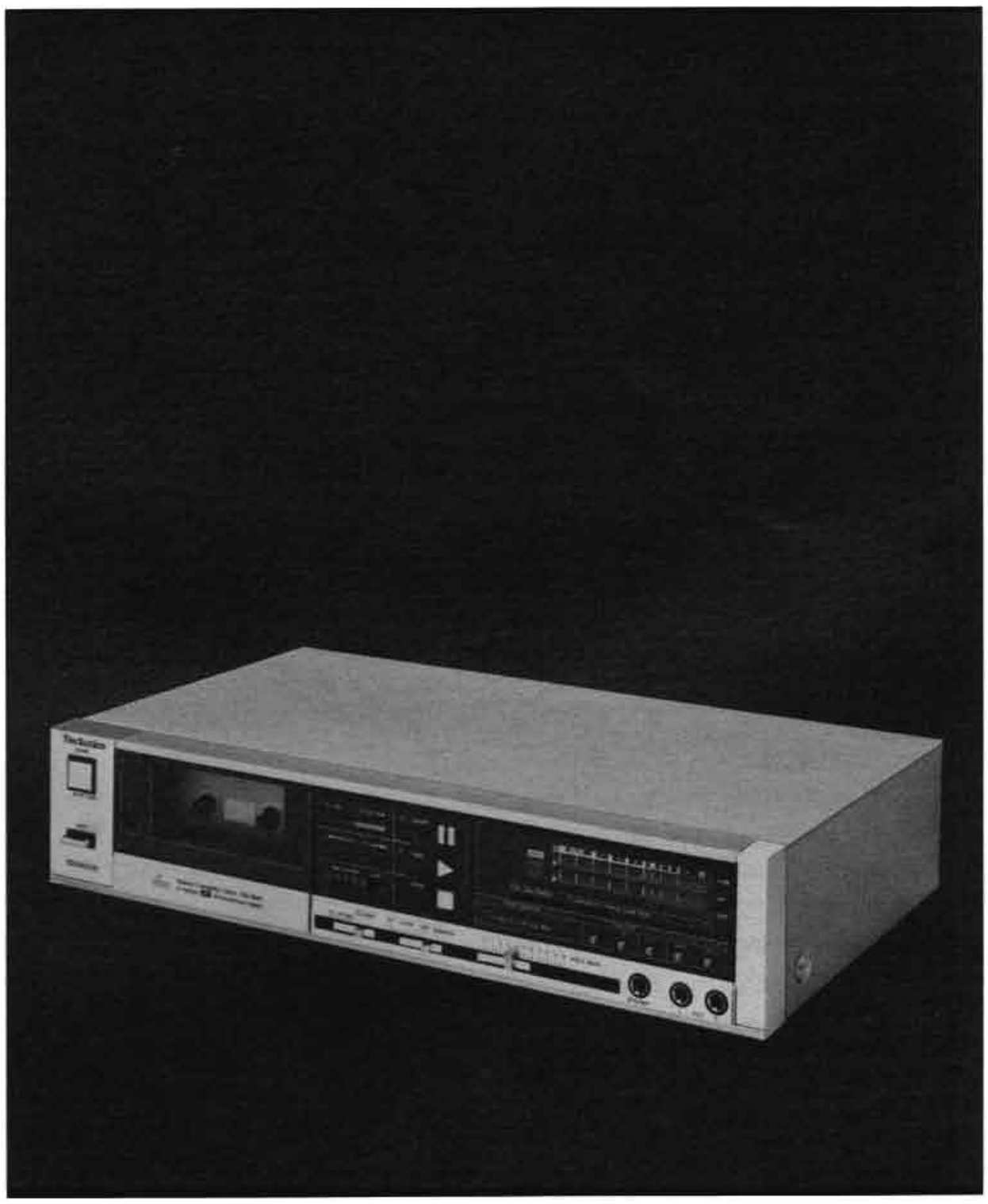
Technics

Tape Deck

RS-B50

OPERATING INSTRUCTIONS



Also available in black.

Before operating this set, please read these instructions completely.

Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Technics product owners around the world.
We feel certain you will get maximum enjoyment from this new addition to your home.
Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

CONTENTS

FOR UNITED KINGDOM

Important

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 unit 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.

This apparatus was produced to BS 800: 1977

FOR AUSTRALIA

For your safety

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the unit must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the unit operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

FOR SAFE USE OF THIS UNIT

■ Use a standard electrical AC wall outlet

1. **Use from an AC power source of high voltage, such as for air conditioners, is very dangerous.**
   Be extremely careful not to make a connection to the electrical outlet for a large air conditioner or central-heating unit which uses high voltage, because there is the possibility of fire.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.

■ Connection and removal of the power cord plug

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Don't pull the power cord.**
   Always grasp the plug; never pull the cord itself.

■ Never attempt to repair or reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidently touched.

■ For families with children

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.

■ Turn off after use

If the unit is left for a long time with the power on, this will not only shorten its useful operation life, but may also cause other unexpected trouble.

■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.

■ Place the unit where it will be well ventilated, and away from direct sunlight

■ Keep the unit away from stoves, etc.

Heat can damage the external surfaces as well as internal circuits and components.

■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they may damage the finish.

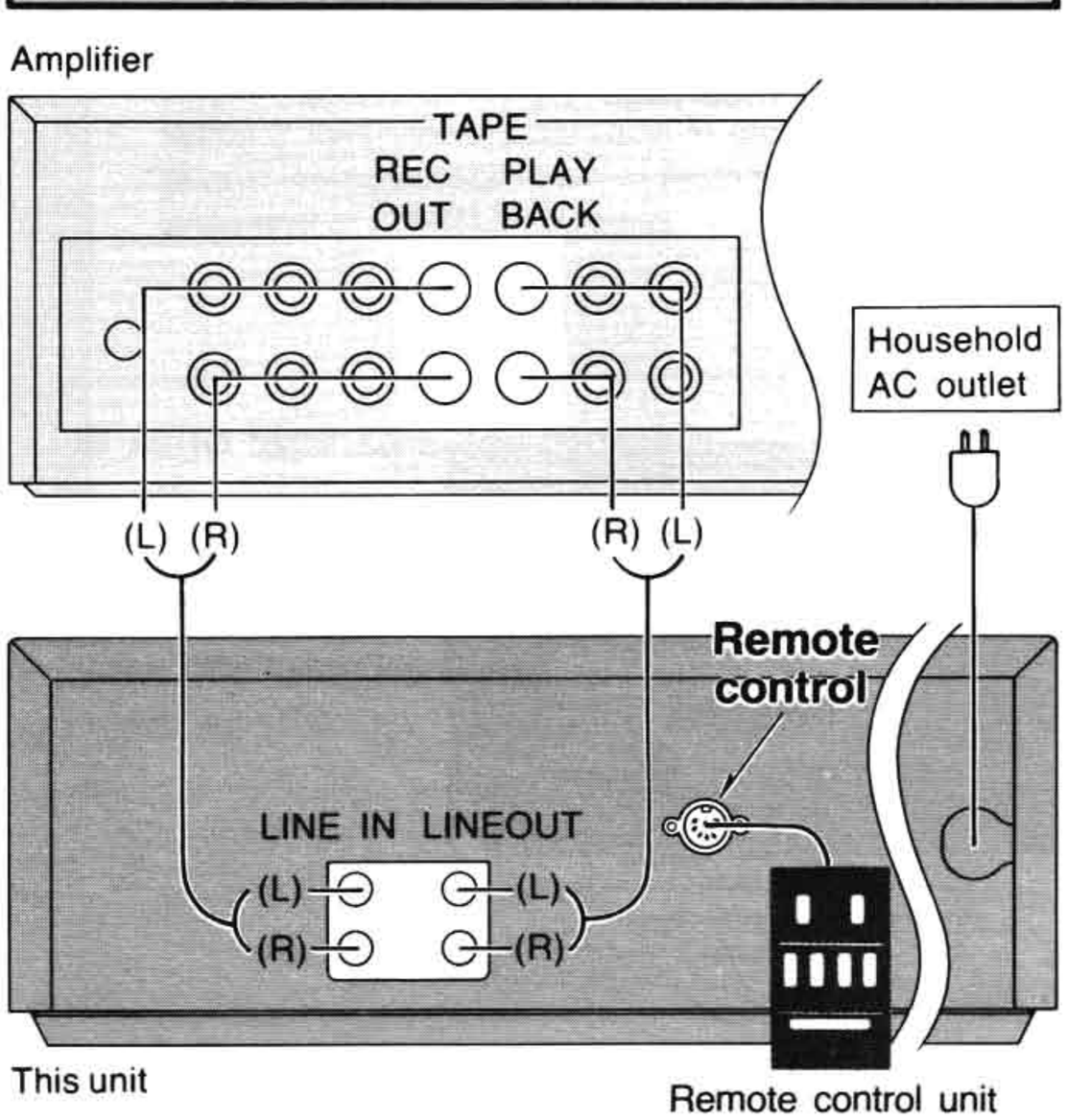
■ If trouble occurs

If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.

BEFORE USING THIS UNIT

Use a minus (−) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.
Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

CONNECTIONS



Location of this unit and stereo amplifier

If this unit is placed on top or next to the stereo amplifier, a "hum" noise may be heard during tape playback. Refer to the information below in order to avoid this.

- If the stereo amplifier and this unit are placed one above the other, leave as much space as possible between them, and place them where there is the least amount of hum.
- If the stereo amplifier and this unit are placed one beside the other, try reversing their positions, and place them where there is the least amount of hum.

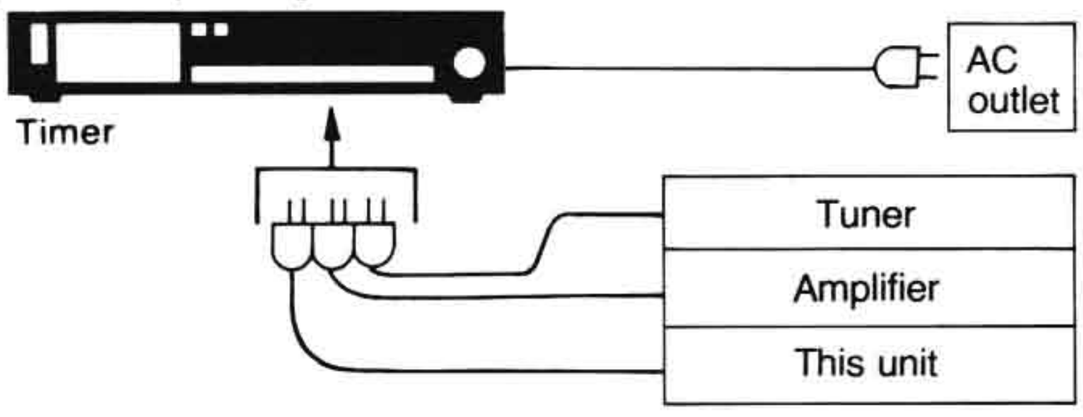
Note:
If this unit is placed on or near the tuner, hum or noise may occur during AM reception.

Remote Control

The unit incorporates an IC-based electronic control operation system and so it can be operated remotely using the Remote Control Unit. (RP-9645)

■ Using an audio timer

(See the operating instruction of the timer.)



- The configuration of the AC power plug may differ according to area.

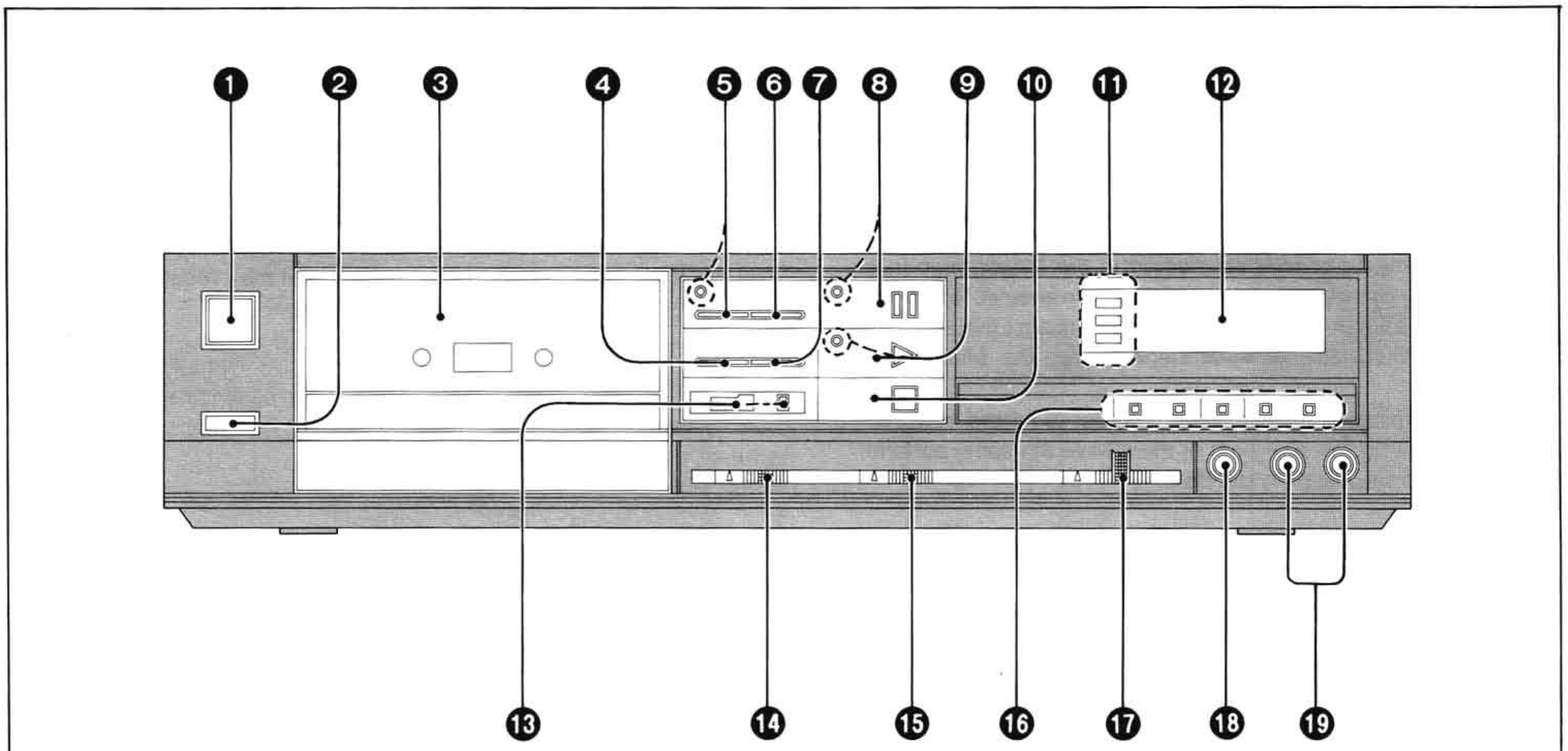
TECHNICAL SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads REC/PLAY	AX (Amorphous) head
Erasing	Double-gap ferrite head
Motors	
Capstan drive	Electronically controlled DC motor
Reel table drive	DC motor
Mechanical drive	DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC bias
Tape speed	4.8 cm/sec.
Frequency response	
Metal	20 Hz–20,000 Hz
	30 Hz–19,000 Hz (DIN)
	40 Hz–18,000 Hz ±3 dB
CrO_2	20 Hz–19,000 Hz
	30 Hz–18,000 Hz (DIN)
	40 Hz–17,000 Hz ±3 dB
Normal	20 Hz–18,000 Hz
	30 Hz–17,000 Hz (DIN)
	40 Hz–16,000 Hz ±3 dB
Dynamic Range (with dbx in)	110 dB (1 kHz)
S/N (signal level = max. recording level, CrO_2 type tape)	
dbx in	92 dB (A weighted)
Dolby C NR in	76 dB (CCIR)
Dolby B NR in	68 dB (CCIR)
NR out	58 dB (A weighted)
Wow and flutter	0.045% (WRMS)
	±0.14% (DIN)
Max. Input Level improvement (with dbx in)	10 dB (1 kHz)
Fast Forward and Rewind Time	
	Approx. 85 seconds with C-60 cassette tape
Input sensitivity and impedance	
MIC	0.25 mV/400–10 kΩ
LINE	70 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/2.2 kΩ
HEADPHONES	80 mV/8 Ω
Power soncumption	15 W
Power supply	AC 50 Hz/60 Hz
	220 V, for Europe except United Kingdom,
	110 V/125 V/220 V/240 V, preset power voltage 240 V
Dimensions (W×H×D)	430×98×273 mm
Weight	4.5 kg

MAINTENANCE OF EXTERNAL SURFACES

To clean, use a soft dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap and water solution or a weak detergent solution.
Wring the cloth well before wiping the unit.
Wipe once again with a soft dry cloth.
Never use alcohol, paint thinner, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

FRONT PANEL CONTROLS AND THEIR FUNCTIONS



1 Power switch [power (off • on)]

2 Eject button [eject (⏏)]

3 Cassette Holder

4 Rewind/Review button [rew/rev (◀◀)]

5 Record button and indicator [rec]
Press before making a recording.
(The unit will then be in the recording stand-by condition, and the record and pause indicators will illuminate.)
In this condition, make the adjustment of the input level. To start the recording, press the play button,

6 Record muting button [rec mute (◯)]
A non-recorded (no sound is recorded) portion can be made by pressing this button during recording.
(See page 7.)

7 Fast Forward/Cue button [ff/cue (▶▶)]

8 Pause button and indicator [pause (❚❚)]
Press this button to temporarily stop the tape during recording or playback.
(At the same time, the pause indicator will illuminate.)

9 Play button and indicator [play(▶)]
Press to begin recording or playback, or to release the pause mode.
(At the same time, the playback indicator will illuminate.)

10 Stop button [stop (■)]

11 Tape indicators [Auto Tape Select (Normal·CrO_2·Metal)]

12 FL (fluorescent level) Meters
These meters indicate the input level (during recording) and the recorded level of the tape (during playback).

13 Tape counter and reset button [tape counter • reset]
When this button is pressed, the indication of the tape counter will change to "000". The indication changes as the tape moves.
It is convenient during playback if a notation of the tape counter reading is made when a new recording is made.

14 Timer start switch [timer (rec • off • play)]
For selection of timer recording or timer playback.
- rec...
  To start a recording at the time to which the timer is set.
- off...
  When the timer is not to be used.
- play...
  To start tape playback at the time to which the timer is set.

15 Balance control [balance (left·center·right)]
Before making a recording, adjust the recording level balance of the left channel and right channel.
(This adjustment has no effect during playback.)

16 Noise reduction select switch [Noise Reduction (Dolby NR·C· B·out·dbx·tape·disc)]
- dbx tape ... Used for dbx NR recording and replaying dbx NR recorded tapes.
- dbx disc ... Used for playing dbx NR encoded discs on a turn table and for recording such discs.
- Dolby NR B ... When recording with the type B Dolby Noise Reduction system and for playing back such tapes.
- Dolby NR C ... When recording with the type C Dolby Noise Reduction system and for playing back such tapes.
- out ... For ordinary recording and playback.

⑰ Input level control [input level]

⑱ Headphones jack [phones]

To listen to the recording as it is being made, simply connect stereo headphones (8Ω~600Ω) to the Headphones jack. You may also listen to the program being recorded if your receiver or amplifier is equipped with a tape-monitor switch.
In the same way as for playback, an amplifier can also be used for monitoring.

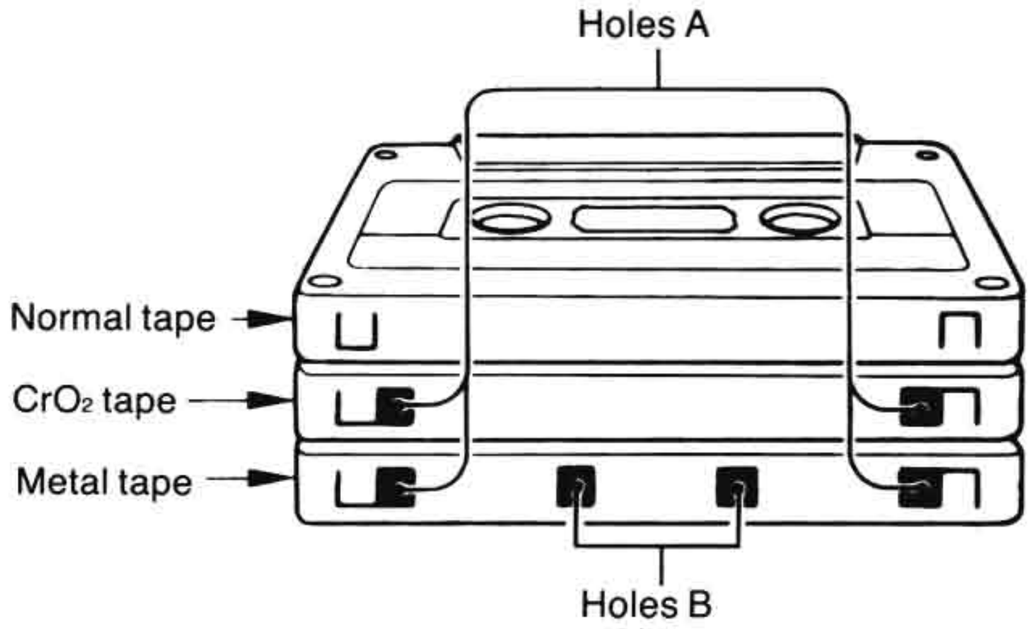
⑲ Microphones jack [mic (L·R)]

When a microphone is connected to the Microphone jack, recording can be made through the microphone. Recording can be made from other sound sources (from LINE IN jacks) if the microphone is disconnected from the Microphone jack.
When 2 microphones are used in order to record in stereophonic sound, be sure both of them have the same performance and specification standers.

■ Auto tape selector function

This system automatically determines which type of tape is being used, and sets the bias and equalization accordingly.

Tape type detection holes



Type of tape	Tape indicator lighting	Equalization	Bias
Normal tape	Normal	120 μs	Low
CrO_2 tape (with holes A)	CrO_2	70 μs	High
Metal tape [with holes A and B]	Metal	70 μs	Metal

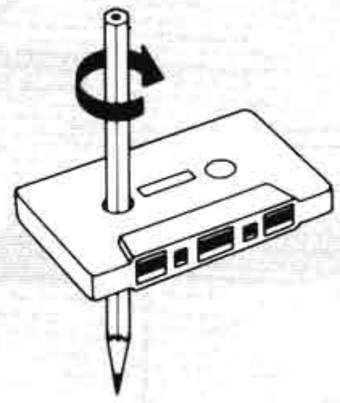
Do not use tape such as described below in this unit.
- Metal tape without B holes
  Recordings will be very distorted. (There is no playback problem however.)
- Fe-Cr tape
  The high range will be emphasized and a flat frequency response characteristic cannot be obtained.

ABOUT CASSETTE TAPES

■ Notes

1. **If possible, avoid using 120-minute tape.**
   Because this tape is very thin, it might stretch during use, become tangled with rotating parts in this unit, and/or tape movement might not be stable.

2. **Tape looseness**
   If the tape is loose in the cassette, it may result in scratches on the tape or even tape breakage.



Turn a pencil to correct tape looseness.

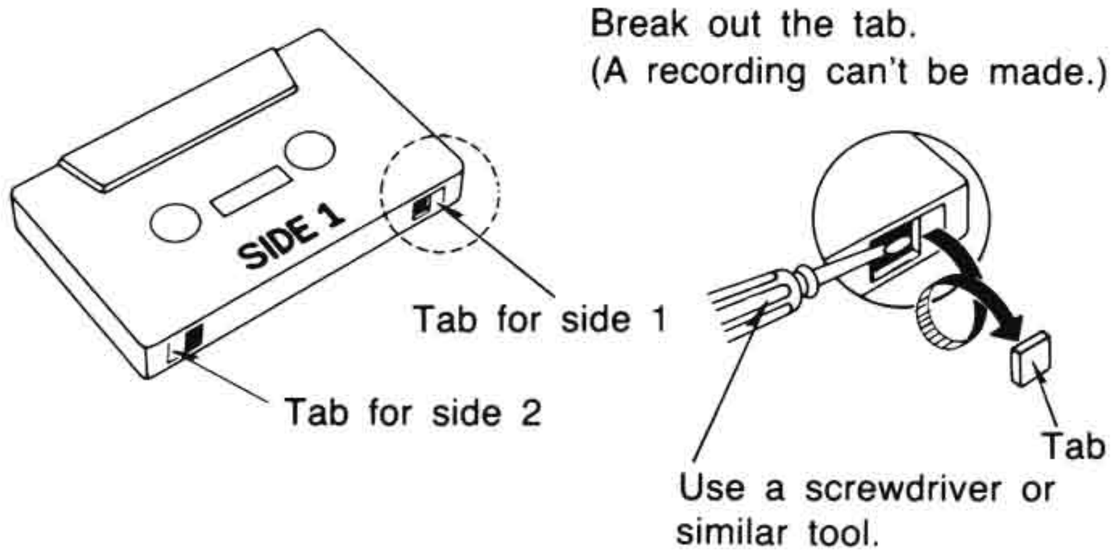
3. **If tape is not wound evenly, or is wound too tightly.**
   Fast forward and then rewind the tape on time.

4. **Do not pull the tape out from the cassette; don't touch the tape.**
   When not using a cassette, be sure to store it its case.

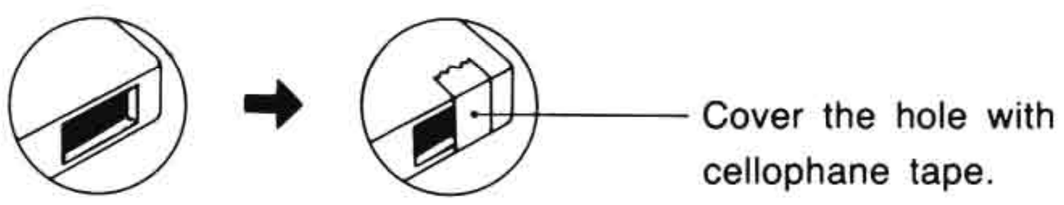
■ Accidental-erase-prevention tabs

Each tape cassette has two (for sides 1 and 2) taps which, when broken out prevent recording on the tape.

Break out the tab.
(A recording can't be made.)



■ To re-record on the tape



■ Avoid these places...

- Where the temperature is high (35°C or higher) or where the humidity is high (80% or higher).
- Where there is a strong magnetic field (near a speaker, on top of a TV, etc.).
- In direct sunlight.

PLAYBACK

1 Press to "on" (■ → ▬).

2 Insert the cassette.
Be sure the edge of the cassette where the tape can be seen faces down.

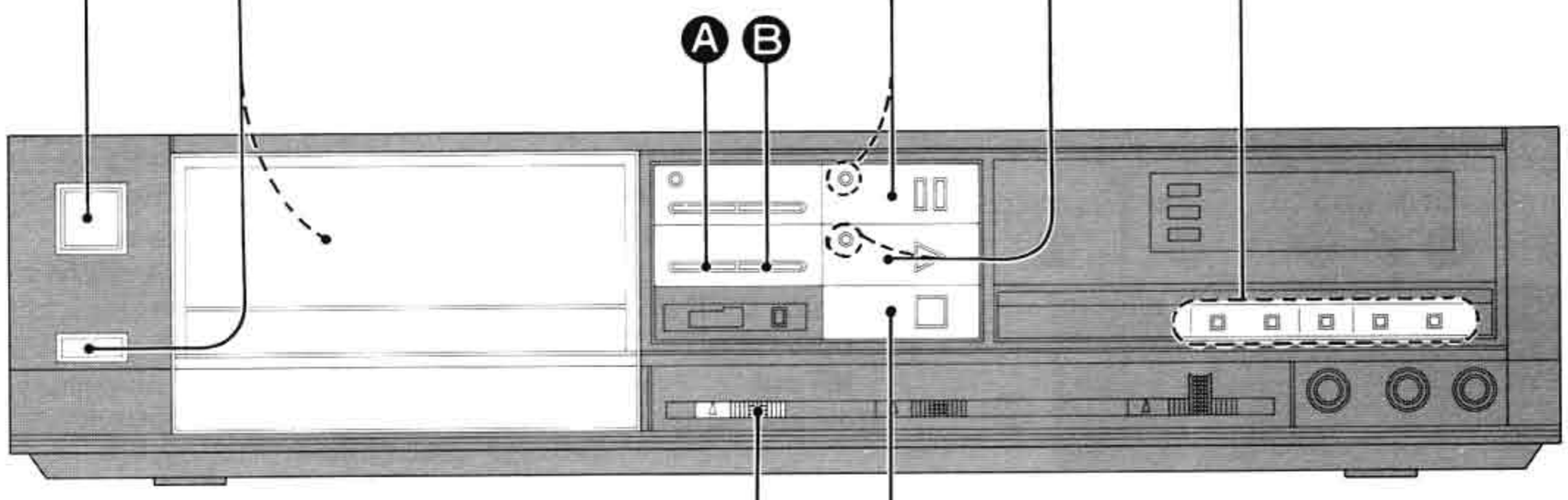
5 Adjust the volume level, etc.
Use controls on the amplifier connected to this unit.

Note:
The cassette cannot be ejected from the unit if the power is cut off during recording or playback. The power must be switched on and the eject button pressed once again.

4 Press.
(The play indicator will illuminate and playback will begin.)

3 Select the noise-reduction system.
(See page 8.)

Press to stop the tape temporarily.
(The pause indicator will illuminate.)



Be absolutely sure to set to "off" before switching on the power.

Press to stop.

A Press to rewind the tape.
If it is pressed during playback ("reviewing" the tape)...
The tape will be rewound while the button is pressed, and will resume playback when the button is release.

B Press to advance the tape.
If it is pressed during playback ("cueing" the tape)...
The tape will be fast forwarded while the button is pressed, and will resume playback when the button is released.

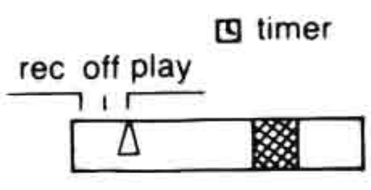
■ To use tape as a wake-up alarm

1 Playback the tape to be used and adjust the volume level and tone as desired.

2 Stop the tape at the place where you want playback to begin.

3 Set the timer to the desired time.
- Switch off the power of other equipment connected to this unit (amplifier, tuner, tape deck, etc.)

4 Set to the "play" position.



After setting the timer
Check to be sure that the power switch is at the "on" position.

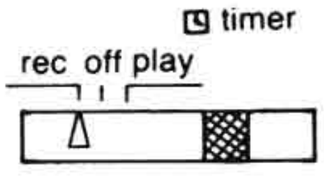
■ To make unattended recordings

1 Tune (on the tuner) to the broadcast station which will broadcast the program to be recorded.

2 Follow steps 1 to 7 of "Recording" on page 7.
- Tune to the broadcast and make the adjustment of the recording level. (See page 7.)
Then press the stop button.

3 Set the timer to the desired time.
- Switch off the power of other equipment connected to this unit (amplifier, tuner, tape deck, etc.).

4 Set to the "rec" position.



After setting the timer
Check to be sure that the power switch is at the "on" position.

RECORDING

1 **Press to "on" (▮_▬).**

2 **Insert the cassette.**
Be sure the edge of the cassette where the tape can be seen faces down.

8 **Press.**
(The pause indicator will stop illumination, the playback indicator will illuminate, and the recording will begin.)

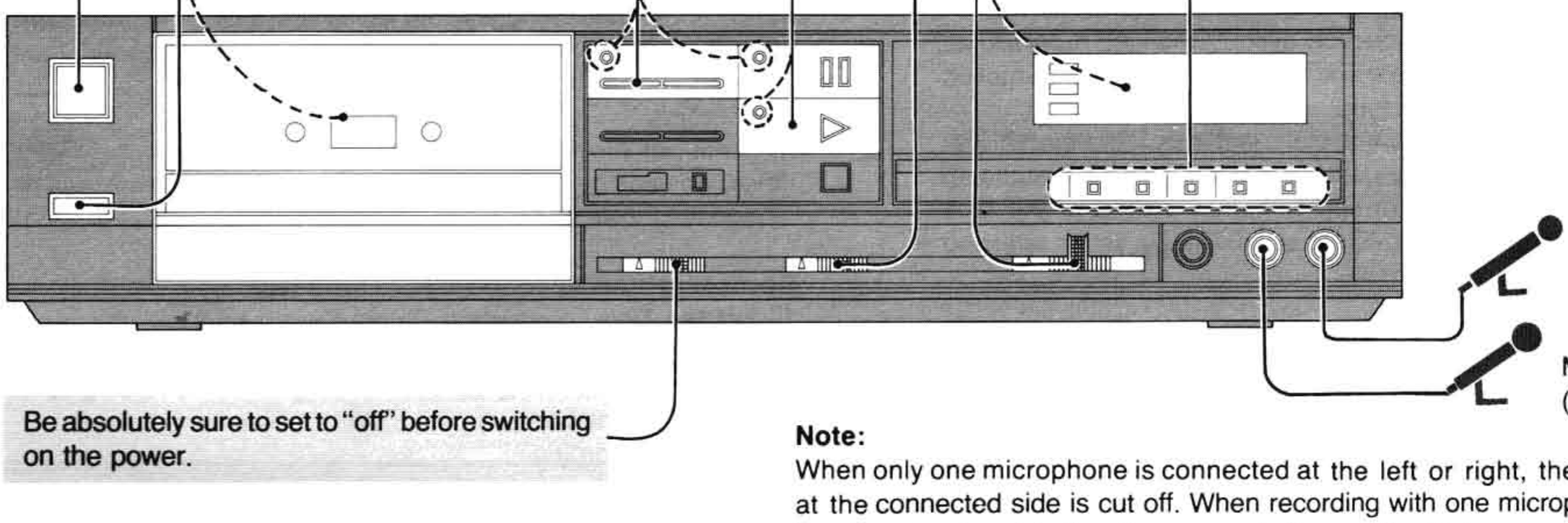
4 **Press.**
(The record and pause indicators will illuminate; the unit is now in the recording stand-by mode.)

5 **Adjust the recording level balance of the left channel and right channel.**

6 **Begin the sound source to be recorded.**

7 **Make the adjustment of the recording level.**
(See page 7.)

3 **Select the noise-reduction system.**
(See page 8.)



Be absolutely sure to set to "off" before switching on the power.

Note:
When only one microphone is connected at the left or right, the line input at the connected side is cut off. When recording with one microphone, the line inputs at both sides are cut off once the Balance control is slid to the side (left or right) at which the microphone has been connected.

■ Adjustment of the recording level

The numbers which you should use as a guide for the adjustment of the tape level will differ depending upon the type of tape used as well as the position of the noise-reduction switch.

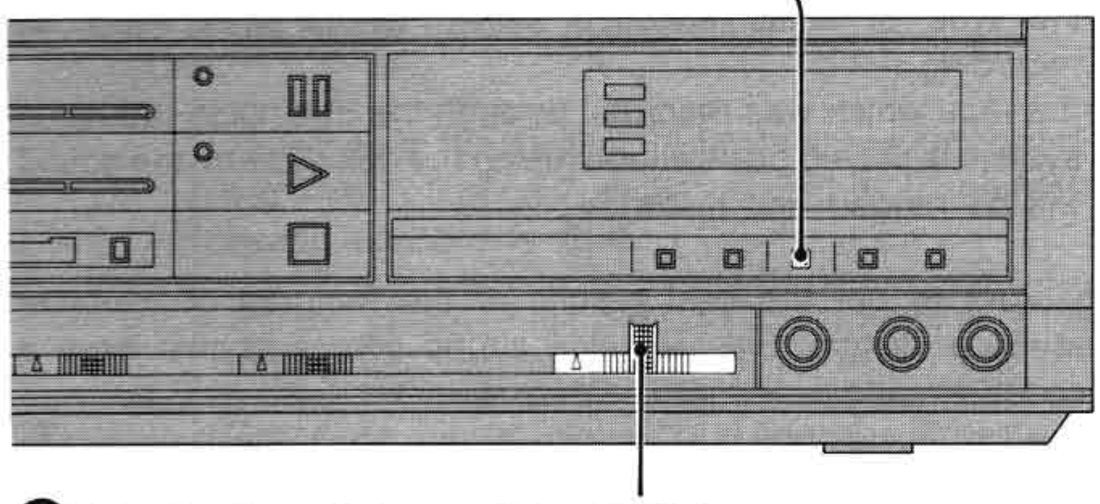
Noise Reduction (NR)	Normal Tape CrO_2 Tape	Metal Tape
dbx	+6 dB (+8)	+8 dB (+12)
Dolby NR B•C NR out	+4 dB (+6)	+6 dB (+8)

- The level meter may light momentarily as far as the level indicated in parentheses ( ) without causing any complications in the setting.

■ Erasing recorded sounds

When a recording is made, any sounds previously recorded on that portion of the tape are erased, and only the new recording remains. To erase recorded sounds without making a new recording, proceed as follows.

1 **Press the "out" button.**



2 **Set to the minimum (0) position**

3 **Begin recording in the usual way.**

Recording Muting

The Recording-Muting feature is convenient to prevent recording such unwanted material as commercial messages when recording FM radio broadcasts, or the "click" noise heard when the stylus descends to the disc surface.

How to make blank (no sound recorded) spaces

Immediately after one program has been recorded, keep the Record-Muting Button depressed for about 5 seconds. After these 5 seconds have elasped, depress the Pause Button.

NOISE-REDUCTION SYSTEMS

Noise-reduction systems are designed to reduce the annoying characteristic "hiss" noise during playback, by recording on the tape by the noise-reduction system.
This unit is equipped with 3 types of noise-reduction systems (the dbx noise-reduction system and the Dolby B and C-type noise-reduction system). Use whichever type is most appropriate to your other equipment, the recording sound source, tape used, etc.

■ Dolby B-type noise-reduction system

The recording is made by increasing the high-frequency components which are low level, and then, during playback, only those components increased during recording are played back at a lower level.
The result is that the noise-reduction effect is maintained in the high-frequency range, tape noise is reduced, and the dynamic range is expanded.

■ Dolby C-type noise-reduction system

The Dolby C-type noise-reduction system reduces noise in the mid-frequency range as well, and has a greater noise-reduction effect than the B-type system.
In addition, the Dolby C-type system includes a built-in saturation-prevention network. By passing signals through this circuit, there is an improvement (of approximately 3.5 dB of the tape saturation characteristic (MOL) at 10 kHz), thus reducing high-frequency distortion.

■ dbx noise-reduction system

During recording, the input signal is compressed (encoded) to one-half. Then, when the tape is played back, the compressed signals are expanded (decoded), thus returning to the original signal for playback.
With this system, large signals are decoded as large signals and small signals are decoded as small signals throughout the entire frequency spectrum, with the result that there is a significant improvement of the dynamic range and, moreover, tape hiss is remarkably reduced.

Notes:

- Be sure to use the same noise-reduction system for playback as was used for recording, because the hiss noise can only be reduced by the combination of recording/playback with the same type of system.
  It is recommended to make a notation (on the cassette label) of the type of noise-reduction system which was used for recording.
- If a tape which was recorded through the dbx noise-reduction system is played back without using the dbx system, the sound will be ragged and distorted.

In order to get the best results of the features of a noise-reduction system, the recording sound source should have a good S/N ratio.
Note that noises (such as scratches on a phono disc) which are included in the sound source cannot be reduced by noise-reduction system.

"disc" position for "dbx encoded discs"

This unit comes with a " dbx disc" position on the Noise Reduction Select Switch for playing "dbx encoded discs".

Playing "dbx encoded discs"

Operate in the following sequence:

1. Set the input selector on the stereo amplifier to the "tape" position and the record selector to the "phono" position. If the amplifier is capable of tape monitor selection, set the tape monitor switch to the "tape" position and the input selector to the "phono" position.
2. Set the unit to the stop mode and then set the Noise Reduction Select Switch to the " dbx disc" position.
   Disconnect the microphone if one has been connected to the unit.
3. Start operating the turntable.
4. Adjust the unit's Input Level Controls so that the Flourescent Level Meter illumination indicates around "0 dB".
5. Adjust the volume using the control on the stereo amplifier.

- Some dbx-encoded open-reel tapes are sold in audio shops. When playing back these tapes, it is possible to connect the open-reel deck and use the tapes with the same operation as for records.
- Do not set the Noise Reduction Select Switch to the " dbx disc" position during tape playback since the sound will then no longer be heard.

Recording "dbx encoded discs" onto tape

1. Set the Noise Reduction Select Switch to the " dbx disc" position.
2. Adjust the recording level, following the "Recording level setting" instructions.
3. Start the recording.

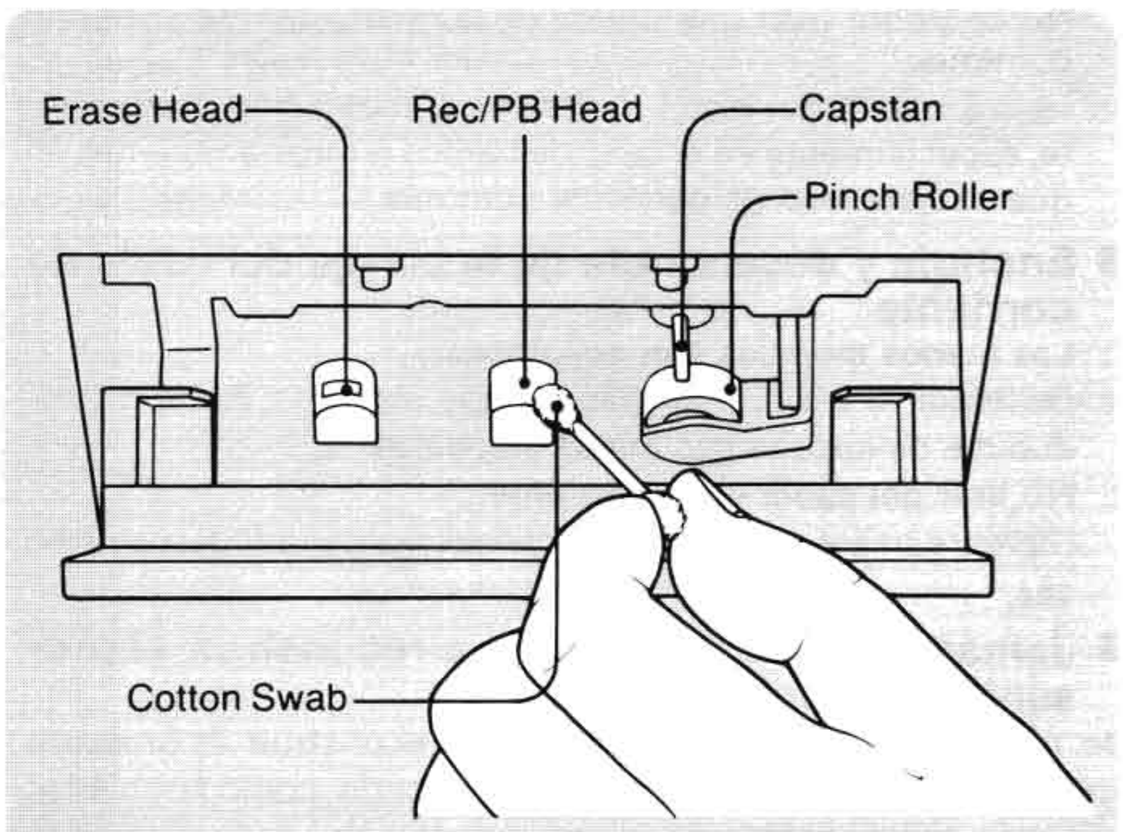
- The sound of the disc is recorded on the tape still in encoded (compressed) form. The decoded (expanded) sound can, however, be monitored (through both the speakers connected to the amplifier and headphones connected to the unit). When playing back a tape which has been recorded in this way, set the Noise Reduction Select Switch to the " dbx tape" position.
- Unlike ordinary records, "dbx encoded discs" have their sound dbx encoded (compressed) when it is cut into the sound grooves. This means that for replay, the sound must be returned to its original form through a decoder (expander). As a result, the noise level is reduced and the dynamic range is increased for a higher record play quality.

HEAD CARE

■ Maintenance of the head section

The head assembly, capstans and pinch rollers should be cleaned after about each 10 hours of use in order to maintain good sound quality.

1. Cleaning with a cotton swab



2. Cleaning with a head-cleaning tape cassette (optional)

1) Insert the cassette into the tape holder.
2) Switch on the power supply in accordance with the procedure for tape operation described, and then press the play button. The surface of the heads will be cleaned in a few seconds.

■ Head demagnetization

The head assembly should be demagnetized after about each 50 hours of use in order to maintain good sound quality.
If the heads become magnetized, use a head demagnetizer (option).
The head assembly becomes magnetized, causing noise in recordings and unwanted erasure of valuable recordings, if a magnetized screwdriver or other metal tools come near the head assembly, and when the heads have been used for a long period of time.

Note:

When demagnetizing the head assembly, be sure to first push the power switch to release it outward (▟▁▙) to the "off" position.

AC cord replacement

Requires a special tool at a service station.

TROUBLESHOOTING GUIDE

Before requesting service for this unit, check this table to determine if the problem can be solved as described below. If the problem still persists after making these checks, or if there are symptoms of malfunction not described in this table, it is recommended that you consult the store where this unit was purchased or your local Service Center (see list included) for further information and assistance.

Problem	Probable cause	Remedy
Tape moves but no sound is heard.	The volume control of the stereo amplifier is set to its minimum position.	Adjust the volume control to the desired level.
	The input selector of the stereo amplifier is not set to the "tape" position.	Set to the "tape" position.
Distorted sound	The recording level is too high.	Referring to the section "Adjustment of the recording level" on page 7, make recordings at the most suitable recording level.
Strange tone quality or ragged sound	The noise-reduction switch is not set to the correct position.	Set the switch to the position corresponding to the setting used for recording.
No recording when the record button is pressed.	The accidental-erase-prevention tab(s) of the cassette have been broken out.	Cover the tab hole(s) with cellophane tape.
Playback sound is unclear or wavering; clear recordings can't be made.	The heads are dirty.	Clean the heads as described in the section "HEAD CARE" on page 9.
	There is foreign material on the pinch rollers or capstans.	
The cassette cannot be ejected.	The unit is in the recording, playback or pause mode.	Press the stop button to stop the tape.
	The power was cut off during recording or playback.	Switch on the power.