

**SONY**

3-856-134-22(1)

# ***Stereo Cassette Deck***

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Operating Instructions

*TC-KE400S  
TC-KE300  
TC-KE200*

## WARNING

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

To avoid electrical shock, do not open the cabinet.  
Refer servicing to qualified personnel only.

## FOR THE CUSTOMERS IN THE UNITED STATES



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



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

### Owner's record

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

Model No. TC-KE400S/TC-KE300/  
TC-KE200  
Serial No. ....

## INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

## Welcome!

Thank you for purchasing the Sony Stereo Cassette Deck. Before operating the unit, please read this manual thoroughly and retain it for future reference.

## About This Manual

The instructions in this manual are for models TC-KE400S, TC-KE300 and TC-KE200.

All illustrations in this manual show the TC-KE400S.

### Differences among the models

The three models covered by this manual are distinguished by their features, as listed in the table below. Check the table to verify the features available on your tape deck before you start operating it.

Model	KE400S	KE300	KE200
<b>Feature</b>			
Dolby S	•		
Dolby NR switch with MPX filter settings	•	•	
Automatic calibration	•	•	

The Dolby NR switch on the TC-KE200 does not have MPX filter settings since the MPX filter function is continuously on.

### Conventions

- Instructions in this manual describe the controls on the deck.
- The following icon is used in this manual:



Indicates useful information or tips that make a task easier.

# TABLE OF CONTENTS

---

## Getting Started

Unpacking 4

Hooking Up the System 4

---

## Playing a Tape 5

Recording on a Tape 6

---

## Advanced Playback Operations

Locating a Track (Multi-AMS/Auto Play/Memory Play) 8

---

## Advanced Recording Operations

Adjusting Bias and Recording Level Calibration Automatically (unavailable on the TC-KE200) 9

Inserting a Blank Space During Recording (Record Muting) 10

---

## Additional Information

Precautions 10

Notes on Cassette Tapes 11

Cleaning 11

Troubleshooting 12

Specifications 13

Glossary 14

---

## Index 15

## Getting Started

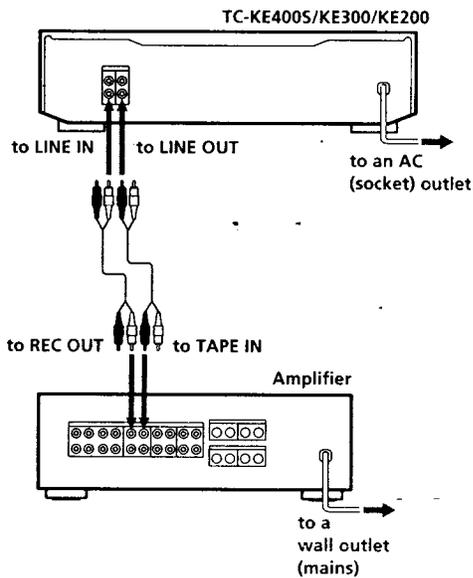
### Unpacking

Check that you have received the following supplied item:

- Audio connecting cords (2)

### Hooking Up the System

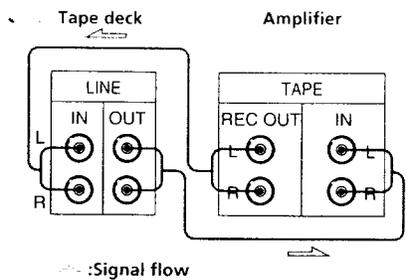
This section describes how to hook up the tape deck to an amplifier. Be sure to turn off the power of each component before making the connections.



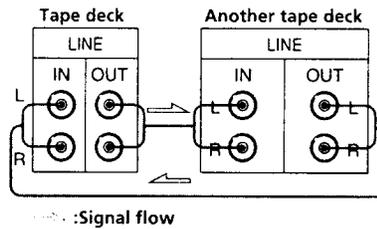
### Hookups

When connecting an audio connecting cord, be sure to match the color-coded cord to the appropriate jacks on the components: Red (right) to Red and White (left) to White. Be sure to make connections firmly to avoid hum and noise.

Connect the tape deck to the amplifier as shown below.

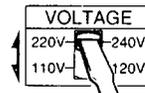


To connect your tape deck to another tape deck  
Connect both tape decks as shown below.



### Setting the voltage selector (only on models supplied with a voltage selector)

Check that the voltage selector on the rear panel of the tape deck is set to the local power line voltage. If not, set the selector to the correct position using a screwdriver before connecting the AC power cord to an AC outlet.



### Connecting the AC power cord

Connect the AC power cord to an AC outlet.

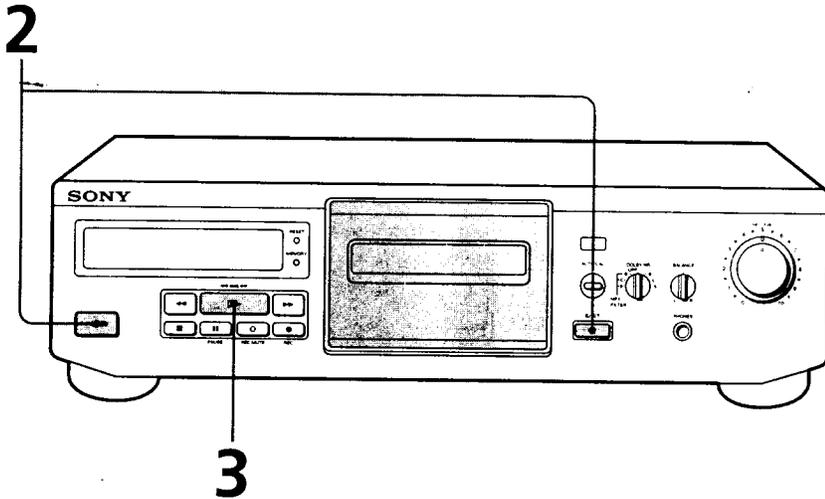
### Where do I go next?

Now you're ready to use your tape deck.

For basic operations, go to pages 5 to 7; for advanced operations, go to the sections starting from page 8.

## Basic Operations

# Playing a Tape



• See page 4 for hookup information.

**To play a tape recorded with the Dolby NR\* system**

Turn DOLBY NR to the same Dolby system that the tape was recorded in—B, C, or S (TC-KE400S only).

Please note that the B, C, and S settings on both sides are identical during playback since the MPX filter operates only during recording (unavailable on the TC-KE200).

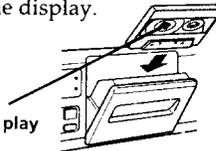
**You can connect the headphones to PHONES.**

**1** Turn on the amplifier and select the tape deck position.

**2** Press POWER, and then press  $\triangle$  EJECT. Insert a cassette and close the cassette holder.

The tape type (I, II, or IV) appears in the display.

With the side you want to play facing you



**3** Press  $\triangleright$ .

The deck starts playing. Adjust the volume on the amplifier.

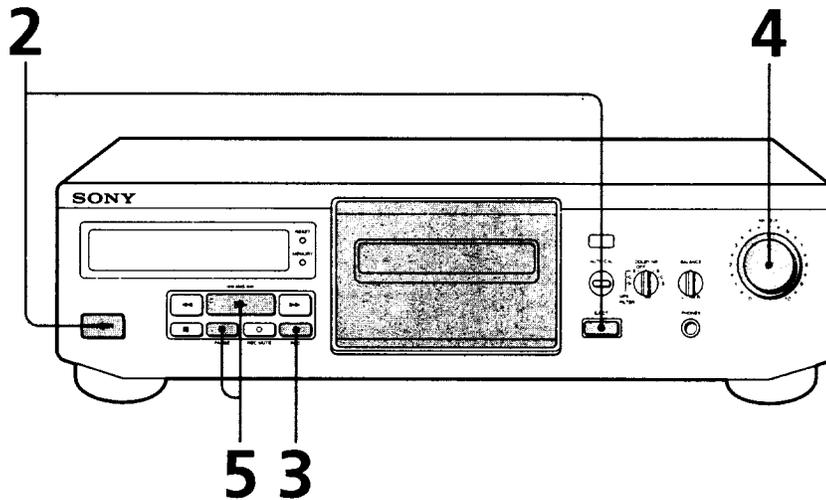
**Do not press POWER or  $\triangle$  EJECT while the tape deck is operating. If you do so, the tape may be damaged.**

To	Press
Stop playing	■
Pause	PAUSE. Press the button again to resume play.
Fast-forward or rewind	▶▶ or ◀◀ when the deck is stopped
Take out the cassette	$\triangle$ EJECT after stopping playing

\*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol  $\square$  are trademarks of Dolby Laboratories Licensing Corporation.

# Recording on a Tape



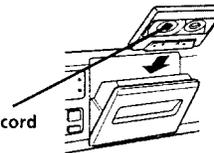
• See page 4 for hookup information.

 **To protect recordings against accidental erasure**  
Break out the record-protect tab(s) (see page 11).

- 1 Turn on the amplifier and play the program source you want to record.
- 2 Press POWER, and then press  EJECT.  
Insert a cassette and close the cassette holder.

The tape type (I, II, or IV) appears in the display.

With the side you want to record facing you

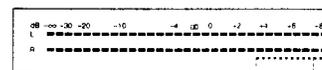


- 3 Press  REC.  
**Do not press POWER or  EJECT while the tape deck is operating. If you do so, the tape may be damaged.**

- 4 Turn REC LEVEL to adjust the recording level.

The recording level should not exceed the recommended level for the indicated tape type.

After doing the all adjustments, stop playing the program source.



For type I or type II tape 

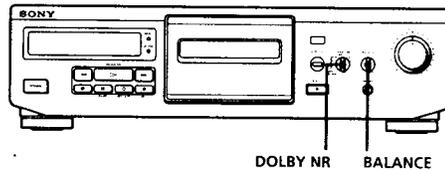
For type IV tape 

- 5 Press  PAUSE or .
- Recording starts.

**6** Start playing the program source.

To	Press
Stop recording	■
Pause	PAUSE. Press the button again to resume recording.
Take out the cassette	⏏ EJECT after stopping recording

 The Dolby HX PRO\* system automatically works during recording



**To adjust the recording balance**

Turn BALANCE so that the L (left channel) and R (right channel) peak level meters in the display are at the levels you want.

**To record with the Dolby NR system**

Turn DOLBY NR clockwise to the position you want — B, C, or S (TC-KE400S only) before you start recording.

**If you cannot get satisfying results when recording FM broadcasts with Dolby NR system (unavailable on the TC-KE200)**

Turn DOLBY NR counterclockwise to the position you want (B, C, or S with MPX FILTER) before you start recording. The filter turns on to make the Dolby NR system work more effectively. (For details on the MPX filter, see "Glossary" on page 14.)

\* HX Pro headroom extension originated by Band & Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.

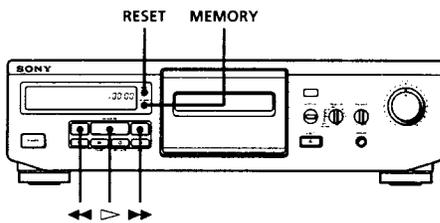
"DOLBY," the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

For details on DOLBY HX PRO, see "Glossary" on page 14.

## Advanced Playback Operations

### Locating a Track (Multi-AMS/ Auto Play/Memory Play)

You can locate the following/previous tracks (Multi-AMS: Automatic Music Sensor) or the beginning of a tape quickly. You can even locate a specific point anywhere on a tape.



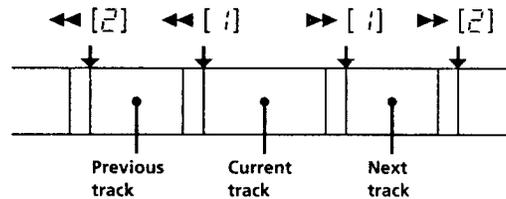
To locate	Press
the beginning of the next or succeeding tracks (Multi-AMS*)	▶▶ as many times as you want while playing. For example, to locate 2 tracks ahead, press twice.
the beginning of the current track (Multi-AMS*)	◀◀ once while playing
the beginning of the preceding tracks (Multi-AMS*)	◀◀ as many times as you want while playing. For example, to locate 2 tracks behind, press three times.
the beginning of a tape (Auto Play)	MEMORY repeatedly until "M" disappears in the display. Then press ◀◀ while holding down ▷.
a particular point on a tape (Memory Play)	MEMORY repeatedly until "M" appears in the display. Find the point you want, and press RESET to reset the tape counter and to memorize the point. To locate the memorized point, press ◀◀ while holding down ▷. (Press ◀◀ only to stop at "00 00.")

\* You can use the Multi-AMS to locate up to the 30th track after or before the current track.

#### What happens during Multi-AMS operation

When Multi-AMS is operating, "PLAY" appears. And each time the deck detects a blank space, the indicated number decreases by one. After locating the beginning of the specified track, the counter indication appears again and the deck starts playing the track.

↓ : Beginning of track



#### Notes

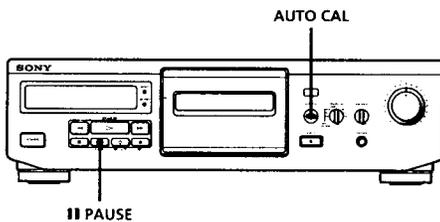
- The Multi-AMS function may not work correctly if:
  - the blank space between tracks is less than 4 seconds long.
  - the signal strength of the left and right channels are very different.
  - there is a passage of low frequencies or very low volume within a track.
- Since the counter is not a digital clock, it will differ from the actual elapsed playback or recording time.

## Advanced Recording Operations

### Adjusting Bias and Recording Level Calibration Automatically

(unavailable on the TC-KE200)

Since there are many different types of cassettes on the market, your tape deck automatically sets the appropriate equalization characteristics and bias current for each tape type (ATS: Automatic Tape Selection). However, you can get better recording results by doing the automatic bias current and the recording level calibration.



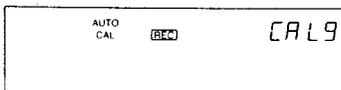
**1** Insert the cassette you want to record on. Make sure the record-protect tabs on the cassette have not been removed.

**2** Press AUTO CAL until "CAL" appears in the display.

#### Note

If the record-protect tab for that size has been removed (see page 11), "AUTO CAL" in the display flashes three times and automatic calibration cannot be performed.

**3** Press II PAUSE to start the automatic calibration procedure. The automatic calibration procedure starts (i.e., recording test tones, rewinding, and playing back). During the calibration, the counter changes from 9 to 0.



When the automatic calibration procedure ends, the tape rewinds to the original position, the counter returns to normal and the tape deck stops.

**4** Start the actual recording (see page 6).

To cancel the automatic calibration function  
Press ■.

#### If "AUTO CAL" flashes continuously

The automatic calibration procedure has been interrupted by:

- The end of the tape. Turn the cassette over or rewind the tape to a new position that allows recording of the test tone.
- Damaged tape or dirty heads. Change the cassette or clean and demagnetize the heads (see page 11).

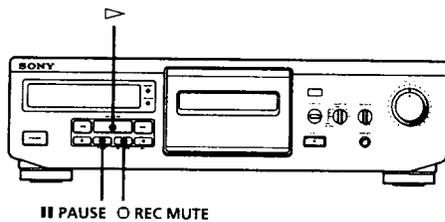
#### Updating the calibration setting

As long as the tape deck stays on, calibration data are saved and called up each time you insert a cassette of the same type (I, II or IV). "AUTO CAL" appears in the display when you insert a cassette to indicate that calibration data for that tape type exists. However, we recommend that you repeat the automatic calibration procedure each time you insert a new cassette since cassettes of the same type also vary in their characteristics. Before recalibrating, be sure to clear the existing calibration data by pressing AUTO CAL until "AUTO CAL" disappears from the display. Then start from Step 2 of the automatic calibration procedure.

## Advanced Recording Operations

### Inserting a Blank Space During Recording (Record Muting)

You can insert a blank space of 4 seconds between each track. The blank spaces between tracks let you locate the track easily with the Multi-AMS function (see page 8). Also, use this function to eliminate only unwanted portions on the tape.



- 1 Start recording.
  - 2 Press **O REC MUTE** once when you want to insert a blank space.  
"REC" in the display starts flashing and the tape moves on without recording any signals. After 4 seconds, "||" lights up and the tape deck is now ready to resume recording.
  - 3 Press **|| PAUSE** or **>** to resume recording.
- 💡 To insert a blank space longer than 4 seconds**  
Hold down **O REC MUTE** as long as you want. After 4 seconds, "REC" in the display flashes faster. When you release the **O REC MUTE**, "||" lights up and the tape deck is ready to resume recording. Press **|| PAUSE** or **>** to resume recording.
- 💡 To insert a blank space of less than 4 seconds**  
After pressing **O REC MUTE**, press **|| PAUSE** at any time. The deck changes to recording pause. To resume recording, press **● REC** instead of **|| PAUSE**.

## Additional Information

### Precautions

#### On safety

- Do not disassemble the cabinet — this may result in an electrical shock. Refer servicing to qualified personnel only.
- Should any solid object or liquid fall into the cabinet, unplug the tape deck and have it checked by qualified personnel before operating it any further.

#### On power sources

- Before operating the tape deck, check that the operating voltage of the tape deck is identical with your local power supply. The operating voltage is indicated on the nameplate at the rear of the tape deck.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- If you are not going to use the tape deck for a long time, be sure to disconnect the tape deck from the wall outlet. To disconnect the AC power cord (mains lead), grasp the plug itself; never pull the cord.
- AC power cord must be changed only at the qualified service shop.

#### On operation

- Because of a safety mechanism, the function buttons will not operate if the cassette holder is not completely closed, if there is no cassette in the cassette holder, or if a cassette has been incorrectly inserted into the cassette holder.
- Be sure to stop the tape before turning off the tape deck. Otherwise, the tape may be damaged.

#### On placement

- Place the tape deck in a location with adequate ventilation to prevent heat build-up in the tape deck.
- Do not place the tape deck:
  - on a soft surface such as a rug that might block the ventilation holes on the bottom.
  - in a location near heat sources.
  - in a place subject to direct sunlight.
  - in an inclined position.
  - in a place subject to excessive dust or mechanical shock.

#### On cleaning the tape deck

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

If you have any questions or problems concerning your tape deck, please consult your nearest Sony dealer.

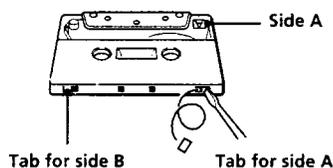
#### For the customers in the U.S.A.

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS."

## Notes on Cassette Tapes

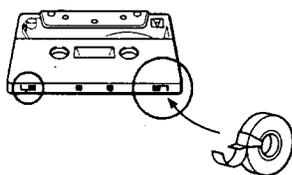
### To protect the recording

Break off the record-protect tab for side A or B.

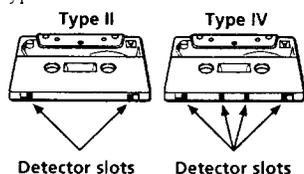


### To record on a tape having a broken tab

Cover the record-protect tab hole for side A or B with adhesive tape.



When you are using a type II or type IV tape, be careful not to cover the detector slots that the deck uses to determine the tape type.



### On tapes longer than 90 minutes

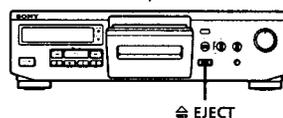
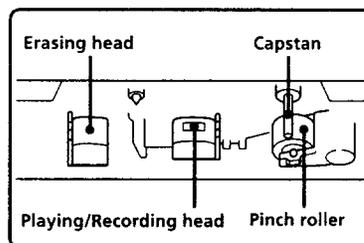
We do not recommend the use of tapes longer than 90 minutes except for a long continuous recording or playback. They are very thin and tend to be stretched easily.

### On handling cassettes

- To prevent the heads and tape path from getting dirty, avoid touching the tape surface of a cassette.
- Place cassettes away from equipment with magnets, such as speakers and amplifiers; it may cause tape distortion or erase the recordings.
- Do not expose cassettes to direct sunlight, extremely cold temperature or moisture.

## Cleaning

Inside of the cassette holder



### Cleaning the heads and tape path

Clean the heads and tape path of the tape deck after every 10 hours of operation to guard against:

- a decrease in sound level
- excessive wow or flutter
- sound dropout
- incomplete erasure

To ensure better recording, we recommend that you clean the heads and tape path before every recording.

- 1 Press EJECT to open the cassette holder.
- 2 With the tape deck turned off, wipe the heads, the pinch roller, and the capstan with a cotton swab slightly moistened with alcohol or a commercially available cleaning fluid for tape decks. Do not insert a cassette until the cleaned areas are completely dry.

### Demagnetizing the heads

After 20 to 30 hours of use, or when you notice a hissing sound or loss of high frequencies, demagnetize the heads with a commercially available demagnetizer for tape decks. Please refer to the instructions of the demagnetizer.

## Additional Information

### Troubleshooting

If you've experienced any of the following difficulties while using the tape deck, use this troubleshooting guide to help you remedy the problem. Should any problem persist, consult your nearest Sony dealer.

#### The function buttons do not work.

- ➔ The tape deck has just been turned on and does not operate for about 3 seconds. Wait until "II" stops flashing.
- ➔ Check that the cassette is inserted correctly and the cassette holder is closed completely.

#### The tape stops before the tape has been fully rewound.

- ➔ The tape is slack. Take up the tape slack.
- ➔ If "M" is shown in the display, press MEMORY repeatedly until the indication disappears.
- ➔ The cassette shell is bent. Use another cassette.

#### The tape deck does not play or record.

- ➔ The tape has reeled to the end.
- ➔ The tape is slack. Take up the tape slack.
- ➔ The record-protect tab has been removed from the cassette. Cover the slot with tape (page 11).
- ➔ Clean the heads and tape path and demagnetize the heads (page 11).
- ➔ Check that the tape deck is properly connected (page 4).
- ➔ Make sure the amplifier is correctly set.

#### There is excessive wow, flutter, or a sound dropout.

- ➔ The capstans and pinch rollers are dirty. Clean them (see page 11).

#### There is a decrease in sound level or a sound dropout./ The tape does not erase completely./Noise increases.

- ➔ The heads and tape path are dirty. Clean them (see page 11).
- ➔ The heads are magnetized. Demagnetize them (see page 11).

#### There is hum or noise.

- ➔ The tape deck is placed near a TV or VCR. Place the tape deck away from the TV or VCR.
- ➔ The tape deck is placed on or under the amplifier. Place the tape deck away from the amplifier.

#### There is an unbalanced tone.

- ➔ Check that the DOLBY NR control is set to the position where the tape was recorded.
- ➔ The tape deck is placed near a TV or VCR. Place the tape deck away from the TV or VCR.

#### The Multi-AMS function does not work properly.

- ➔ One of the tracks contains a long pause, a passage of low frequencies or very low volume, or a gradual increase or decrease in volume.
- ➔ The space before a track is less than 4 seconds long. Insert a blank space of 4 seconds using **REC MUTE** button.
- ➔ The signal strength of the left and right channels are very different.
- ➔ There is noise in the space before a track.
- ➔ You pressed **▶▶** button immediately before the next track, or **◀◀** button immediately after the beginning of the current track.

## Additional Information

### Specifications

#### System

##### Recording system

4-track 2-channel stereo

##### Fast winding time (approx.)

90 sec. (with Sony C-60 cassette)

##### Bias

AC bias

##### Heads

Erasing head × 1 (F&F head)  
Playing/Recording head × 1 (SD head)

##### Motors

Capstan motor × 1 (DC servo motor)  
Reel motor × 1 (DC motor)

##### Signal-to-noise ratio (at peak level, weighted, and with Dolby NR off)

Type I tape, Sony Type I (NORMAL): 55 dB  
Type II tape, Sony Type II (HIGH): 57 dB  
Type IV tape, Sony Type IV (METAL): 58 dB

##### S/N ratio improvement (approximate values)

With Dolby B NR on: 5 dB at 1 kHz, 10 dB at 5 kHz  
With Dolby C NR on: 15 dB at 500 Hz, 20 dB at 1 kHz  
With Dolby S NR on: 10 dB at 100 Hz, 24 dB at 1 kHz  
(TC-KE400S only)

##### Harmonic distortion

0.4% (with Type I tape, Sony Type I (NORMAL):  
160n Wb/m 315 Hz, 3rd H.D.)  
1.8% (with Type IV tape, Sony Type IV (METAL):  
250n Wb/m 315 Hz, 3rd H.D.)

##### Frequency response (Dolby NR off)

###### TC-KE400S/KE300

Type I tape, Sony Type I (NORMAL):  
30 - 15,000 Hz (±3 dB, IEC)  
20 - 16,000 Hz (±6 dB)

Type II tape, Sony Type II (HIGH):  
30 - 16,000 Hz (±3 dB, IEC)  
20 - 17,000 Hz (±6 dB)

Type IV tape, Sony Type IV (METAL):  
30 - 18,000 Hz (±3 dB, IEC)  
30 - 13,000 Hz (±3 dB, -4dB recording)  
20 - 19,000 Hz (±6 dB)

###### TC-KE200

Type I tape, Sony Type I (NORMAL):  
30 - 14,000 Hz (±3 dB, IEC)  
20 - 15,000 Hz (±6 dB)

Type II tape, Sony Type II (HIGH):  
30 - 15,000 Hz (±3 dB, IEC)  
20 - 16,000 Hz (±6 dB)

Type IV tape, Sony Type IV (METAL):  
30 - 15,000 Hz (±3 dB, IEC)  
30 - 13,000 Hz (±3 dB, -4dB recording)  
20 - 16,000 Hz (±6 dB)

#### Wow and flutter

±0.13% W. Peak (IEC)  
0.07% W. RMS (NAB)  
±0.18% W. Peak (DIN)

#### Inputs

##### Line inputs (phono jacks)

Sensitivity: 0.16 V  
Input impedance: 47 kilohms

#### Outputs

##### Line outputs (phono jacks)

Rated output level: 0.5 V at a load impedance of  
47 kilohms  
Load impedance: Over 10 kilohms

##### Headphones (stereo phone jack)

Output level: 0.25 mW at a load impedance of  
32 ohms

#### General

##### Power requirements

Where purchased	Power requirements
U.S.A.	120 V AC, 60 Hz
U.K. and Continental Europe	220 - 230 V AC, 50/60 Hz
Australia	240 V AC, 50/60 Hz
Other countries	110 - 120 V or 220 - 240 V AC, 50/60 Hz adjustable with the voltage selector

##### Power consumption

TC-KE400S: 20 W  
TC-KE300: 19 W  
TC-KE200: 19 W

##### Dimensions (approx.) (w/h/d)

430 × 120 × 310 mm (17 × 4<sup>3</sup>/<sub>4</sub> × 12<sup>1</sup>/<sub>4</sub> inches)  
incl. projecting parts and controls

##### Mass (approx.)

3.5 kg (7 lbs 11 oz)

##### Supplied accessories

Audio connecting cords (2)

##### Optional accessory

Remote commander RM-J710

For more information on the availability of the remote commander, contact your nearest Sony dealer.

Design and specifications are subject to change without notice.

## Additional Information

### Glossary

#### ATS

Automatic Tape Selection. The tape deck automatically sets the appropriate equalization characteristics and bias current according to the tape type inserted in the deck.

#### Automatic calibration

The automatic adjustment of the bias current and recording level for the inserted tape.

This adjustment works together with the deck's ATS (Automatic Tape Selection, see above) to get the best possible recording results on any tape.

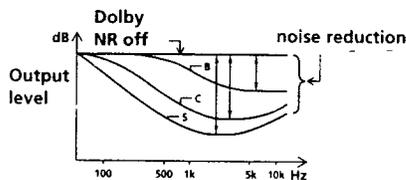
#### Dolby HX PRO system

Distortion and noise reduction system. The Dolby HX PRO system reduces distortion and noise in high-frequency response while recording. A tape recorded with this system brings the same high-quality sound even when you play the tape on the other tape decks.

#### Dolby NR (noise reduction) system

Noise reduction system for eliminating hissing noise. The Dolby NR system boosts the low-level signals in high frequency during recording and restores them during playback.

There are 4 types in the Dolby NR system: A, B, C and S. A-type is for professional use (not available on this tape deck), and B, C and S-types are for consumer use. S-type has the maximum noise reduction capability, followed by C and B.



#### MPX filter

Multiplex filter. A filter for eliminating the 19-kHz stereo carrier and the 38-kHz sub-carrier signals that may impair the Dolby NR system. Usually the tuner has an MPX filter. If you cannot get a satisfying result when recording FM broadcasts with Dolby NR system, your tuner does not have a filter or the filter is not working. In this case, turn the DOLBY NR switch counterclockwise to the position you want — B, C, or S (TC-KE400S only) with MPX FILTER.

#### Multi-AMS

Multi-Automatic Music Sensor is a function that locates the beginning of up to 30 tracks before or after the current track by detecting a blank space (of over 4 seconds) between tracks.

#### Tape counter

A four-digit readout for monitoring elapsed playing or recording time. Useful for editing tapes. Press RESET to zero the counter (00 00).

#### Test tones

15-kHz, 3-kHz and 400-Hz signals produced by the tape deck when you do the automatic calibration.

**Index**

**A**

- Adjusting
  - bias and recording level calibration automatically. *See* Automatic calibration
  - recording balance 7
  - recording level 6
- ATS 9, 14
- Auto play 8
- Automatic Music Sensor. *See* Multi-AMS
- Automatic calibration 9
- Automatic Tape Selector. *See* ATS

**B**

- Balance 7

**C**

- Cassette. *See* Tape
- Cleaning
  - cabinet 11
  - heads and tape path 11
- Connecting. *See* Hookups
- Counter. *See* Tape counter

**D, E, F**

- Demagnetizing the heads 11
- Dolby HX PRO system 7, 14
- Dolby NR system 5, 7, 14

**G**

- Glossary 14

**H**

- Heads
  - cleaning 11
  - demagnetizing 11
- Hooking up the system 4
- Hookups 4

**I, J, K**

- Insert
  - blank space 10
  - cassette 5, 6

**L**

- Locating
  - beginning of the tape 8
  - particular point 8
  - tracks 8

**M**

- Memory play 8
- MPX filter. *See* Multiplex filter
- Multi-AMS 8, 14
- Multiplex filter 7, 14

**N, O**

- Noise reduction 7, 14
- Notes on cassette tapes. *See* Tape notes

**P, Q**

- Playing
  - a tape 5
  - auto play 8
  - memory play 8
- Precautions 10

**R**

- Recording
  - on a tape 6
- Record muting 10

**S**

- Searching. *See* Locating
- Specifications 13

**T**

- Tape
  - counter 8, 14
  - notes 11
  - path cleaning 11
  - protect the recording 11
  - type 5, 6, 11
  - Test tones 9, 14
  - Troubleshooting 12

**U, V, W, X, Y, Z**

- Unpacking 4

**Names of Controls**

**Buttons**

- AUTO CAL 9
- MEMORY 8
- RESET 8
- ◀/▶ AMS 8
- ◀ (rewind) 5, 8
- ▷ (play) 5, 6, 8, 10
- ▶ (fast-forward) 5, 8
- ⏏ EJECT 5 - 7
- (stop) 5, 7
- ⏸ PAUSE 5 - 7, 10
- REC MUTE (record muting) 10
- REC (recording) 6, 10

**Switches**

- DOLBY NR (noise reduction) 5, 7
- POWER 5, 6

**Controls**

- BALANCE 7
- REC (recording) LEVEL 6

**Jack**

- PHONES 5

**Others**

- Cassette holder 5, 6