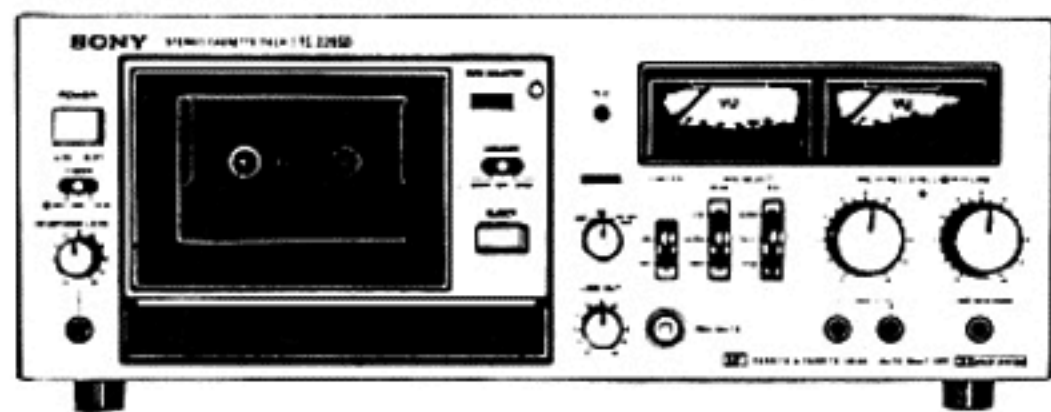


STEREO CASSETTE DECK

TC-229SD

**Owner's instruction manual****Page 2**

Before operating your new Sony stereo tape deck, please read this manual completely to become familiar with all its features and capabilities.

Keep this manual handy for future reference.

FEATURES

- Logic-controlled function buttons
- Two-motor, high-performance drive system
- Low wow and flutter due to a large fly-wheel
- Timer-activated recording and playback
- Record muting function useful for tape editing
- Full remote control operation with an optional Remote Control RM-30
- Dolby NR (Noise Reduction) system
- High-performance F & F (Ferrite and Ferrite) head
- Amplifier directly coupled to the playback head
- Memory stop and memory start

TABLE OF CONTENTS

Notes on operating voltage	2
Precautions	3
Function of controls	4
Connections	6
Recording	7
Playback	8
Erasing	8
Timer-activated recording and playback	9
Record muting operation	9
Memory counter operation	9
Mic and line mixing	10
Notes on cassettes	10
Maintenance	11
Specifications	12
Trouble checks	13

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.

NOTES ON OPERATING VOLTAGE

This instruction manual covers five models.
Note the following points.

	UK model	European model	Model other than UK, European and PX models	PX model in Europe (PX ₁)	PX model in other countries (PX ₂)
Operating power	110, 120, 220, 240 V AC~, 50/60 Hz				
Voltage adaptation	Refer to the separate sheet.				Consult your Sony dealer or Sony Service Station.

FOR THE CUSTOMERS IN THE UNITED KINGDOM

WARNING

This apparatus must be earthed at the terminals in your 3-pin plug as follows:

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow: Earth (safety earth)

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏏ or coloured green or green-and-yellow. 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.

PRECAUTIONS

On safety

- Before operating, be sure the operating voltage of your unit is identical with that of your local power supply.
- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- For the model other than the UK and European models, avoid removing the side boards due to safety regulations. If necessary, consult your nearest Sony dealer.

On installation

- Good air circulation is essential to prevent internal heat build-up in the unit. Place the unit in a location with adequate air circulation.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or mechanical vibration.
- Place the unit with the front panel facing toward you. Do not use it inclined.

On head cleaning

The best performance of your unit depends on the periodic cleaning of the heads and all surfaces over which the tape travels. Dirty heads and tape path cause:

- Loss of high frequency response
- Loss of sound volume
- Sound drop-out, etc.

Cleaning should be done every after 10 hours of operation. For details, see "Maintenance".

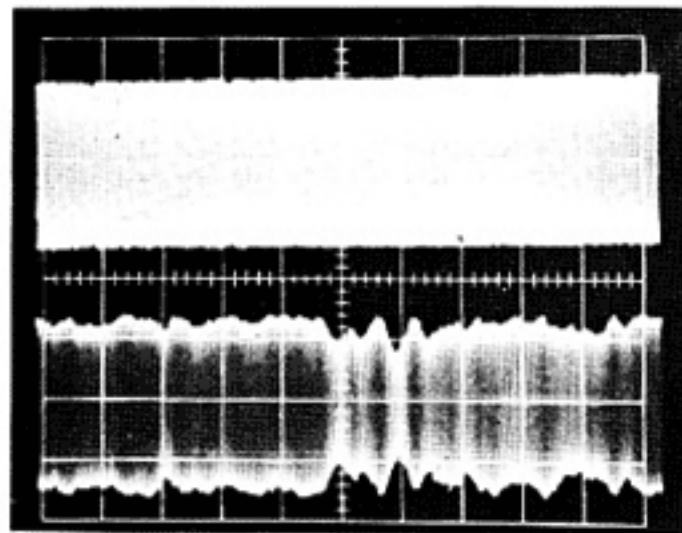
Playback waveform at 10 kHz



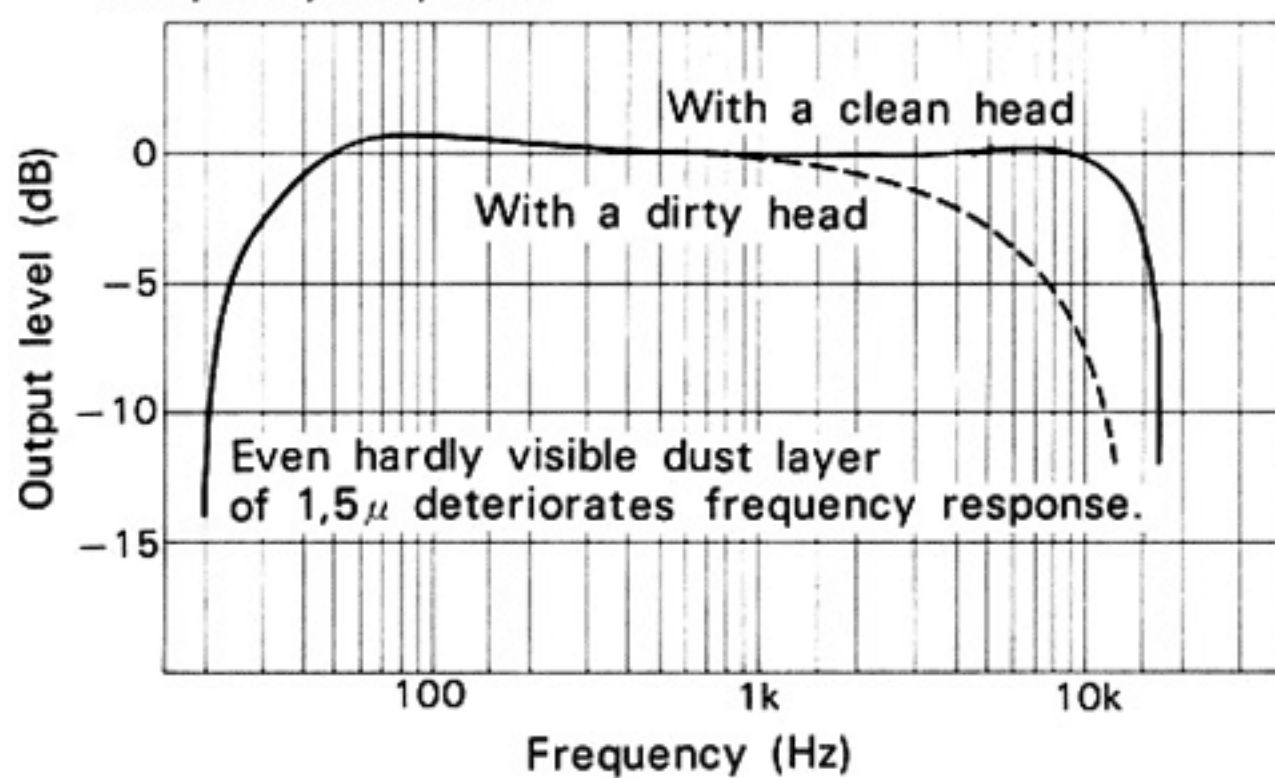
With a clean head



With a dirty head
(The output level fluctuates.)

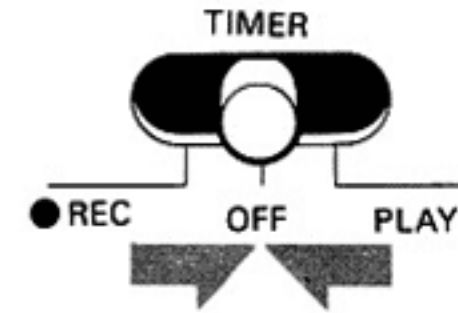


Frequency response



Others

- Before inserting a cassette, take up the slack of the tape to prevent it from becoming entangled around the capstan.
- Before depressing the POWER switch, check to see that the TIMER switch is set at OFF. This switch should be placed to REC or PLAY for timer-activated operation.

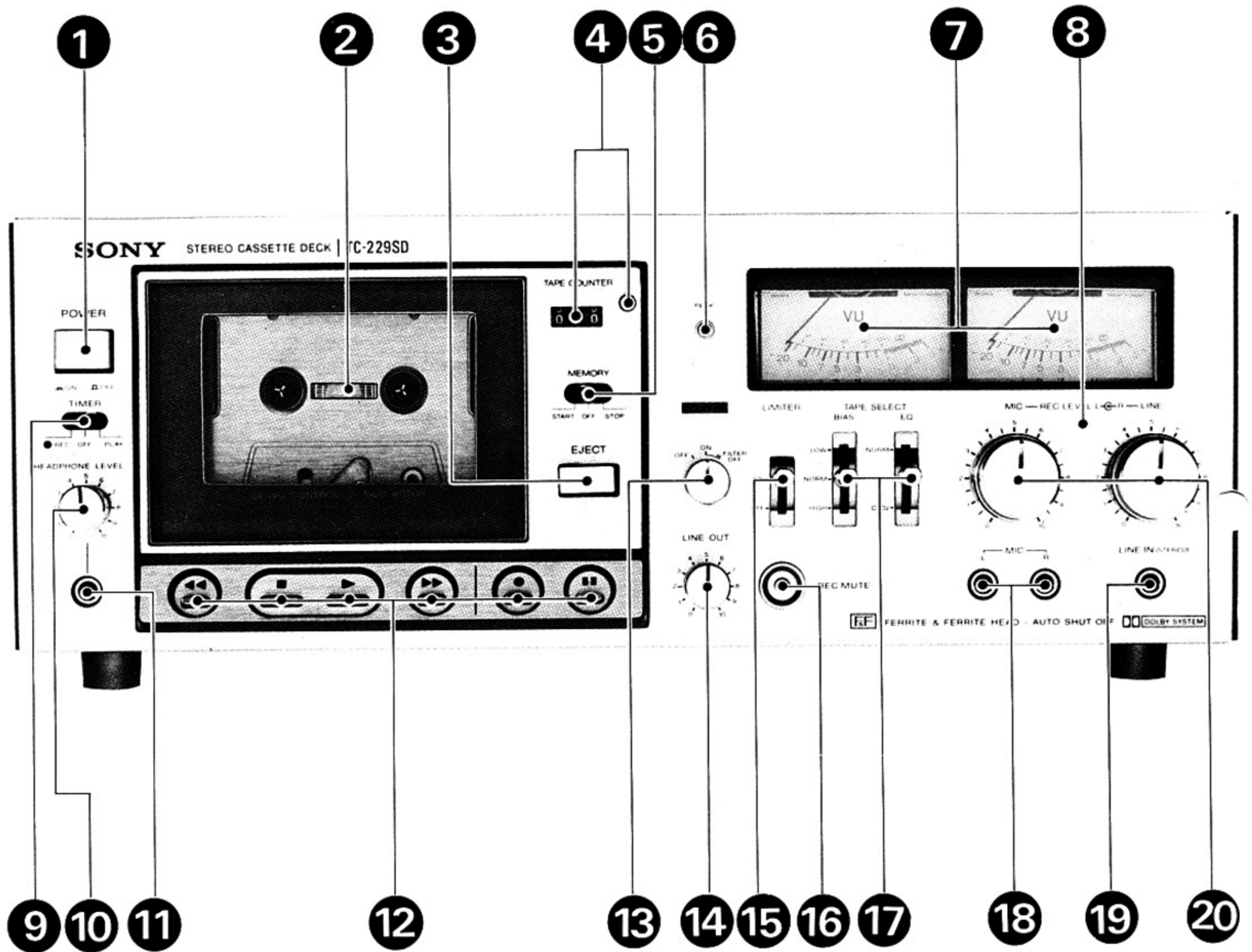


- The lamp in the holder lights up when the lid is closed fully. Until this lamp lights up, the tape does not move.
- Turn down the REC LEVEL controls (MIC and LINE) not in use while recording.



If you have any question or problem with your unit, please contact your Sony Service Station or Sony dealer.

FUNCTION OF CONTROLS



① POWER switch

This turns the power on or off. The VU meters will light up when the unit is turned on.

② Cassette holder lighting lamp

The lamp lights when the holder lid is closed completely. Until this lamp lights up, the tape does not move.

③ EJECT button

Depress this button to open the cassette holder lid. It cannot be depressed in recording and playback modes. Depression in fast-forward and rewind modes may damage the tape.

④ Tape counter and reset button

At start of recording, depress the reset button. The figures on the tape counter change as the tape passes. Note the counter number for later reference.

⑤ MEMORY switch

When the cassette is rewound to "000" of the tape counter (actually "999" in order to avoid cutting the starting point of the tape), the tape motion stops from rewind mode with the switch set at STOP position, or the replay from rewind will begin with the switch set at START position. (See "Memory counter operation" on page 9.)

⑥ PEAK level indicator

In recording mode, the indicator flashes in red corresponding to the extremely short high level pulses which the VU meters cannot follow.

⑦ VU meters

The meters show the input level of each channel during recording and recorded level in the playback mode.

⑧ Record indicating lamp

This lamp will light up when the tape deck is in recording mode.

⑨ TIMER switch

Automatic recording and playback at any desired time is possible using a commercially available timer. For recording, set the switch at REC position (the red lamp will light up); for playback, set the switch at PLAY position. (See "Timer-activated recording and playback" on page 9.)

Be sure to set the switch at OFF position when the timer is not used. Otherwise the previous recording will be erased if the power is turned on with the TIMER switch set at REC position.

⑩ HEADPHONE LEVEL control

This control adjusts the output level of headphones. At "0" position, the sound can be heard slightly.

⑪ Headphone jack

Insert low impedance headphones to monitor the input signals to be recorded or to listen to playback sound. The volume can be adjusted with the HEADPHONE LEVEL control.

⑫ Function buttons

Rewind button [◀◀]: Depress this button for rewinding the tape.

Stop button [■]: To stop the tape motion, depress this button.

When a tape is all wound in any operating mode, the motor will stop automatically.

Forward button [▶]: Depress this button for playing back the tape. For recording, depress this button and the ● button simultaneously.

Fast-forward button [▶▶]: Depress this button for fast winding of the tape.

Record button [●]: To start recording, depress this button and the ▶ button simultaneously.

Pause button [||]: To momentarily pause during recording or playback, depress this button. To restart, depress it again.

13 DOLBY NR* switch

Through the Dolby NR (Noise Reduction) record/playback process, tape hiss (offensive noise involved in tape itself in high frequency) which occurs during recording, is reduced and signal-to-noise ratio is remarkably improved.

During recording, low-level high-frequency signals are boosted and the recording level is separated as far as possible from the noise threshold.

During playback, the same boosted signals are attenuated in a complementary way. As a result, noise level is reduced by the same amount as the boosted signal level.

With Dolby NR process

ON: For recording FM stereo broadcasts. The multiplex filter eliminates 19 kHz pilot signal and 38 kHz subcarrier carried on FM broadcasts which otherwise may affect Dolby characteristics.

Also use this position for playing back any Dolby recorded tape.

FILTER OFF: For recording programs other than FM stereo broadcasts, such as discs or programs through microphones.

Also use this position for playing back any Dolby recorded tape.

Without Dolby NR process

Set the switch to OFF position in recording and playback modes.

14 LINE OUT level control

The output level of the tape deck phono jacks and REC/PB (DIN) jack can be set to correspond accurately to the output level of other sources connected to the amplifier. We recommend that the FM or phono mode be used as a reference level. While adjusting, do not change the volume control of the amplifier. At "10", the output level is rated 0.775 V (0 dB) and at "0", 77.5 mV (-20 dB).

The control does not correspond to the VU meters and the output level of the headphone jack.

15 LIMITER switch

Set this switch at ON position after setting the recording level, the limiter circuitry operates only when a sudden high input signal is introduced preventing tape saturation. Use this switch when recording programs containing high level bursts which might be distorted.

16 REC MUTE switch

While holding this switch depressed (it cannot be locked) in recording mode, you can short-circuit unwanted program sources like broadcasting commercials, thus keeping moderate interspace between recordings. During this time, the tape keeps traveling, pointers of the VU meters deflect, and you can monitor the signals from headphones and LINE OUT jacks. (See "Record muting operation" on page 9.)

17 TAPE SELECT switches

BIAS: Select the optimum bias current for the tape to be used in recording mode. This switch does not affect playback.

EQ: Select the correct equalization characteristics for the tape to be used in both recording and playback modes.

18 MIC jacks

Any low-impedance microphone equipped with a phone plug may be used. If your microphone is equipped with a mini plug, a plug adaptor for converting to phone plug is required.

19 LINE IN (STEREO) jack

Use this stereo binaural jack as an auxiliary input for recording

from another tape deck or tuner, etc. If the LINE IN jacks on the rear panel are engaged at the same time, you can only record through this jack.

20 REC LEVEL controls

These controls adjust the recording level. The inner knob is for the right channel and the outer for the left channel.

The MIC controls adjust the recording level from the MIC jacks and REC/PB (DIN) jack.

The LINE controls adjust the level from the LINE IN jacks on both front and rear panels.

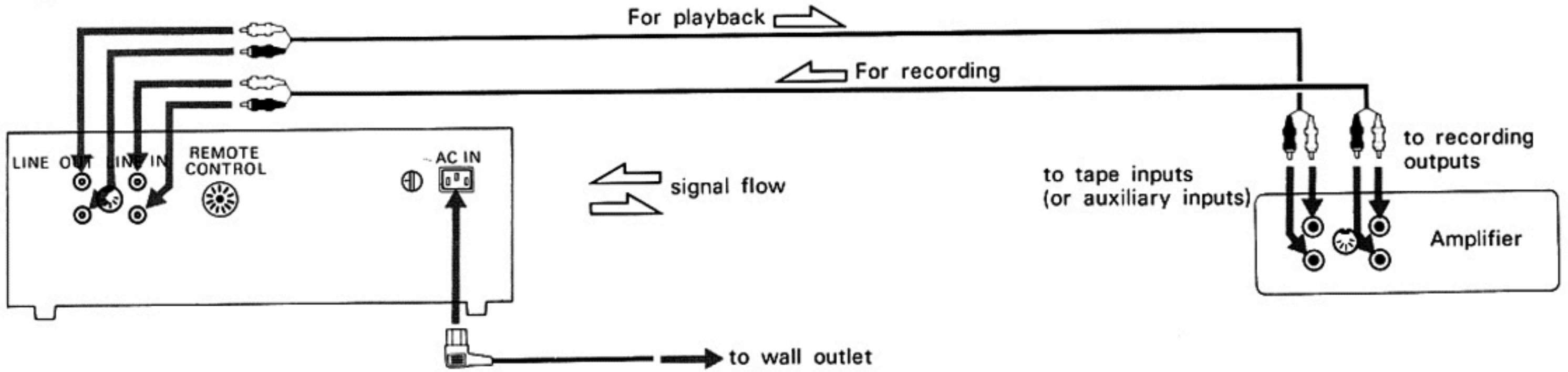
* "Dolby" and double-D symbol are trade marks of Dolby Laboratories Inc. Noise reduction system manufactured under license from Dolby Laboratories Inc.

CONNECTIONS

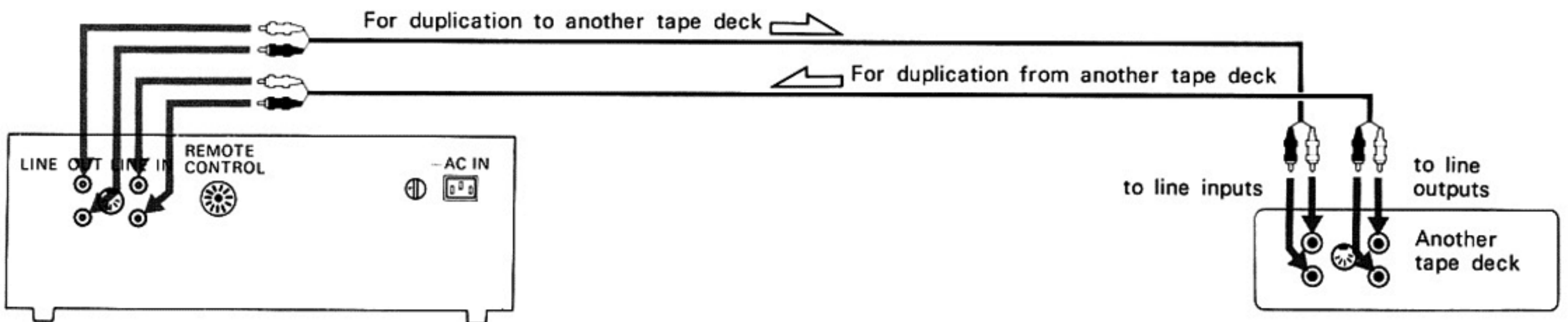
- Turn off the amplifier before making connections.
- Insert the cable connectors completely into jacks. Loose connections may cause hum and noise.

- The red plug of the supplied connecting cord should be connected to the right channel and the gray plug to the left channel.
- First plug the AC power cord to the ~ AC IN, then to a wall outlet.

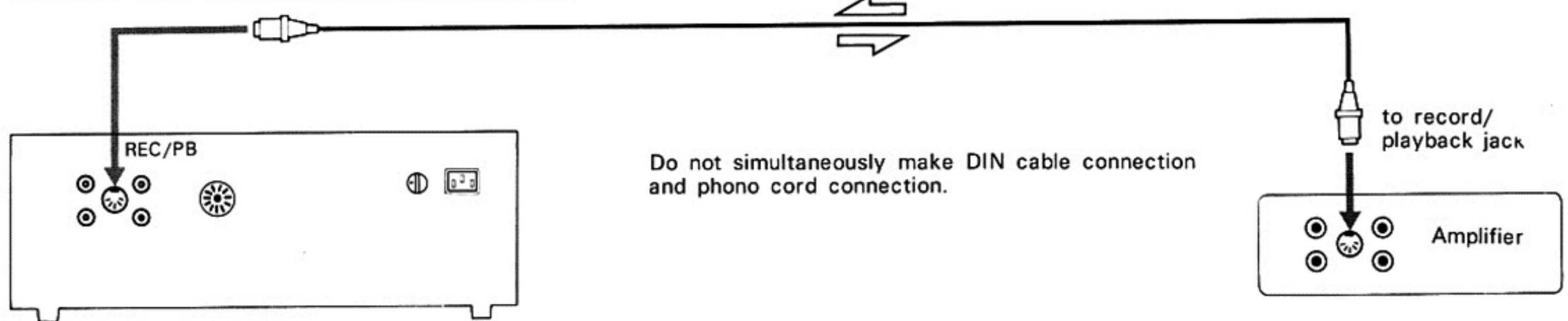
Amplifier connection



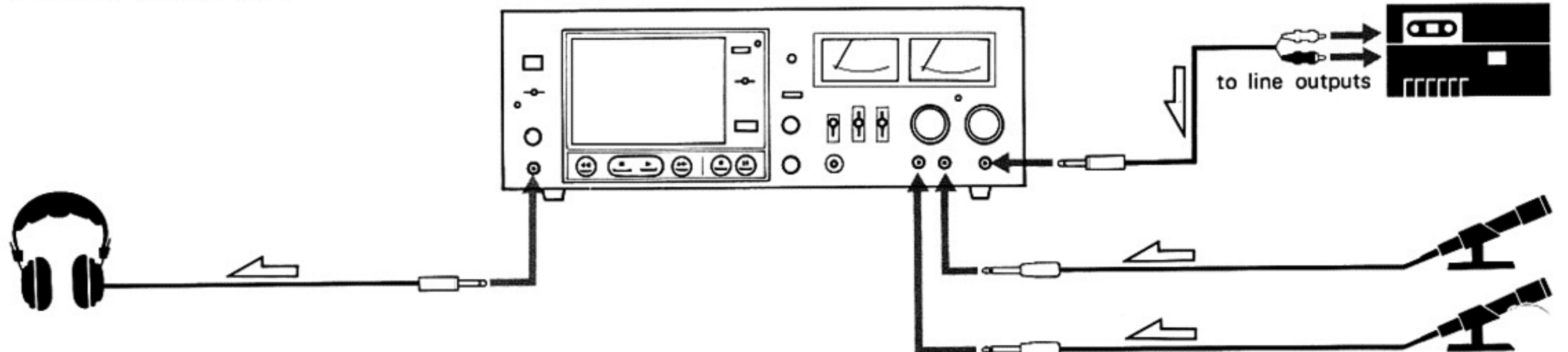
Tape duplication connection



Single DIN cable connection for recording/playback



Connection on front panel



RECORDING

REMOTE CONTROL connector

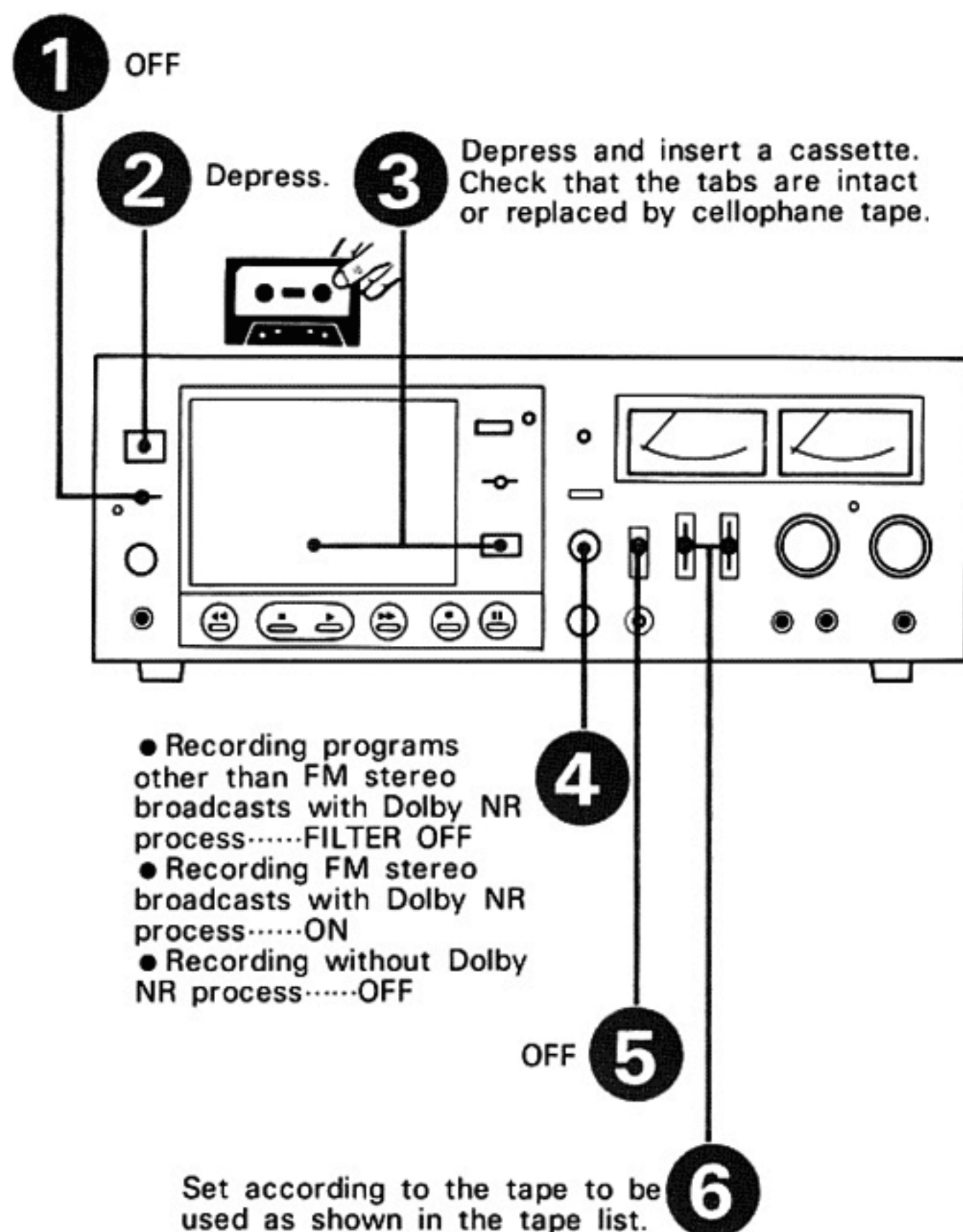
Connect the Remote Control RM-30 (optional) to this connector. Any operation will be possible with this unit. The tape deck function buttons are also operative if the RM-30 is connected. Read the RM-30 instruction manual before using it.

REC/PB (DIN) jack

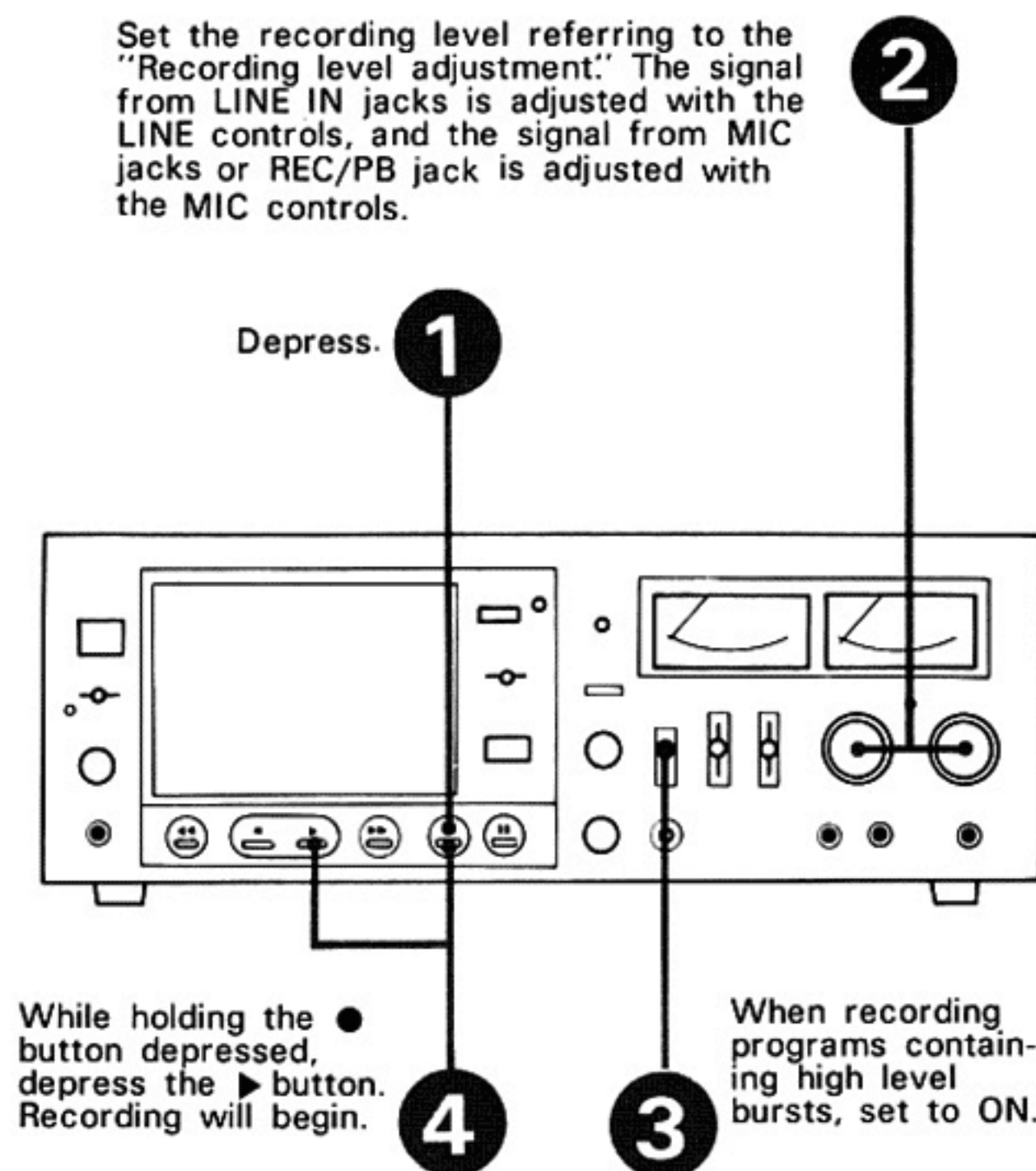
There are two possibilities of the amplifier connection, by supplied phono (RCA) connecting cords and a single 5-pin DIN connecting cable. Note the following points:

- The phono cord connections are recommended, since it will result in better signal-to-noise ratio.
- Connection between amplifier DIN jack and phono jacks of the tape deck is not recommended, since their input and output sensitivity and impedance are not correctly matched.
- When recording through the REC/PB jack, be sure to disconnect any input source from the MIC jacks. If both REC/PB and MIC jacks are engaged, only mic signals will be recorded.
- To directly connect both tape deck DIN jacks, a DIN cable for tape duplication is required.

Set the controls as the numbers go before adjusting the recording level.

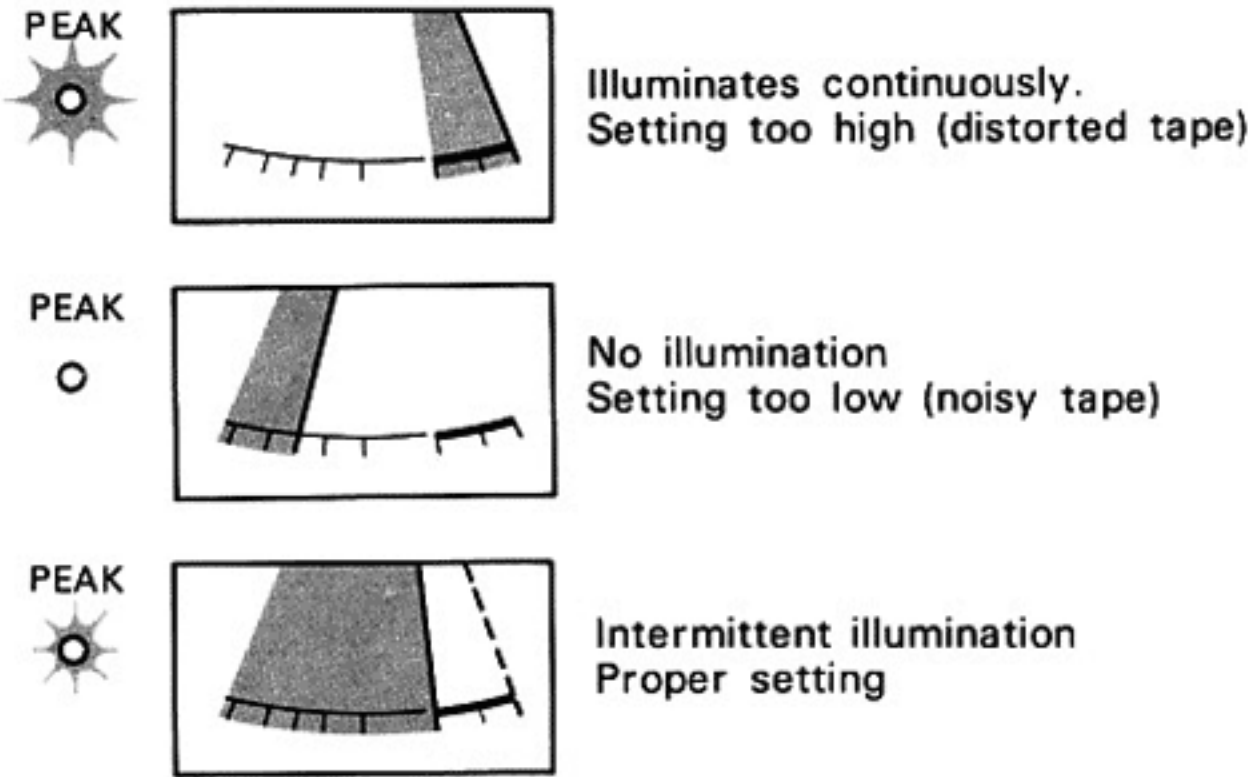


Follow numbered diagram. Recording will begin.



Recording level adjustment

High recording level is recommended to reduce annoying tape noise, but overloaded and distorted tapes could result if the level is too high. Generally, recording level should be adjusted so that the pointers of the VU meters deflect as fully as possible with minimum triggering or flashing of the PEAK level indicator. This indicator follows the transient peaks of occasional high levels of input that cannot be measured by conventional VU meters.



Tape BIAS/EQ recommendations

The following list shows our recommended settings, which have been determined through critical listening tests and electrical characteristic measurements on commercially available cassettes. The setting could be changed to your preference. For Sony cassette, be sure to use the recommended settings to obtain the optimum tape characteristics.

Tapes (C-60 and C-90)	BIAS	EQ
AGFA (LH) BASF (LN, LH) SCOTCH (LH, LD) TDK (D, SD) MEMOREX (low-noise) AMPEX (low-noise)	LOW	NORM
SONY (low-noise, HF) AGFA (Super HD) BASF (LH super) TDK (ED) MAXELL (LN, UD, UD-XL)	NORM	NORM
SONY (Ferri-Chrome) SCOTCH (CLASSIC)	NORM	Fe-Cr
SONY (CR) TDK (SA) Other Chromium Dioxide Cassettes	HIGH	CrO ₂

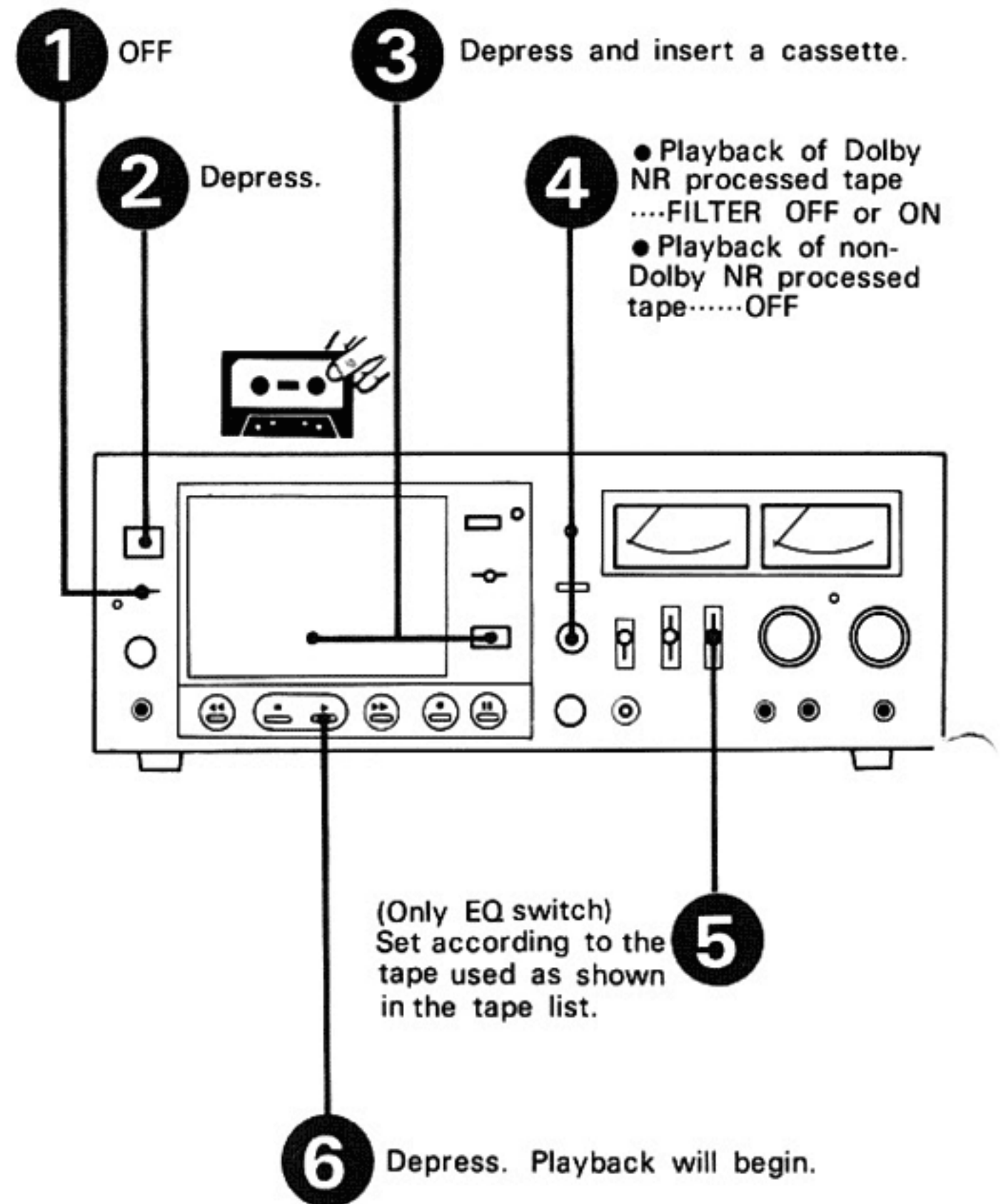
Smoother start of recording

Smoother starts are possible by using the pause button to begin recordings. After step 6 of the recording section, proceed as follows:

- 7 Depress the button.
- 8 While holding the button depressed, depress the button.
- 9 Adjust the recording level. If necessary, set the LIMITER switch to ON.
- 10 Just before you want to start recording, depress the button again to start tape travel. Now recording starts.

PLAYBACK

Follow numbered diagram. Playback will begin.



ERASING

When the tape deck functions in recording mode, the erase head operates and any previous material is erased automatically.

To erase the recorded contents without recording:

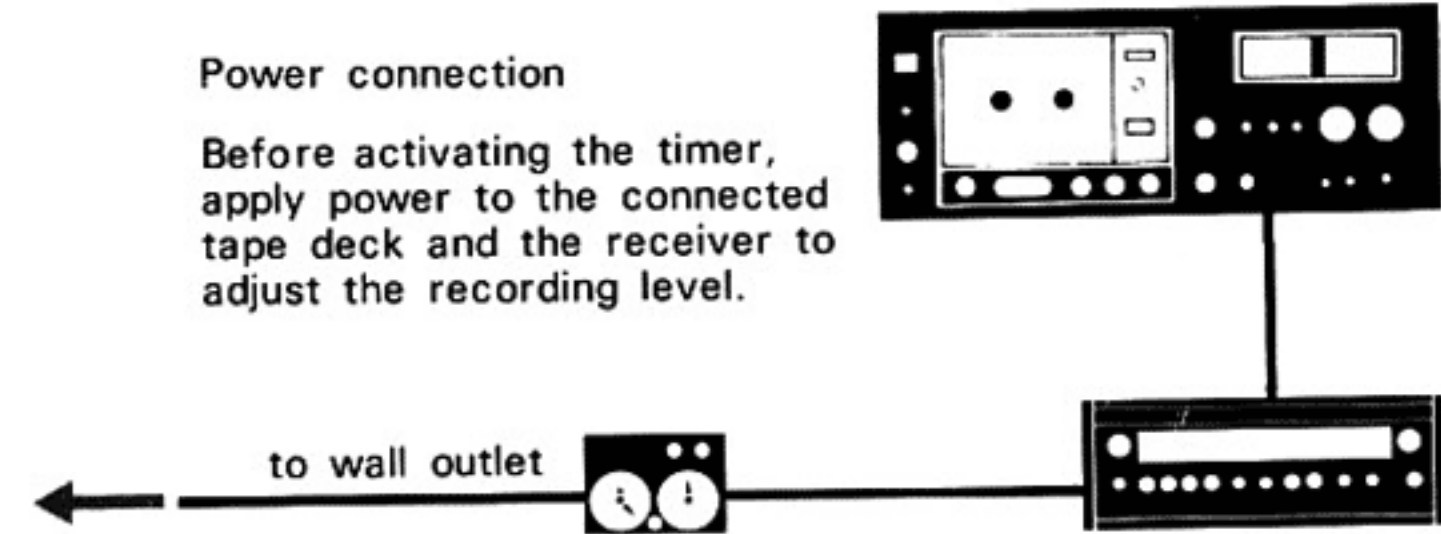
- 1 Make sure that the tab of the cassette is intact or is replaced by cellophane tape.
- 2 Set the REC LEVEL controls (both MIC and LINE) fully to (Disconnection of all the inputs will result in more complete erasing.)
- 3 Set the BIAS switch to HIGH.
- 4 While holding the button depressed, depress the button.

TIMER-ACTIVATED RECORDING AND REPLAYBACK

Automatic recording and playback at any desired time is possible using a commercially available timer. Continual operation may be accomplished with a timer designed to turn the deck on and off any number of times.

Recording

- 1 Make power connection between the tape deck, receiver and timer.



- Before activating the timer, apply power to the connected tape deck and the receiver to adjust the recording level.
- 2 Apply power and turn on the receiver and tune in the station or program to be recorded.
 - 3 Set the tape deck TIMER switch to OFF.
 - 4 Insert a cassette. Note that erasure-proof tabs are intact or replaced by cellophane tape.
 - 5 Turn on the tape deck and adjust the recording level.
 - 6 Activate the timer for the desired time. (At this stage, power is interrupted to all the equipment in link.)
 - 7 Set the tape deck TIMER switch to REC. The tape deck is now ready for automatic start of recording at the timer-set time.

Playback

- 1 Connection for playback is the same as that for recording.
- 2 Set the tape deck TIMER switch to OFF
- 3 Insert the recorded tape.
- 4 Turn on the tape deck, and set the amplifier controls for reproduction.
- 5 Set the timer for the desired time. (At this stage, power is interrupted to all the equipment in link.)
- 6 Set the tape deck TIMER switch to PLAY. The tape deck is now ready for automatic start of playback at the timer-set time.

Notes

- 1 Read the instruction manual of the timer carefully before using it.
- 2 The TIMER switch is designed to trigger the timer-activated operation for the first time after the power is ON and inoperative when the operation sequence is reversed. However in the latter case, if a moderate time (more than 1.5 seconds) is not allowed after the power is ON, the TIMER switch may mistrigger the timer operation. To avoid this, never handle the TIMER switch once it is set to REC or PLAY.

RECORD MUTING OPERATION

During the recording of FM broadcasts, you can short-circuit unwanted program sources like broadcasting commercials by using the REC MUTE switch.

When this switch is held depressed, the tape keeps traveling, but the record head is inoperative. The signals are therefore not recorded on the tape, and thus a moderate interspace is left between recordings.

- 1 When a tune is finished, depress the REC MUTE switch. Hold it depressed for about 3 or 4 seconds (this switch cannot be locked).
- 2 Next, lock the **||** button and release the REC MUTE switch.
- 3 Just before the next tune starts, depress the **||** button to release. Now the recording will begin again. Repeat these steps.

Notes

- While the REC MUTE switch is depressed, pointers of the VU meters deflect and the signal source can be monitored through headphones and LINE OUT jacks
- This switch is useful not only for FM broadcast recording but also for tape editing: Keeping interspaces between tunes of a disc, making blanks for recording any other material afterwards.

MEMORY COUNTER OPERATION

The MEMORY switch is used for precise program re-location, whether at the very beginning of the side or far into the recorded tape.

- 1 Locate a desired starting point and depress the reset button to register this starting point ("000" shown).
- 2 Set the MEMORY switch as follows.
START: to replay the tape from rewind
STOP: to stop the tape from rewind
- 3 Play (or record) the tape.
- 4 Depress the **◀◀** button to rewind the tape. The tape motion stops or plays back automatically at the tape counter reading "999" (one count before the "000" in order to avoid cutting the starting point of the tape).

Notes

- To rewind the tape further than the "999" point, depress the **◀◀** button again.
- When using memory counter feature (for replay) from the very beginning of the tape, depress the reset button after about ten counter winding of the tape. Otherwise, the tape counter does not reach "999" when being rewound, and the memory function does not operate.
- If you keep depressing the **◀◀** button all the way to "999", the tape does not stop (or does not replay) at the tape counter reading "999". This occurs because the tape is still in the rewind mode.

MIC AND LINE MIXING

Mixing may be accomplished with four independent LINE (for LINE IN jacks) and MIC (for MIC and REC/PB jacks) level controls. Fade-in/fade-out techniques will provide more creative and professional recordings.

- 1 Connect the source programs to their respective input jacks
- 2 Adjust the recording level by turning the respective controls. The VU meters indicate the composite recording level. Headphone monitoring will help set the level for mixing.
- 3 Start recording.

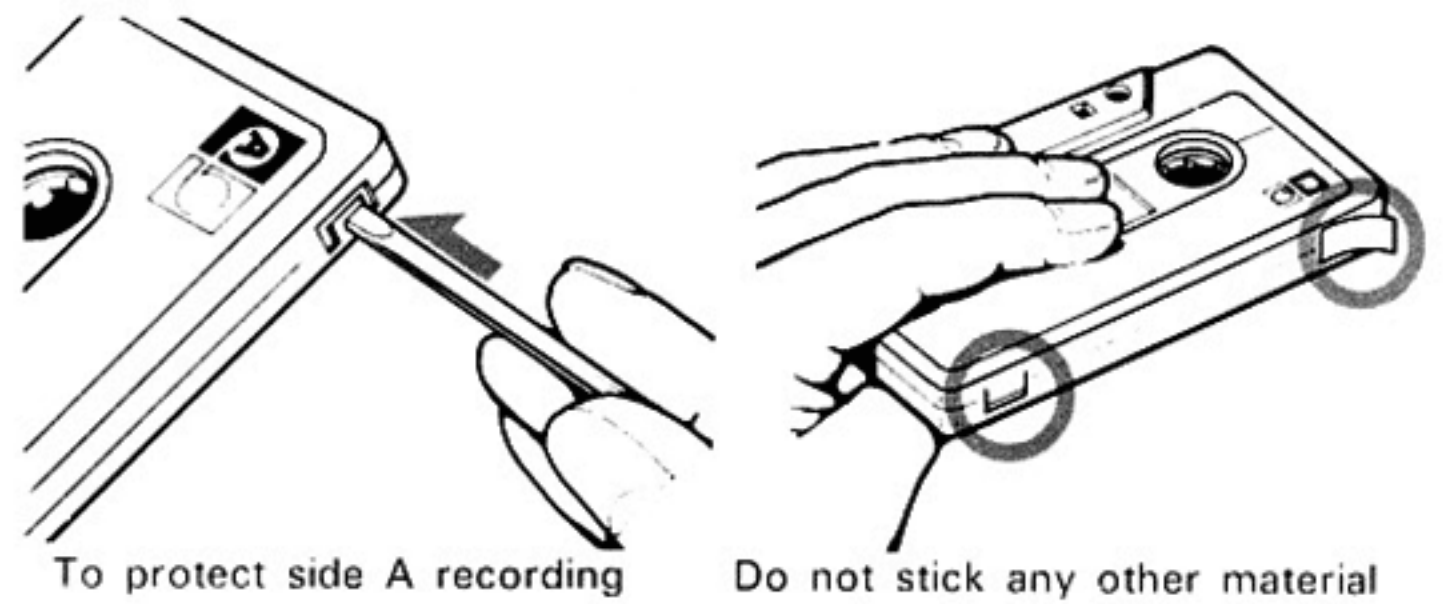
Notes

- Mixing through the REC/PB (DIN) jack and MIC jacks is not possible.
- When mixing is finished, do not forget to turn the level control not in use fully to "0".

NOTES ON CASSETTES

To protect recording from accidental erasure

Remove the tab as illustrated so that the record button cannot be depressed. To record on a cassette whose tabs have been removed, simply cover the slot with cellophane or vinyl tape.



Cassette care

- Before inserting a cassette, take up the slack of the tape to prevent it from becoming entangled around the capstan.
- Avoid touching the tape surface of a cassette, as any dust may cause contamination of the heads.
- Protect cassettes from dust by storing them in their cases. Even minor dirt or dust could cause contamination of the heads resulting in noise and sound drop-outs.
- Keep cassettes away from magnetic equipment such as speakers, amplifier, etc., as erasure or distortion on your recorded tape could occur.
- Do not expose a cassette to direct sunlight, extremely cold temperature or moisture.
- Avoid fast-winding just before storing a cassette tape, as this may cause stretching of the tape edge if it is left over a period of time.
- Do not stick thick paper or tape to the cassette, as this may affect proper cassette alignment and disturb good tape contact with the head.

What cassette to use

This unit is preadjusted at the factory using Sony Ferri-Chrome Cassette, Sony Chromium Dioxide Cassette and Sony HF Cassette. All commercially available cassettes perform well with this unit, but for optimum recording and playback results, we recommend Sony cassettes.

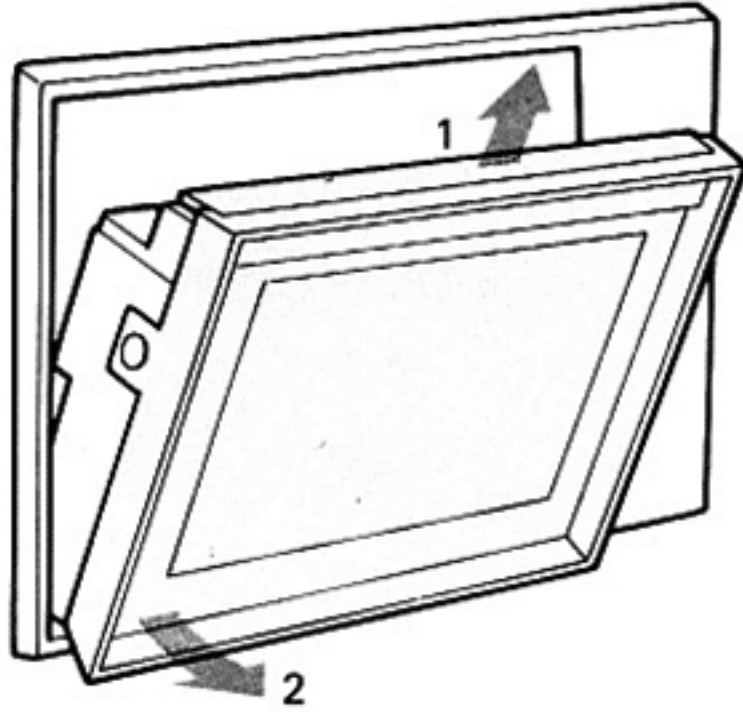
The letter A on the Sony cassette is embossed to help you distinguish that side of the cassette in a dimly lighted area.

MAINTENANCE

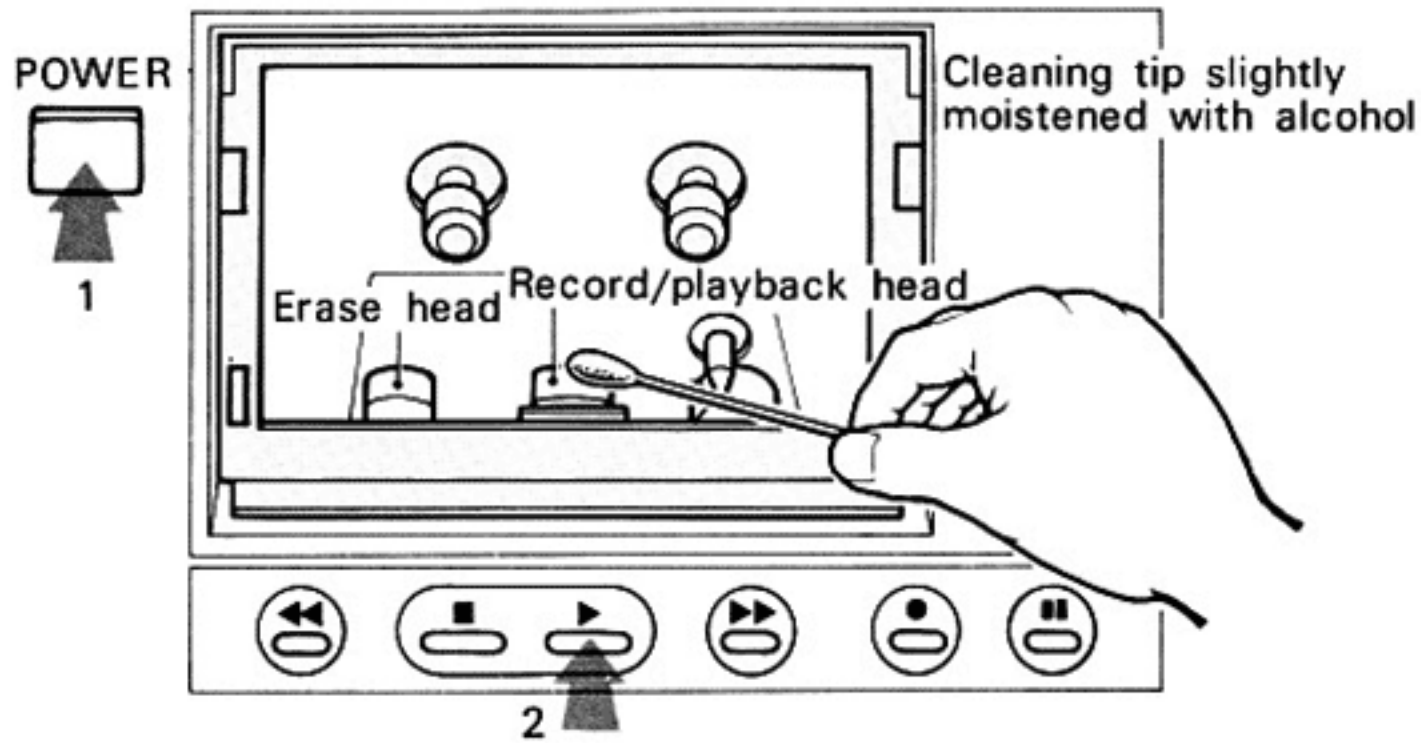
Cleaning of heads and tape path

Generally, cleaning after every 10 hours of operation will be sufficient. However, all surfaces over which the tape travels should be cleaned before making high quality recordings.

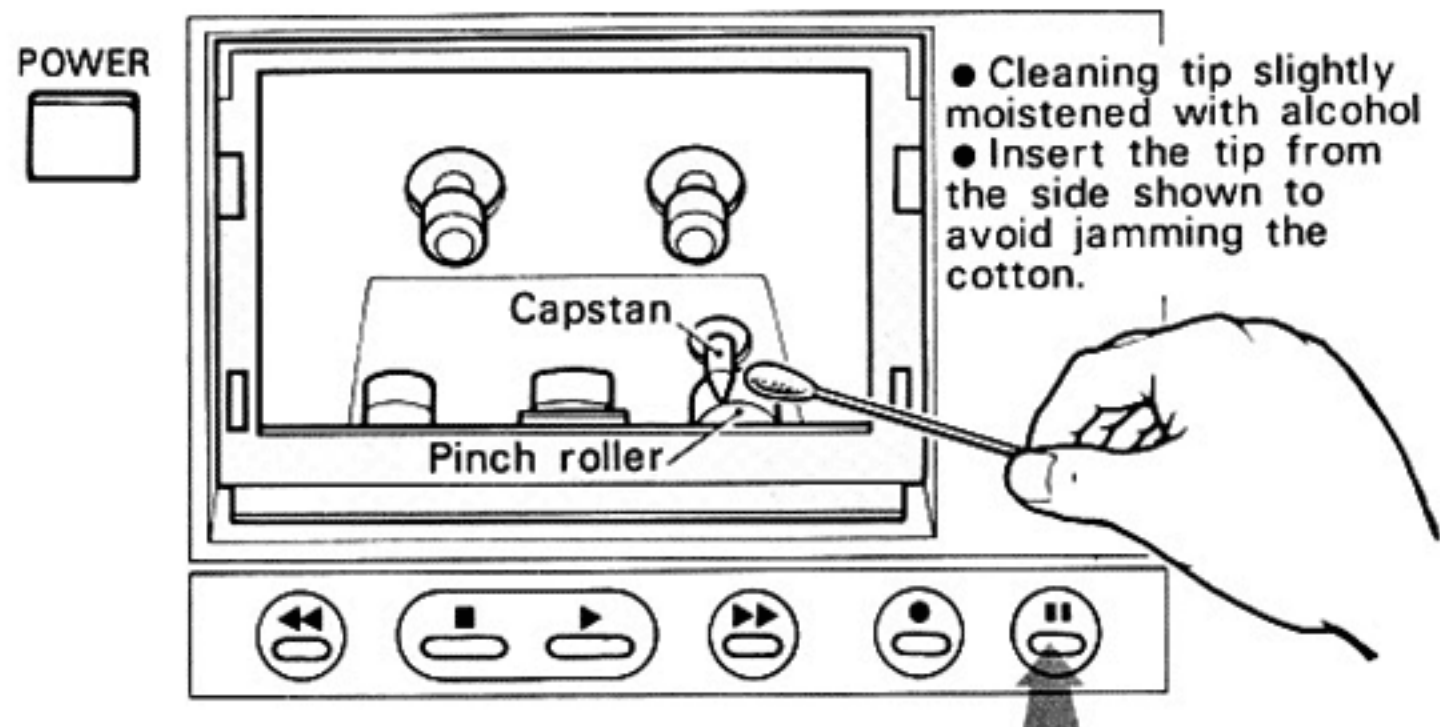
- 1 Depress the EJECT button to open the cassette holder and remove the lid.



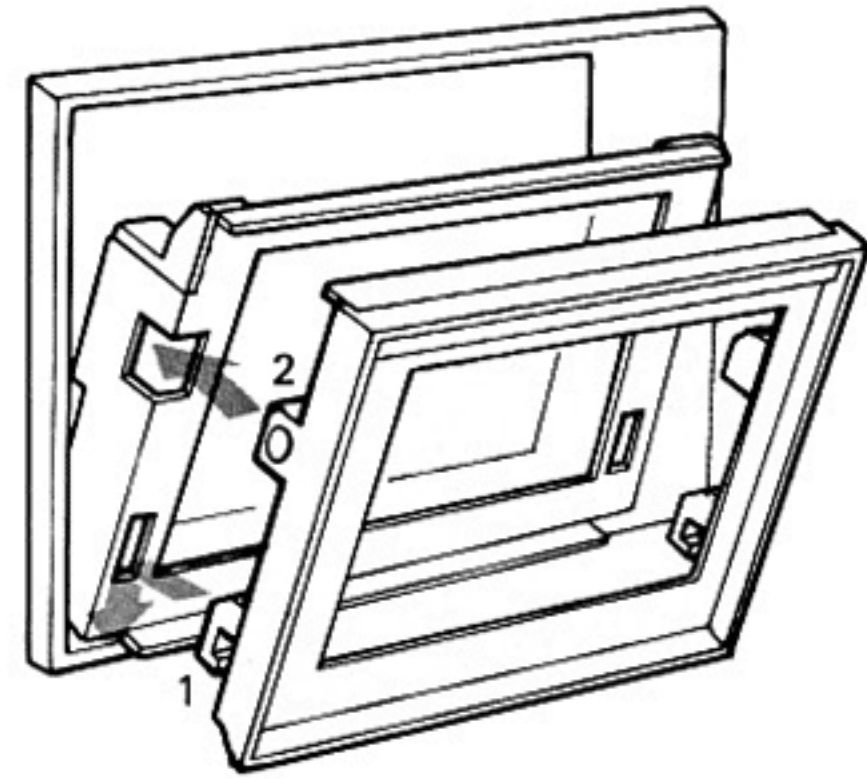
- 2 Push the frame in.
- 3 Set the POWER switch to ON. Depress the ▶ button and wipe the heads.



- 4 Wipe the pinch roller as illustrated. Then depress the ■ button and wipe the capstan.



- 5 When the cleaning is finished, depress the ■ button.
- 6 Depress the EJECT button to replace the lid.



- Do not insert a cassette until the alcohol on the cleaned parts gets dry completely.

Demagnetizing heads

Residual magnetism will gradually build up on the heads through continuous use and cause erasure of high frequencies and hiss build-up. The heads and metallic parts of the tape path should be demagnetized after 20-30 hours of operation with a commercially available head demagnetizer. Be sure the unit is turned off.

Cleaning cabinet

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild soap solution. Do not use any type of scouring powder or solvent such as alcohol or benzene.

Inside check

Consult your nearest Sony Service Station or Sony dealer once a year to maintain optimum performance.

SPECIFICATIONS

Power requirements	110, 120, 220 or 240 V AC ~, 50/60 Hz
Power consumption	PX ₂ model : 26 W Other models : 35 W
Semiconductors	2 ICs, 90 transistors, 71 diodes, 1 LED, 1 FET
Fast-forward and rewind time	Approx. 70 sec. (by C-60)
Recording system	4-track 2-channel stereo
Bias frequency	105 kHz
Signal-to-noise ratio	DOLBY NR OFF • With Ferri-Chrome cassette 60 dB at peak level (NAB) 59 dB (DIN, 1975 rev.) 51 dB (DIN, old) • With chromium dioxide cassette 56 dB at peak level (NAB) DOLBY NR ON Improved by 5 dB at 1 kHz, 10 dB above 5 kHz
Total harmonic distortion	1.3%
Frequency response	DOLBY NR OFF • With Ferri-Chrome cassette 20-18,000 Hz (NAB) 30-16,000 Hz ±3 dB (NAB) 30-16,000 Hz (DIN) • With chromium dioxide cassette 20-17,000 Hz (NAB) 30-15,000 Hz ±3 dB (NAB) 30-15,000 Hz (DIN) • With regular cassette 20-15,000 Hz (NAB) 30-13,000 Hz (DIN)
Wow and flutter	0.06% WRMS (NAB) ±0.12% (DIN)
Inputs	Microphone inputs (phone jacks) 2 sensitivity 0.2 mV (-72 dB) for a low-impedance microphone Line inputs (stereo binaural jack) 1 (phono jacks) 2 sensitivity 0.06 V (-22 dB) input impedance 100 k ohms
Outputs	Line outputs (phono jacks) 2 output level 0.775 V (0 dB) at load impedance 100 k ohms with LINE OUT level control at "10" suitable load impedance more than 10 k ohms Headphone output 1 for low impedance headphones
Record/playback jack	Input impedance less than 10 k ohms Output impedance less than 10 k ohms
Dimensions	UK and European models Approx. 430 × 170 × 310 mm (w/h/d) (17 × 6 3/4 × 12 1/2 inches) Other models Approx. 465 × 170 × 310 mm (w/h/d) (18 3/8 × 6 3/4 × 12 1/2 inches) including projecting parts and controls
Weight	UK and European models Approx. 10.5 kg (23 lbs 3 oz) Other models Approx. 11 kg (24 lbs 4 oz)
Supplied accessories	Connecting cord RK-74H (2) Head cleaning tips (1 set)

While the information given is correct at the time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications. We please ask you to check with your appointed Sony dealer if clarification on any point is required.

TROUBLE CHECKS

The following chart will help correct most problem which may occur with the unit.

Before going through the check list below, first pay attention to the following fundamental points.

- The power cord must be connected firmly.
- Connection to the amplifier must also be firm.
- Heads, capstan and pinch roller should be cleaned.
- The amplifier controls and switches should be set correctly.

FUNCTION BUTTONS AND TAPE PATH

Tape does not move after the POWER switch is ON, though the function buttons are depressed.

- Push the desired function buttons approximately three seconds after the POWER switch is ON. When less than this time interval is taken, logic-controlled function buttons do not work.

Recording or playback begins as soon as the POWER switch is ON.

- The TIMER switch is misplaced at either REC or PLAY.

The EJECT button cannot be depressed.

- This button is inoperative in recording and playback modes.
- The tape does not move even when function buttons are depressed.

- The **II** button is depressed.
- The cassette holder lid is not closed fully.

The automatic shut-off mechanism activates just after depressing the ► button.

- The tape is completely wound onto the right reel.

The tape deck does not function even when the ● button is depressed.

- No cassette in the holder
- The tabs are removed from the cassette.

Tape running noise is loud in rewind or fast-forward mode.

- This depends on the cassette used and not a problem.

The automatic shut-off mechanism activates before the end of the tape.

- The tape is slack.
- The MEMORY switch is set to STOP.
- This depends on the cassette used.

RECORDING OR PLAYBACK

Recording or playback cannot be made. (or decrease in sound level)

- Contamination of the record/playback head
- Improper connection
- The LINE OUT control is set to "0".
- Improper setting of the amplifier controls

Recording cannot be made from LINE IN jacks on the rear panel.

- The LINE IN jack on the front panel is connected.

Too much wow or flutter or drop-out

- Contamination of the capstan or pinch roller

Increase of noise or erasure of high frequencies

- Magnetic build-up on the head

Insufficient erasure

- Contamination of the erase head

Unbalanced tone in higher frequencies

- Improper setting of the DOLBY NR switch
- The TAPE SELECT switches should be set properly. If recorded in the wrong position, adjust the tone of the amplifier in playback.

HOWLING OR HUM NOISE

Oscillation occurs when trying to record from the amplifier.

- Amplifier input selector is set at AUX position while the unit is connected to amplifier AUX jacks. Change the amplifier input selector to the recording source position.

Oscillation occurs when trying to record from microphones.

- The microphone is too near the speaker. Keep the microphone away from the speaker or reduce the amplifier volume.

Hum noise

- The tape deck is stacked just on or below the amplifier.

Click noise may occur while the ● button is depressed or the tape is running.

- This is the noise of the tape-end detect switch, but is not a problem.