickup
was newly developed to have the lightest
possible weight and excellent rigidity.
Together with the newly-developed disc
clamping system using a large turntable, it
gives the drive an extremely precise pit
tracing ability.

■High-rigidity dual-construction chassis
The P-500 has the ideal anti-resonance
heavy-weight dual construction chassis. As
the shaved-aluminum front panel is com-
bined rigidly with the thick chassis, the
overall construction is solid and has superior
non-resonating characteristics. Moreover,
since the P-500 CD Drive Unit does not in-
corporate the D/A converter section, it offers
extra rigidity; vibrations and mechanical
oscillations from the player cannot interfere
with the operation of the D/A converter.

Specifications

< Laser Pickup >
Type Object lens drive, optical 3-beam
system
Object Lens Drive System 2-dimensional
parallel drive
Laser Type AlGaAs semiconductor laser
Wavelength 780 nm
Pickup Drive System Linear-motor drive

< Signal Format >
Sampling Frequency 44.1 kHz
Quantization Bits 16 bits linear/channel
Channel Bit Rate (Transmission Rate)
4.3218 Mb/sec.
Modulation Code EFM (Eight-to-Fourteen
Modulation)
Error Correction System CIRC (Cross-
Interleave Reed Solomon Code)

< Disc >
Type Compact Disc
Playing Time
Approx. 60 min. for 12 cm (5-inch)
disc
Approx. 20 min. for 8 cm (3-inch)
disc
Diameter 12 cm (5-inch), 8 cm (3-inch)
Thickness 1.2 mm
Scanning Velocity 1.2 – 1.4 m/sec.
Track Pitch 1.6 μm

< Audio >
Digital Output Level
0.5 Vp-p, 75 ohms (COAXIAL)
–9 dBm (OPTICAL)

< General >
Power Requirements 100/120/220/240 V
AC, 50/60 Hz (General export
model)
120 V AC, 60 Hz (U.S.A. model)
220 V AC, 50 Hz (Europe model)
Power Consumption
10 watts (U.S.A. model)
11 watts (Europe model)
Dimensions (W x H x D)
225 x 137.5 x 400 mm
(8-7/8" x 5-7/16" x 15-3/4")
Weight 7 kg (15.5 lbs.)
Provided Accessories:
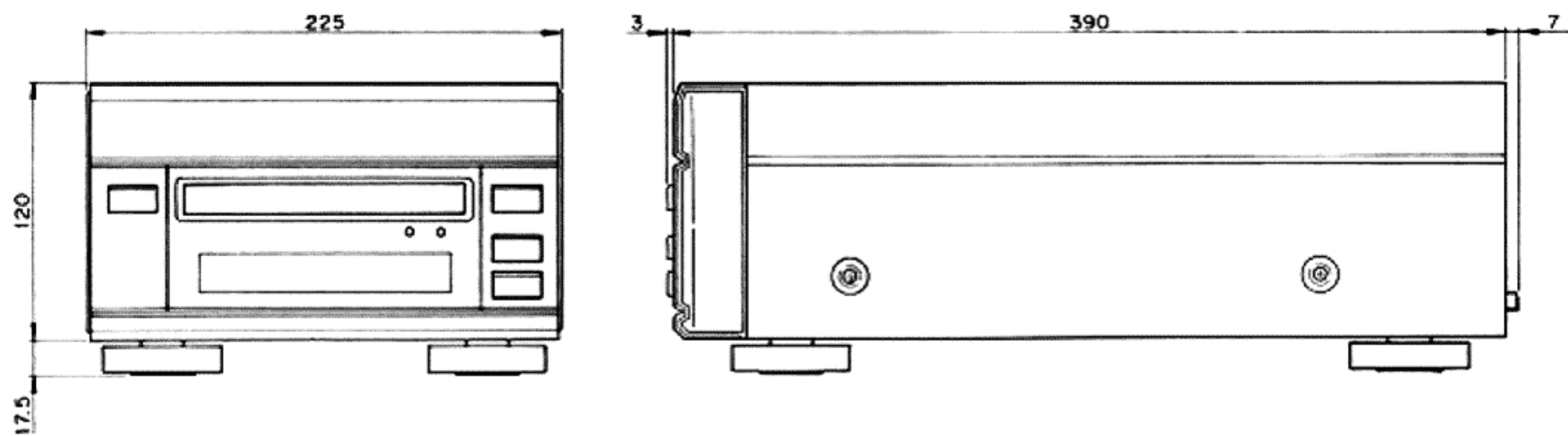Remote Control Unit (RC-342),
Batteries (SUM-3/AA/R6) x 2,
Coaxial Cord (for digital connection),
AC Power Cord, Lock Key

● Improvements may result in specification
or feature changes without notice.
● Photos and illustrations may differ slightly
for production models.

Dimensions

225

120

17.5

3

390

7

Unit: mm