

# Technics

## Stereo Double Cassette Deck

### RS-TR232

### RS-T9023

## Operating Instructions



- The photograph shows model RS-TR232.
- Model RS-T9023 is sold in U.S.A. only.

Before operating this unit, please read these instructions completely.

Thank you for purchasing the Stereo Double Cassette Deck RS-TR232.

For optimum performance and safety, please read these instructions carefully.

These operating instructions are applicable to models RS-TR232 and RS-T9023.

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The model number and serial number of this product can be found on either the back or the bottom of the unit. Please note them in the space provided below and retain this booklet as a permanent record of your purchase to aid identification in the event of theft.

MODEL NUMBER \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

**CAUTION:**  
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

**WARNING:**  
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. 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.

# Precautions

Before using this unit please read these operating instructions carefully. Take special care to follow the warnings indicated on the unit itself as well as the safety suggestions listed below.

Afterwards keep them handy for future reference.

## Safety

- 1. Power Source** -- The unit should be connected to power supply only of the type described in the operating instructions or as marked on the unit.
- 2. Polarization** -- If the unit is equipped with a polarized AC power plug (a plug having one blade wider than the other), that plug will fit into the AC outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- 3. Power Cord Protection** -- AC 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. Never take hold of the plug or cord if your hand is wet, and always grasp the plug body when connecting or disconnecting it.
- 4. Nonuse Periods** -- When the unit is not used, turn the power off. When left unused for a long period of time, the unit should be unplugged from the household AC outlet.

## Installation

### Environment

- 1. Water and Moisture** -- Do not use this unit near water—for example, near a bathtub, washbowl, swimming pool, or the like. Damp basements should also be avoided.
- 2. Heat** -- The unit should be situated away from heat sources such as radiators and the like. It also should not be placed in temperatures less than 5°C (41°F) or greater than 35°C (95°F).

### Placement

- 1. Ventilation** -- The unit should be situated so that its location or position does not interfere with its proper ventilation. Allow 10 cm (4") clearance from the rear of the unit.
- 2. Foreign Material** -- Care should be taken so that objects do not fall into and liquids are not spilled into the unit. Do not subject this unit to excessive smoke, dust, mechanical vibration, or shock.
- 3. Magnetism** -- The unit should be situated away from equipment or devices that generate strong magnetism.
- 4. Stacking** -- Do not place heavy objects, other than system components, on top of the unit.
- 5. Surface** -- Place the unit on a flat, level surface.
- 6. Carts and Stands** -- The unit should be used only with a cart or stand that is recommended by the manufacturer. The unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
- 7. Wall or Ceiling Mounting** -- The unit should not be mounted to a wall or ceiling, unless specified in this operating instructions.



## Maintenance (See page 20 for details.)

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution.

Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

## Service

- 1. Damage Requiring Service** -- The unit should be serviced by qualified service personnel when:
  - (a) The AC power supply cord or the plug has been damaged; or
  - (b) Objects have fallen or liquid has been spilled into the unit; or
  - (c) The unit has been exposed to rain; or
  - (d) The unit does not appear to operate normally or exhibits a marked change in performance; or
  - (e) The unit has been dropped, or the enclosure damaged.
- 2. Servicing** -- The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

### CAUTION:

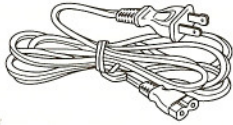
• This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.

• This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

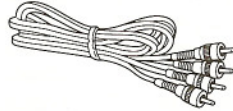
# Preparation

## Supplied accessories

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AC power supply cord  
(polarized) ..... 1 pc.



Stereo connection cable  
(SJP2249-6) ..... 2 pcs.

Stereo mini cable  
(SJP2257T) ..... 2 pcs.



Remote control cable ..... 1 pc.

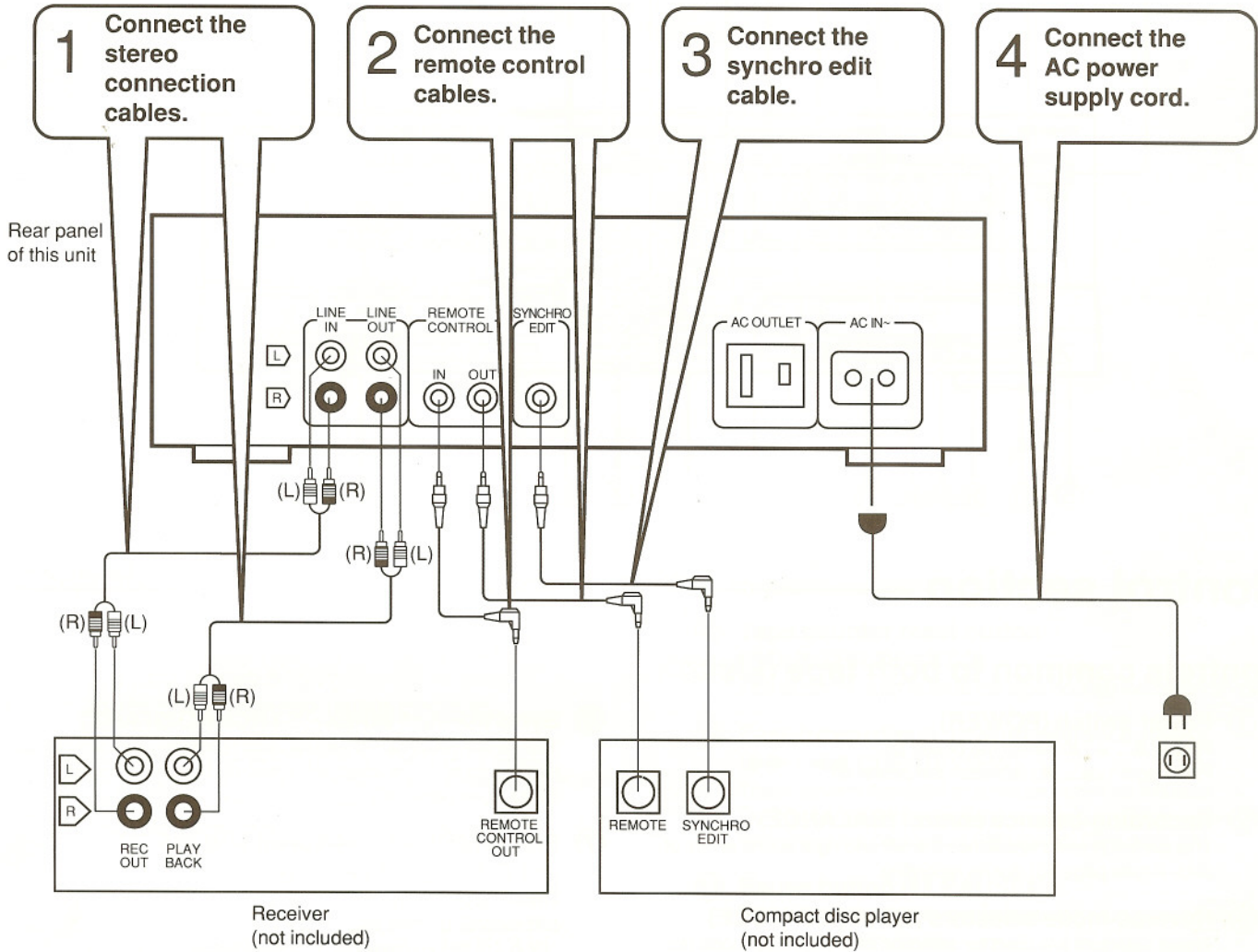


Synchro edit cable ..... 1 pc.

# Connections

Before making connections, be sure that the power to this unit and all other system components turned off first.

See the operating instructions of the receiver or the compact disc player for details.



- 1 **Connect the stereo connection cables (included) to the REC OUT and PLAYBACK terminals of the receiver.**

LINE IN and LINE OUT is equal to REC (IN) and PLAY (OUT) on model RS-T9023.

- 2 **Use the included remote control cable to connect the REMOTE CONTROL Input to the REMOTE CONTROL Output on the receiver.**

The following functions can be operated by remote-control (When connected to the appropriate Technics receiver): Playback, Stop, Pause, Fast-forward/cue, Rewind/review, Record, Auto record mute, and 1-2 (A-B) deck selection.

- 3 **Connect the synchro edit cable (included) to the "SYNCHRO EDIT" terminal of selected Technics compact disc player.**

(See page 18.)

- 4 **Connect the power supply cord (included) to the household AC outlet (AC 120 V/60 Hz).**

The REMOTE CONTROL and SYNCHRO EDIT terminals can only be used with selected Technics Components. Please contact your dealer for details.

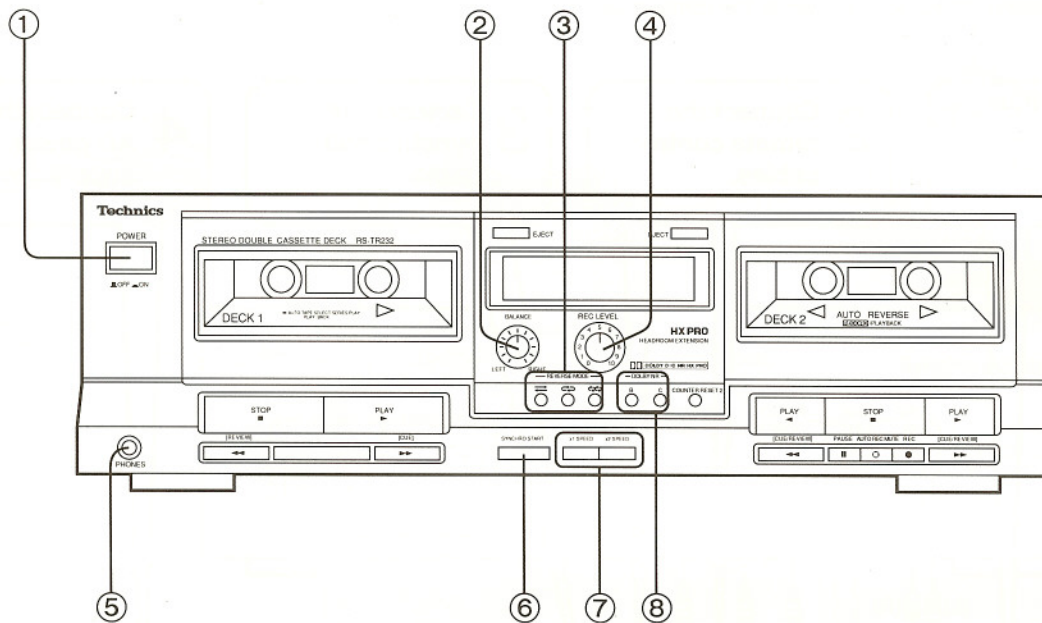
**"AC OUTLET" (UNSWITCHED)**

Power is always available, regardless of the unit's power switch setting.

Audio equipment rated up to 100 W can be connected.

The REMOTE CONTROL "OUT" terminal is provided to connect a Technics Compact Disc Player or Graphic Equalizer.

# Front Panel Controls and Functions



## Control section

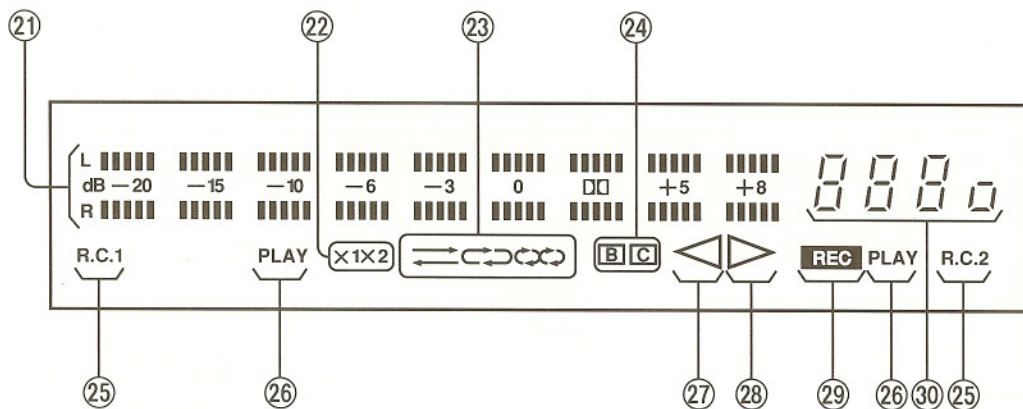
### Controls common to both tape decks

- ① **Power switch (POWER)**  
Press (⏻) to switch the power on.  
Press again (⏷) to switch the power off.
- ② **Recording-balance control (BALANCE)**  
This control is used to balance the left and right sound levels of deck 2 (see page 15) during recording.
- ③ **Reverse-mode selectors (REVERSE MODE)**  
These selectors are used for selection of the reverse mode (for either playback or recording). (See pages 10, 14 and 16.)
- ④ **Recording-level control (REC LEVEL)**  
This control is used to regulate the recording level of deck 2. (See page 15.)
- ⑤ **Headphones jack (PHONES)**
- ⑥ **Synchro-start button (SYNCHRO START)**  
This button is used to start a edit-recording, simultaneously starting deck 1 (the playback deck) and deck 2 (the recording deck). (See page 16.)
- ⑦ **Edit-recording tape-speed buttons (×1 SPEED, ×2 SPEED)**  
These buttons are used to select the recording speed during edit-recording. (See page 16.)
- ⑧ **Dolby noise-reduction buttons (DOLBY NR)**  
These buttons are used to reduce the hissing noise heard from the tape. This unit is provided with both the B-type and C-type noise-reduction systems. (See pages 10, 12 and 14.)



# Front Panel Controls and Functions

(continued)



## Display section

### Indicators common to both tape decks

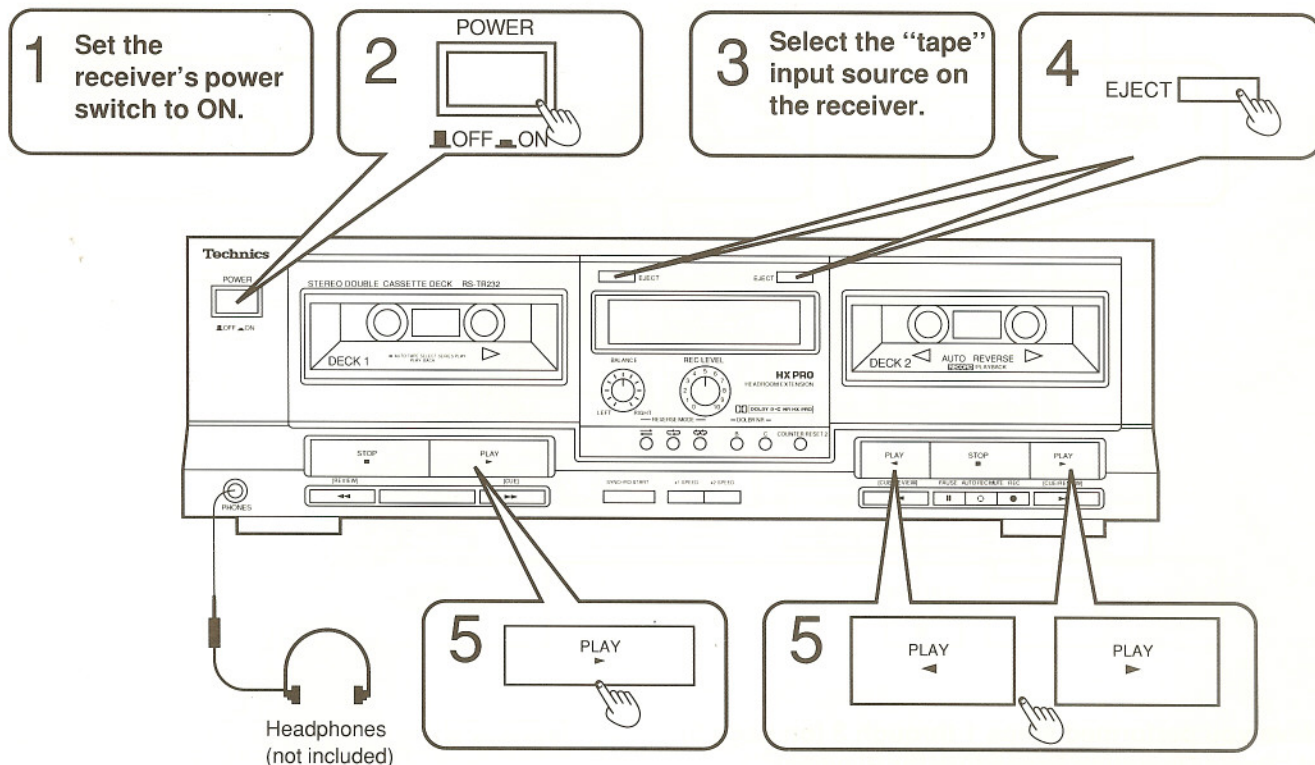
- ②① **Input level meter**  
During playback, this meter indicates the level of the recorded sound.  
During recording, it indicates the level being recorded, adjusted by the recording-level control.
- ②② **Edit-recording tape-speed indicators (×1, ×2)**  
One of these indicators illuminates to show which of the edit recording speeds was selected by pressing one of the edit-recording tape-speed buttons.
- ②③ **Reverse-mode indicators (↔, ⇄, ⇄⇄)**  
Each indicator illuminates to show which of the reverse modes was selected by the reverse-mode selectors.
- ②④ **Dolby noise-reduction indicators (B, C)**  
Each indicator illuminates to show the type of Dolby noise-reduction system selected by pressing one of the Dolby noise-reduction buttons.

### Indicators applicable only to tape deck 1 or 2

- ②⑤ **Remote-control indicator (R.C.1, R.C.2)**  
Illuminates to indicate that this unit can now be controlled by the remote-control transmitter of the appropriate receiver connected.
- ②⑥ **Playback indicator (PLAY)**  
When this indicator illuminates steadily, it indicates that this unit is in the playback or recording mode (of deck 2 only). When flashing continually, indicates that deck 2 is in the pause mode or in the recording stand-by mode.
- ②⑦ **Reverse-side indicator (◀)**  
Illuminates during playback or recording of deck 2, to indicate that side "B" of the tape is being used.
- ②⑧ **Forward-side indicator (▶)**  
Illuminates during playback or recording of deck 2, to indicate that side "A" of the tape is being used.
- ②⑨ **Recording indicator (REC)**  
Illuminates to indicate that deck 2 is in the recording stand-by mode or is recording.
- ③⑩ **Tape counter**  
Indicates the amount of tape movement separately for deck 2. The least significant digit indicates tape movement.



# Basic Operating Procedure for Playback



- 1 Set the receiver's power switch to ON.
- 2 Set the power switch to ON.
- 3 Select the "tape" input source on the receiver.
- 4 Press the eject button of the deck to be used for playback, and then insert the cassette tape.
- 5 Press the playback button.  
See page 10 for detailed information of the operation.

## When listening through headphones

Connect the headphones (not included) to the headphones jack.

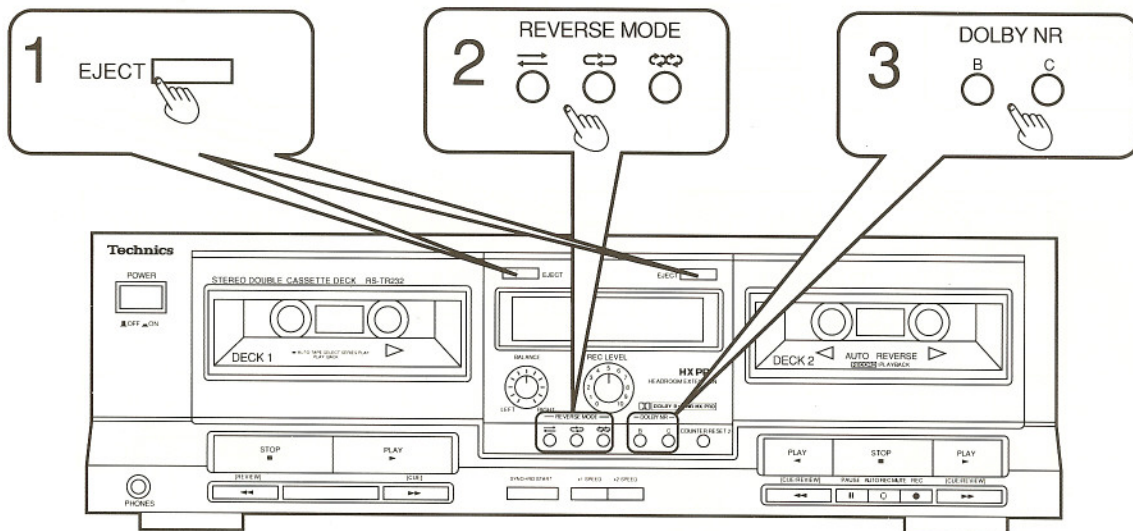
Plug type: 1/4 inch phone plug, stereo type.

### Note:

Avoid listening for prolonged periods of time to prevent hearing damage.

# Playback

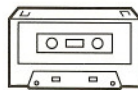
Either normal, CrO<sub>2</sub> or metal type cassettes can be used.



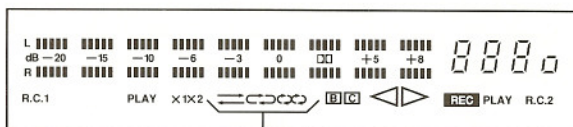
Have you performed steps 1 through 3 (on page 9) of “Basic Operating Procedure for Playback”?

**1** Press the eject button for deck 1 and/or deck 2 to be used for playback, and then insert the cassette tape.

(The part of the cassette where the tape is exposed should face downward.)



**2** Select the appropriate reverse mode.



Reverse-mode indicators

**⇄** Select this mode to playback only one side of a cassette tape.

(The “⇄” reverse-mode indicator will then illuminate.)

When the playback of the selected side has finished, tape movement will stop automatically.

**↻** **For deck 1**

Select this mode to playback only one side of a cassette tape continuously.

(The “↻” reverse-mode indicator will then illuminate.)

(After play completion of side “A”, the tape will be automatically rewind.)

This playback will continue eight times or until the stop button is pressed.

**↻** **For deck 2**

Select this mode to playback both sides of a cassette tape continuously.

(The “↻” reverse-mode indicator will then illuminate.)

This playback will continue eight times or until the stop button is pressed.

(One “time” is counted when side “B” of the tape finishes playback. If playback is started from side “B”, side “A” will play only seven times.)

**↻** Select this mode to playback only one side of a cassette tape in deck 1 and both sides of a cassette tape in deck 2 continuously.

(This is called “series playback”.)

(The “↻” reverse-mode indicator will then illuminate.)

This mode is convenient for enjoyment of a long period of uninterrupted background music.

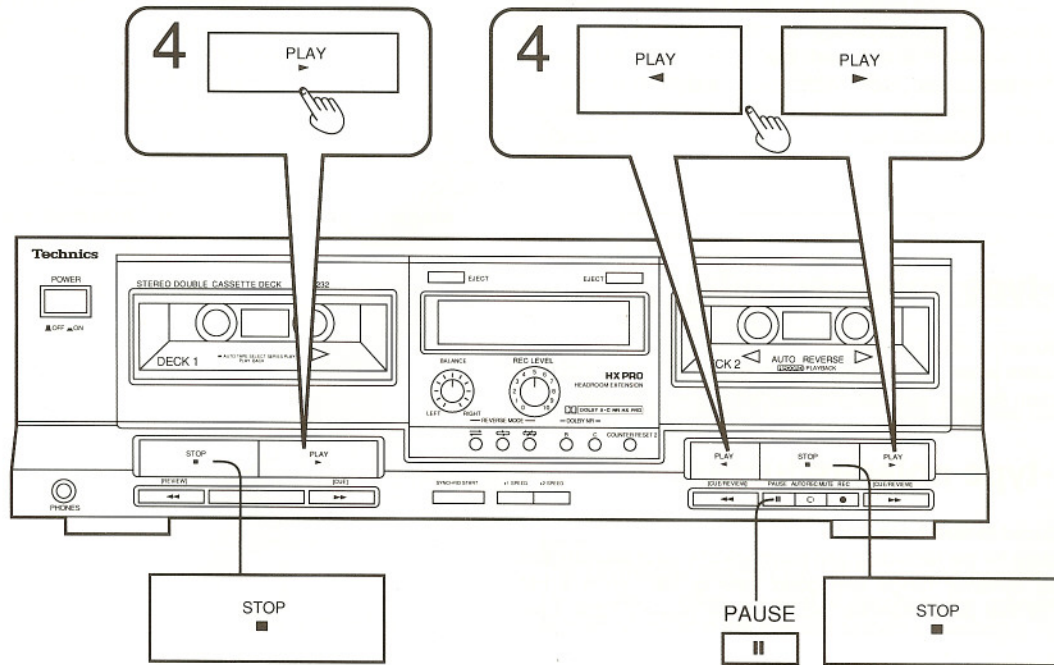
Only one side of the tape in deck 1 is played first, and then both sides (from side “A” to side “B”) of the tape in the deck 2. After play completion of side “A” by deck 1, the tape will be automatically rewind. This playback will continue eight times or until the stop button is pressed.

(One “time” is counted when side “B” of the tape in deck 2 finishes playback. If playback is started from deck 2, the tape in deck 1 will play only seven times.)

Likewise, if playback is started from side “B” of the tape in deck 2, side “A” of the tape in deck 2 will be played only seven times.)

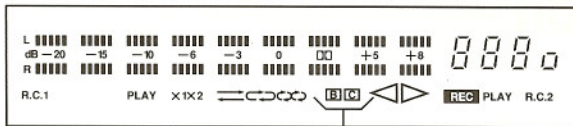
## Notes:

A tape can be advanced, rewind, or substituted, from whichever deck is not in operation at that moment.



### 3 Select the appropriate noise-reduction system (B or C).

- B Press if the tape was recorded by the type-B Dolby NR system. (The "B" Dolby noise-reduction indicator will then illuminate.)
- C Press if the tape was recorded by the type-C Dolby NR system. (The "C" Dolby noise-reduction indicator will then illuminate.)



Dolby noise-reduction indicators

If neither Dolby noise-reduction system was used, press the button corresponding to the Dolby noise-reduction indicator that is illuminated. (The indicator will then switch OFF.)

### 4 Press the playback button.

(The playback indicator will illuminate, and playback will begin.)

#### Deck 2 only

- ▶ PLAY: Plays side "A" (side facing outward)
- ◀ PLAY: Plays side "B"

#### Notes:

Deck 1 and deck 2 cannot be used for playback at the same time.

Should the playback button of one of the decks be pressed while the other deck is in the play mode, playback of the first deck will stop.

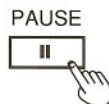
Tape deck 1 will stop if a recording or playback is started on tape deck 2 while tape deck 1 is in the playback or program search mode.

Do not press the eject button while the tape is moving; doing so might cause a malfunction or damage the tape.

### To temporarily stop playback (deck 2 only)

#### Press the pause button.

The playback indicator will begin flashing.

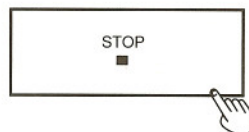


To resume playback, press the play button corresponding to the side of the tape being played.

### To stop playback

#### Press the stop button.

The playback indicator will switch OFF.



(Continued on next page)

# Playback (continued)

## About the Dolby noise-reduction

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The Dolby noise-reduction system is a system designed to effectively reduce the annoying high-frequency "hissing" noise typically heard from tapes if this system is not used. During recording, the system functions to increase the level of the high-frequency part of the sound, and then, during playback, that same portion is weakened and returned to the previous level.

This unit includes three types of Dolby noise-reduction systems, the Dolby B NR-type, the Dolby C NR-type, and the Dolby HX PRO headroom extension system.

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

## Dolby B-type noise-reduction

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Noise is reduced to about one-third.

Use this system when playing back tapes recorded by the Dolby-B noise-reduction system, such as prerecorded music tapes, etc.

## Dolby C-type noise-reduction

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Noise is reduced to about one-tenth.

Use this system for the recording and playback of sound sources that have a wide dynamic range and good tone quality, such as FM broadcasts of live performances, etc., and for playing back such tapes.

## Dolby HX-Pro headroom extension system

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By functioning to improve the maximum output level of the tape's high-frequency range, this system permits recordings without a drop of the level of the sound source's high-frequency range. In addition, by using the system in parallel with this unit's noise-reduction system, recording and playback with a greatly extended dynamic range is possible.

## Automatic-tape-select function

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This unit is equipped with the automatic-tape-select feature; it automatically detects the type of tape being used, and then makes the suitable adjustments of the bias and equalization accordingly.

# To locate and play a certain program

## To cue or review

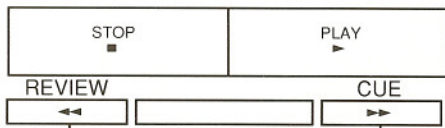
This function is convenient to locate the beginning of a program while listening to the contents at high speed.

Press and hold the rewind/review, or fast-forward/cue button (deck 1 or 2) during playback. Normal playback will resume from the point where the button is released.

(The playback indicator will begin quick flashing.)

### During playback of side "A" (forward) (▶):

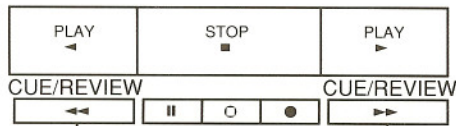
Deck 1



Press to review (rewind)

Press to cue (fast-forward)

Deck 2



Press to review (rewind)

Press to cue (fast-forward)

### During playback of side "B" (reverse) (◀):

Deck 2



Press to cue (fast-forward)

Press to review (rewind)

### Note:

The cue/review function causes sounds to become high pitched. During this function, be sure to decrease the receiver's volume to prevent damage to the speaker system's tweeters.

# To fast-forward or rewind the tape

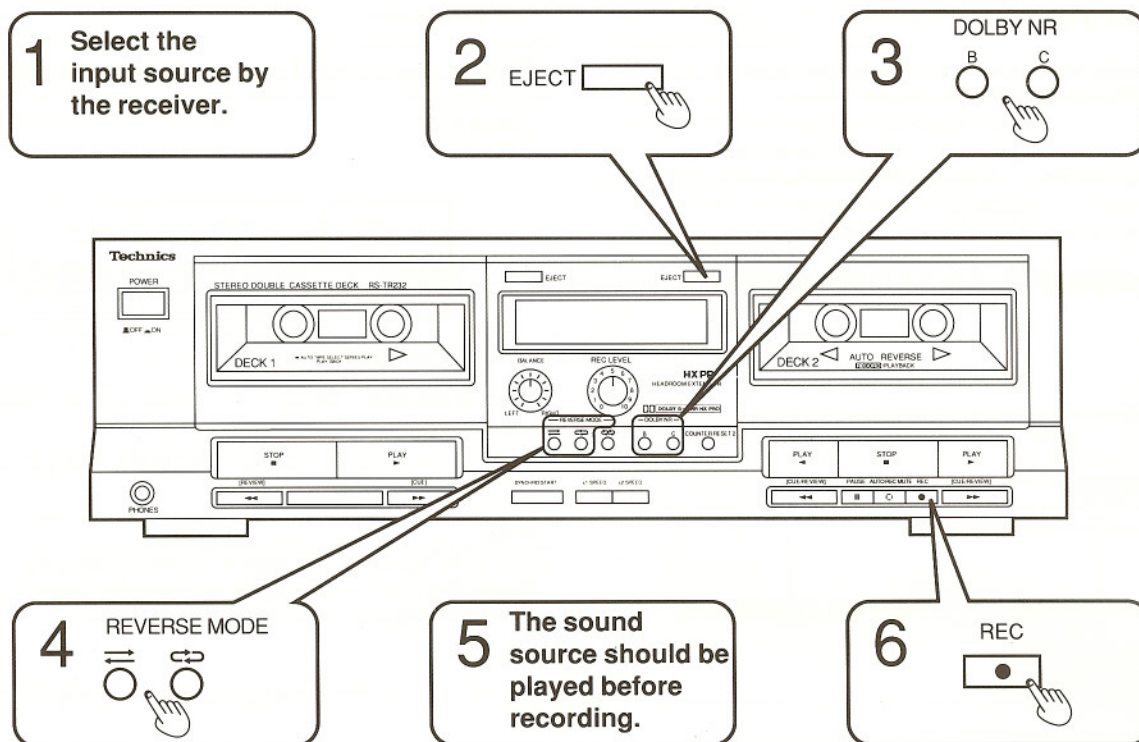
While in the stop mode, press the appropriate button according to the figures above.

Cassette tapes in deck 1 and deck 2 can be advanced or rewound at the same time.

While deck 2 is being used to make a recording (from LINE-IN), deck 1 can be used for fast-forwarding or rewinding a tape.

# Recording (deck 2 only)

Either normal, CrO<sub>2</sub> or metal type cassettes can be used.

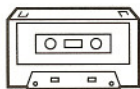


## To record from an external sound source

Have you performed steps 1 through 2 (on page 9) of "Basic Operating procedure for Playback"?

Recordings cannot be made on the leader tape (attached to each end of recording tape), so advance the tape slightly from its end before starting a recording.

- 1** Select the input source by the receiver.
- 2** Press the eject button, and then insert the cassette to be used for recording.  
(The part of the cassette where the tape is exposed should face downward.)

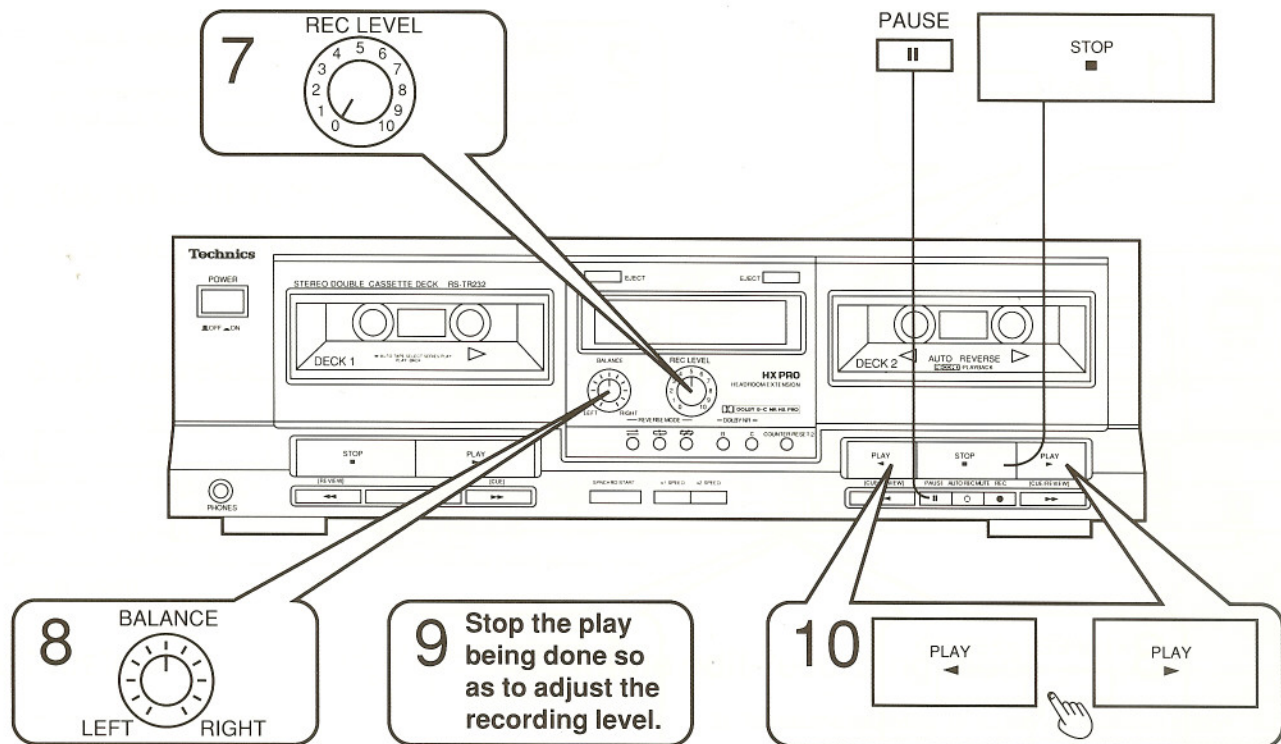


- 3** Press the button corresponding to the Dolby noise-reduction system (B or C) to be used.  
[The Dolby noise-reduction ("B" or "C") indicator will illuminate.]  
If neither Dolby noise-reduction system is to be used, press the button corresponding to the Dolby noise-reduction indicator that is illuminated. (The indicator will then switch OFF.)

- 4** Select the appropriate reverse mode.  
[The reverse-mode indicator ("↔" or "↻") will illuminate.]  
↔ **Select this mode to record on one side only.**  
The recording will stop at the end of one side of the tape depending which side was selected.  
↻ **Select this mode to record on both sides.**  
The recording will be made on side "B" after recording on side "A". The tape will stop at the end of side "B".
- 5** The sound source to be recorded should be played before the recording is started in order to adjust the recording level.
- 6** Press the record button.  
(The recording indicator will illuminate and the playback indicator will flash continuously. The unit will be in the recording stand-by mode.)

Switch OFF (by pressing the corresponding edit-recording tape-speed button) whichever edit-recording tape-speed indicator that is illuminated.

If this unit is used in combination with a Technics compact disc player that has a synchro-eidt terminal, switch OFF the compact disc edit indicator on the compact disc player (by pressing the stop button on the compact disc player).



### 7 Adjust the recording level.

While watching the level on the meters, adjust the recording-level control so that the peak indication is as high as possible, without exceeding the indication noted in the chart below.

Normal, CrO <sub>2</sub> tape	□ (+3)	Metal tape	+5
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### 8 Adjust the left/right recording balance.

### 9 Stop the play being done so as to adjust the recording level.

### 10 Start recording, then start playing the source to be recorded from the beginning.

The playback indicator will illuminate steadily, and the recording will begin.

If only one side of the tape (reverse mode position: ◀) is to be recorded, press the playback button that corresponds to that side.

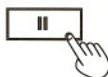
To record on both sides of the tape (reverse mode position: ↔), press the forward-side playback button (▶).

## To temporarily stop recording (deck 2 only)

Press the pause button.

The playback indicator will begin flashing.

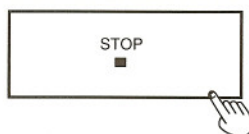
PAUSE



To resume recording, press the playback button corresponding to the side of the tape being recorded upon.

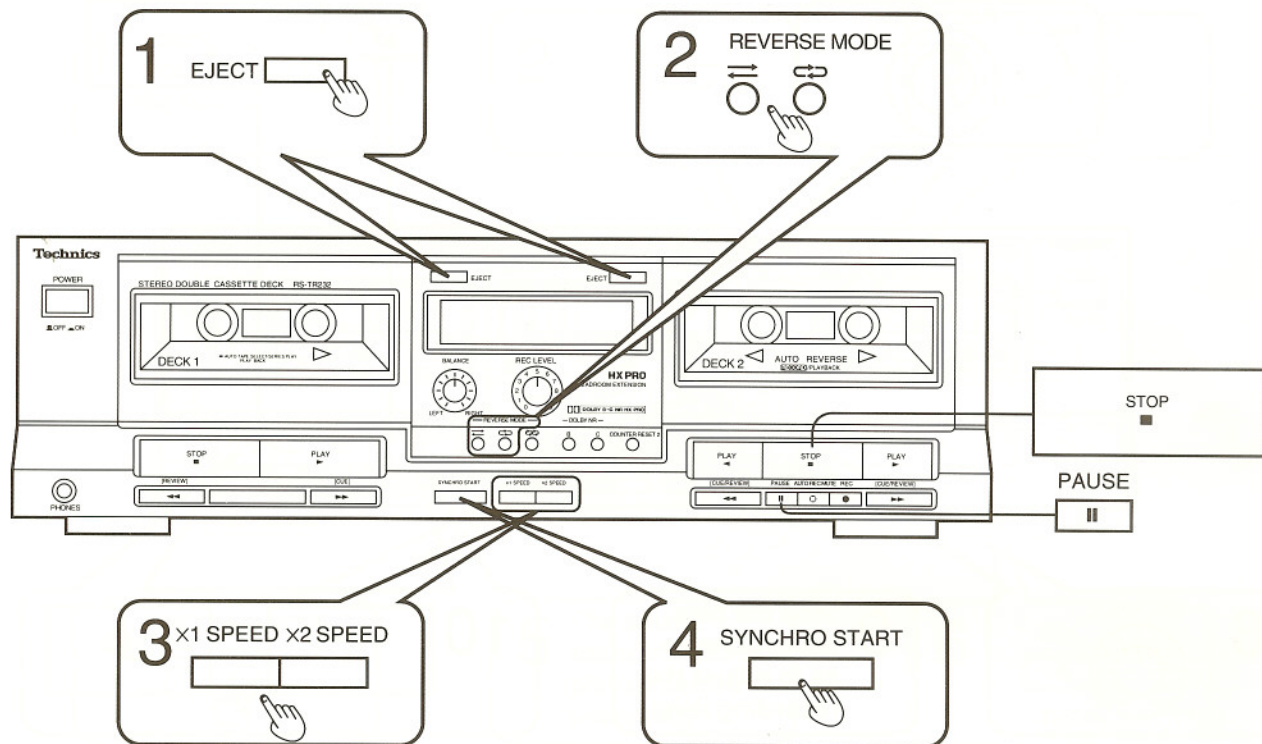
## To stop recording

Press the stop button.



# Edit-Recording

Either normal, CrO<sub>2</sub> or metal type cassettes can be used.  
Changes can be made while recording from one tape to another.

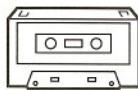


## To record from Deck 1 to Deck 2

Have you performed steps 1 through 3 (on Page 9) of "Basic Operating Procedure for Playback"?

- 1 Press and insert the cassette for recording into deck 2. Then insert the cassette for playback into deck 1.**

(The part of the cassette where the tape is exposed should face downward.)



- 2 Select the appropriate reverse mode.**

[The reverse-mode indicator ("↔" or "↻") will illuminate.]

- ↔ **Select this mode to record on one side only.**

The recording will stop at the end of one side of the tape depending which side was selected.

- ↻ **Select this mode to record on both sides.**

The recording will be made on side "B" after recording on side "A". The tape will stop at the end of side "B". (When the playback in the "A" side by tape deck 1 has finished, tape movement in tape deck 1 will stop and tape deck 2 will change to the recording stand-by mode.)

Check to be sure that forward-side indicator (▷) of tape deck 2 is illuminated to record on both sides.

- 3 Select the speed at which the recording will be made.**

[The edit-recording tape-speed indicator ("×1" or "×2") will illuminate.]

- ×1: For operation at the normal tape speed
- ×2: For operation at the high tape speed

- 4 Press the synchro-start button.**  
(The recording will begin.)

In order to avoid mis-operations later, be sure to switch OFF the edit-recording tape-speed button (the edit-recording tape-speed indicator illumination stops) after the edit-recording has finished.

Edit-recordings cannot be made from deck 2 to deck 1.

Recording level as well as equalizer effects and Dolby noise-reduction effects are recorded on to the tape in deck 2 exactly as they were originally recorded on the tape in deck 1.

Because noise-reduction effects cannot be heard in the playback sound, when listening to a tape recorded by employing noise-reduction, use the treble tone control on the receiver to reduce the treble range.

While an edit-recording is in progress, you can enjoy some other source. Select the desired sound source by using the input selectors on the receiver, and start the performance.



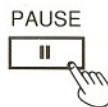
## To temporarily stop an edit-recording

---

Press the pause button of deck 2.

The playback indicator will begin flashing, and playback will continue on deck 1.

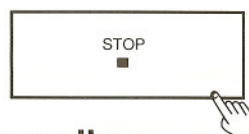
To resume recording, press the playback button corresponding to the side of the tape being recording upon.



## To stop an edit-recording

---

Press the stop button of deck 2.



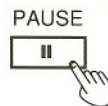
## To omit unwanted material during edit-recording

---

Press the pause button of deck 2.

Deck 2 will change to the recording stand-by mode, and playback will continue on deck 1.

Press the playback button corresponding to the side of the tape being recorded when the tape in deck 1 reaches the point where you want to record.



## To locate a certain program while in the edit-recording mode

---

- 1) Press the stop button of deck 1.  
A silent interval of about 4 seconds will then be made on the tape in deck 2, and then deck 2 will change to the recording stand-by mode.
- 2) Press the playback button and then press the fast-forward/cue button or the rewind/review button of deck 1 and locate the desired program.
- 3) To resume recording, press the synchro-start button.

## To erase recorded sounds

---

When new recordings are made on a pre-recorded tape, all sounds recorded on that portion of the tape are automatically erased. To erase a tape without making a new recording, follow the steps below.

- 1) Insert the recorded cassette into the cassette holder of deck 2.
- 2) Set the recording-level control to "0".
- 3) Set the reverse-mode selector to either one-side only (↔) or both sides (↻).
- 4) Set the Dolby noise-reduciton button to OFF.  
(The Dolby noise-reduction indicator will then switch OFF.)
- 5) Press the record button.
- 6) Press the playback button corresponding to the side to be erased.

# Convenient Features for Recording

## Compact disc synchro-edit-recording

When a Technics compact disc player with the compact disc synchro-edit function is used in combination with this unit, recordings can be made on side "A" and side "B" of the tape, without interruptions of tracks, in conjunction with the tape length.

Be sure to connect the stereo connection cable of a Technics compact disc player with the receiver when using the synchro edit function even if the optical cable has been connected.

### 1 Prepare for recording on this unit.

Follow steps 1 through 8 in the section concerning recording. (See pages 14, 15.)

Check to be sure that forward-side indicator (>) is illuminated.

### 2 Procedure for the compact disc player.

1. Press the stop button. (Disc play will stop.)
2. Press the edit-tape length button and specify the length of the tape to be used.

The tracks to be recorded to side "A" of the tape and those to be recorded to side "B" will then be automatically selected according to the tape's length.

3. Press the play button.

The recording will start at the same time that play starts at the compact disc player.

For more detailed information, refer to the operating instructions of the Technics compact disc player to be used.

### Notes:

Recording cannot be made on the leader tape (attached to each end of recording tape), so advance the tape slightly from its end before starting a recording.

If the CD program contents to be recorded on side "A" of the tape are shorter than the actual tape length, this unit will continue to record until it reaches the end of side "A", while the compact disc player switches to the pause mode. At the end of side "A", deck 2 automatically switches to side "B" and after few seconds the compact disc player will resume play.

When canceling the synchro-edit recording mode, press the stop button on the compact disc player and then press the stop button on this unit. (To cancel mid-way through a performance, press the stop button on the compact disc player twice in succession.)

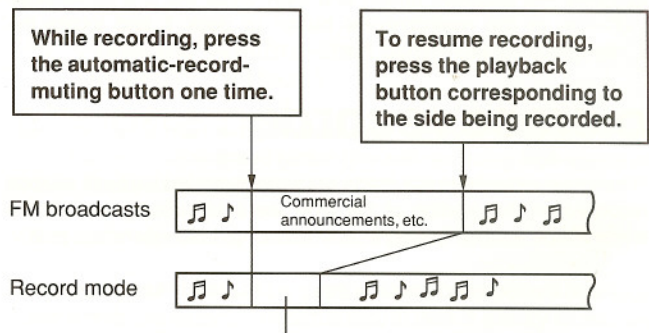
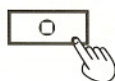
## To make a 4 seconds silent interval on the tape

By simply pressing the Automatic-record-muting button while a recording is being made, a silent interval (which is necessary for locating the beginning of a program during playback) can be made.

This feature is also convenient for omitting unwanted material such as commercial messages, etc. during recording.

**Press the automatic-record-muting button while a recording is being made.**

AUTO REC MUTE



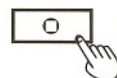
This unit will record a silent interval (4 seconds long) between programs, and then will change to the recording stand-by mode.

## To make a silent interval of more than 4 seconds

**Press and hold the automatic-record-muting button for the necessary number of seconds.**

The unit will change to the recording stand-by mode when the button is released.

AUTO REC MUTE



# Concerning Cassette Tapes

## Selection of cassette tapes

Do not use the following types of tapes in this unit.

### 100-minute (or longer) tapes

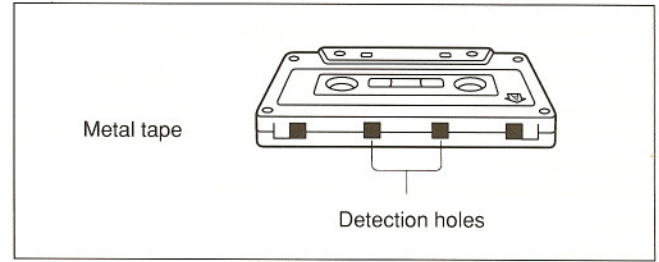
Because the tape is very thin, it might stretch during use causing unstable tape movement which may result in the tape becoming tangled in the rotating parts of this unit.

### Fe-Cr tapes (TYPE III)

The high frequency range will be emphasized and it will not be possible to obtain a flat frequency response.

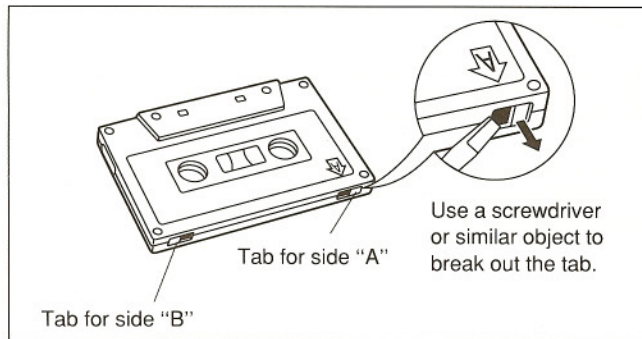
### Metal tape without detection holes in the cassette

Recordings will be very distorted. (There is no playback problem, however.)



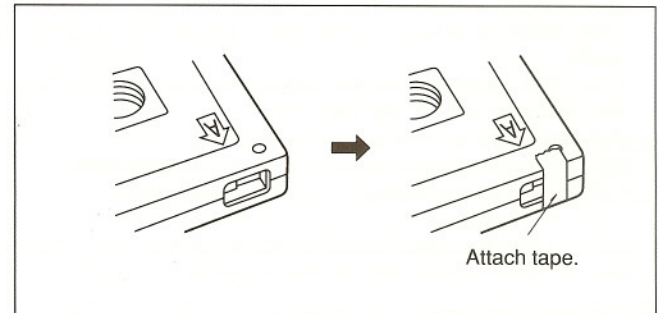
## Erasure prevention

Remove the erase-prevention tabs (thus preventing recording).



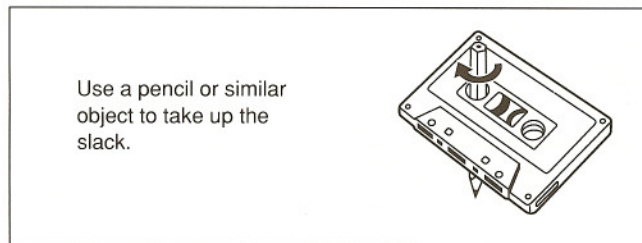
### To re-record on a protected cassette

Cover the slot with adhesive tape.



## Tape slack

Tape slack may cause the tape to break.



## Tape storage

Tapes can be damaged if stored in places such as those described below.

Where the temperature is high (95°F/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.). Recording may become erased.

In direct sunlight.

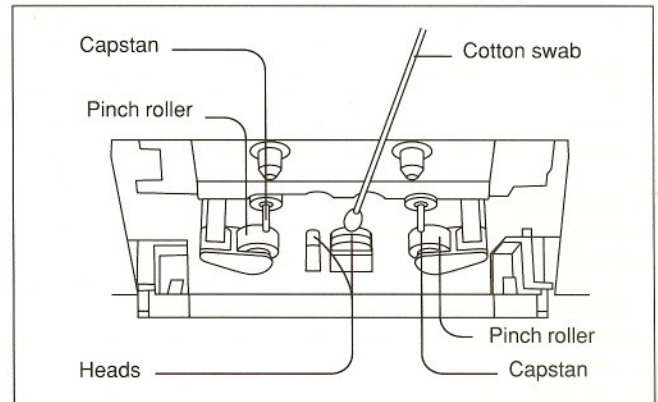
# Maintenance

## Head care

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To assure sound quality for recording and playback, be sure to clean the heads after approximately every 10 hours of use.

- 1) Press the power switch to switch off the electrical power supply of this unit.
- 2) Press the eject button to open the cassette holder.
- 3) Clean the heads, pinch roller and the capstan shaft with a cotton swab (or with a soft, lint-free cloth) slightly moistened with isopropyl alcohol.  
Do not use any solution other than alcohol for head cleaning.



## Head demagnetization

---

In order to maintain good sound quality during recording and playback, it is recommended that the head assembly be demagnetized when distortion or poor sound quality persist after cleaning the heads.

If the head assembly becomes magnetized, it could create noise in the recordings, loss of high-frequency response or erasure of valuable recordings. Several types of head demagnetizers are available and may be purchased separately at local electronics supply stores. Follow the instructions that are supplied with the device.

Do not bring any type of metal objects or tools such as magnetic screwdrivers in contact with the head assembly.

## Maintenance of external surfaces

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To clean this unit, 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, benzene, nor a chemically treated cloth to clean this unit.

Such chemicals may damage the finish of your unit.

# Technical Specifications

## ■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
<b>Heads</b>	
Deck 1	Playback head (Permalloy)×1
Deck 2	Recording/Playback head (Permalloy)×1 Erasing head (Double-gap ferrite)×1
<b>Motors</b>	
Deck 1	Capstan/Reel table drive (DC servo motor)×1
Deck 2	Capstan/Reel table drive (DC servo motor)×1
Tape speed	4.8 cm/sec. (1 <sup>7</sup> / <sub>8</sub> ips)
Wow and flutter	0.1% (WRMS)
Fast forward and rewind times	Approx. 110 seconds with C-60 cassette tape
<b>Frequency response (Dolby NR off)</b>	
NORMAL	40 Hz~15 kHz, ±3 dB 20 Hz~17 kHz
CrO <sub>2</sub>	40 Hz~15 kHz, ±3 dB 20 Hz~17 kHz
METAL	40 Hz~16 kHz, ±3 dB 20 Hz~18 kHz

S/N (Signal level=max recording level, CrO<sub>2</sub> type tape)

NR off	56 dB (A weighted)
Dolby B NR on	66 dB (CCIR)
Dolby C NR on	74 dB (CCIR)
<b>Input sensitivity and impedance</b>	
LINE IN [For RS-TR232]	60 mV/47 kΩ
REC (IN) [For RS-T9023]	60 mV/47 kΩ
<b>Output voltage and impedance</b>	
LINE OUT [For RS-TR232]	400 mV/800Ω
PLAY (OUT) [For RS-T9023]	400 mV/800Ω
HEADPHONES	30 mV/(8Ω)
	(Load impedance 8Ω~600Ω)

## ■ GENERAL

Power consumption	17 W
Power supply	AC 60 Hz, 120 V
Dimensions (W×H×D)	430×136×290 mm (16 <sup>1</sup> / <sub>16</sub> "×5 <sup>3</sup> / <sub>8</sub> "×11 <sup>1</sup> / <sub>32</sub> "
Weight	4.7 kg (10.4 lb.)

### Note:

Specifications are subject to change without notice.  
Weight and dimensions are approximate.

# Troubleshooting Guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions. (In U.S.A. consult MSC Authorized Servicenters for detailed instructions.)

Problem	Probable cause(s)	Suggested remedy
Tape moves but no sound is heard.	The volume control of the receiver is set to its minimum position.	Adjust the volume control to the desired level.
	The input selector of the receiver is not set to the "tape" position.	Set to the "tape" position.
Distorted sound.	The recording level is too high.	Select the appropriate recording level while recording.
Previously recorded sound has not been erased.	Erase head is dirty.	Clean the head.
Sound output is hoarse or unsteady.	Heads are dirty.	Clean the heads.
	Tape is damaged.	Try operation with a new cassette; if there is no problem with the new cassette, discard the damaged cassette.
Poor sound quality (especially in the high treble and low bass ranges).	The correct Dolby noise-reduction button is not selected.	Set it to the correct position.
Sounds is low, poor tone, intermittent sound, noise.	Heads, capstan and/or pinch roller are dirty or tape is damaged.	Clean the heads, capstan and/or pinch roller, or try a new cassette.
Recording is not possible.	The recording level control is at the "0" position.	Select the appropriate recording level.
	One of the edit-recording tape-speed indicators is illuminated.	Switch OFF (by pressing the corresponding edit-recording tape-speed button) whichever edit-recording tape-speed indicator is illuminated.
The tape deck does not respond to the synchro edit function.	The synchro edit cable is not connected to the compact disc player.	Connect the synchro edit cable to the compact disc player.
	The audio cables are not connected.	Connect the audio cables to the receiver.

# Troubleshooting Guide (continued)

Problem	Probable cause(s)	Suggested remedy
Operation by remote control transmitter is not possible.	The remote control cable is not connected.	Connect the remote control cable.
	The audio cables are not connected.	Connect the audio cables to the receiver.
A "hum" noise is heard during tape playback or recording.	This unit is placed too close to a receiver or amplifier or tuner.	Leave as much space as possible between the units, or place them where there is the least amount of "hum".

## Product Service

Do not attempt to remove the cover(s) or repair the unit yourself.  
Refer servicing to qualified personnel only.

## Product information

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For product service, product information or assistance with product operation, refer to the servicer directory.

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