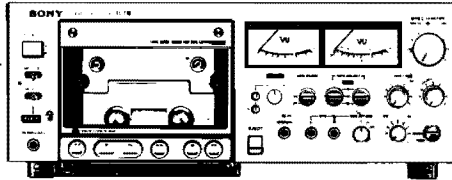


STEREO ELCASET DECK


EL-7



Owner's instruction manual

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

Keep this manual handy for future reference.

 ⇔ Look for this mark on all products manufactured under the ELCASET standard.

OWNER'S RECORD

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

Model No. EL-7 Serial No. _____

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.

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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.

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.
- The tape deck is designed for vertical operation only.
- Avoid removing the side boards due to safety regulations. If necessary, consult your nearest Sony dealer.

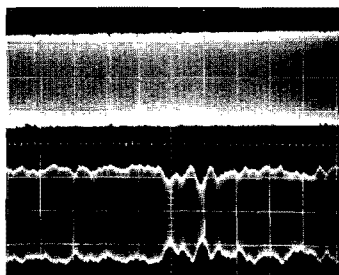
On head cleaning

The best performance of your tape deck depends on your 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.

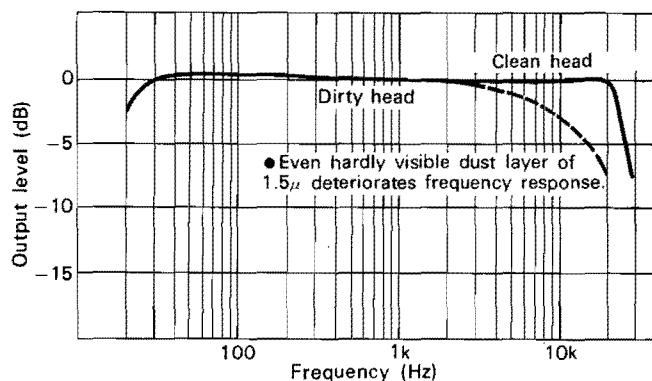
Cleaning should be done every after 10 hours of operation. For details, see "Maintenance" on page 12.

Playback waveform at 10 kHz



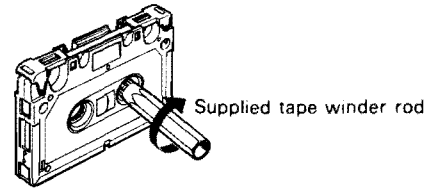
By clean head

By dirty head
The output level fluctuates.

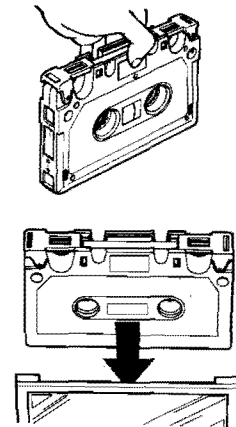


On ELCASET

- Before inserting the ELCASET, use the supplied tape winder rod and take up the slack of the tape as shown to prevent it from becoming entangled around the capstan.



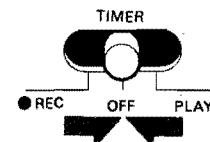
- Hold the ELCASET as illustrated and face the tape surface up when inserting it in the tape deck. Avoid touching the tape surface or pulling it out of the tape housing.



For more information on the ELCASET, see pages 13 and 14.

Other important points to remember

- Before depressing the POWER switch, check to see that the TIMER switch is set at OFF. This switch should only be placed to REC or PLAY for timer-activated operation.

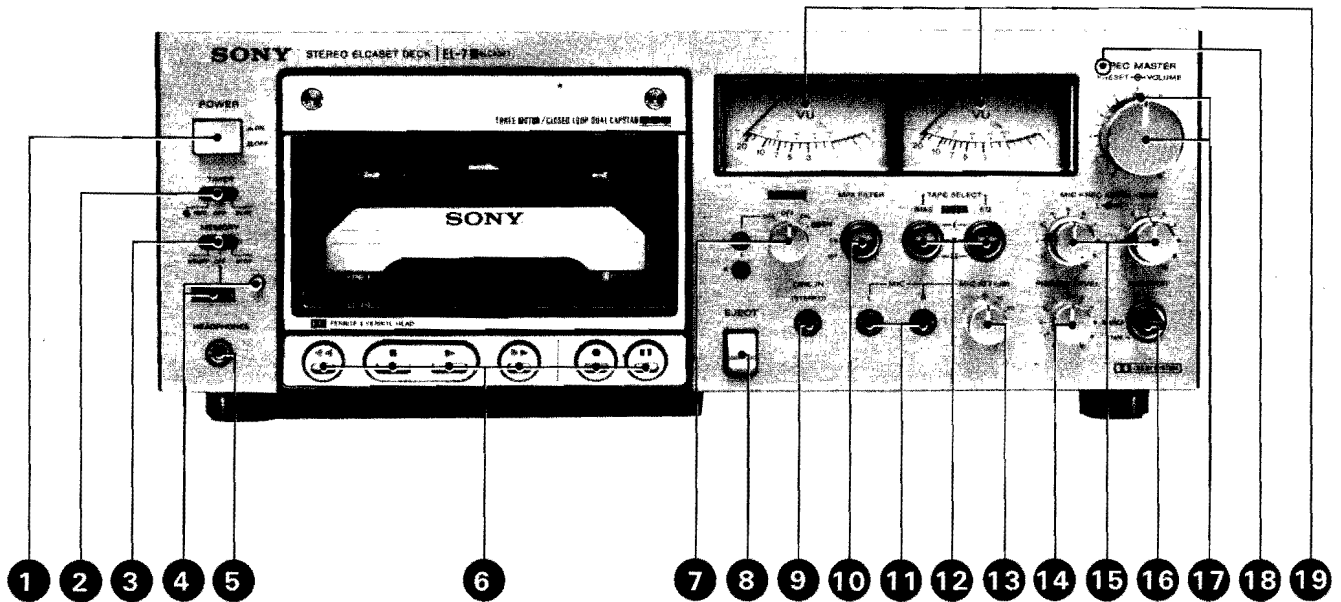


- Gently close the lid of the ELCASET holder to its locked position to protect the tape from damage.
- The EJECT button cannot be depressed while the tape is in operating mode.
- Turn down the REC LEVEL controls not being used while recording.



- Never misplace the DOLBY NR switch. Place it to CAL only for Calibration Level Adjustments and to ON or OFF for Dolby or non-Dolby NR recording.

LOCATION AND FUNCTION OF CONTROLS



❶ POWER switch

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

❷ TIMER switch

This permits automatic recording or playback at any desired time by using a commercially available timer. For recording, set the switch to the REC position (the red lamp will light up); for playback, set the switch to the PLAY position. (See "Timer-activated recording and playback" on page 11.)

● Be sure to set the switch to the OFF position when the timer is not used. Otherwise, with the TIMER switch set at REC position, the previously recorded material will be erased if the power is turned on.

❸ MEMORY switch

When the cassette is rewound to "000" of the tape counter (actually "999" in order to avoid cutting off the starting point of the tape), the tape motion stops from rewind mode with the switch set at STOP position, or will replay from rewind with the switch set at START position. (See "Memory counter operation" on page 11.)

❹ Tape counter and reset button

At the start of recording, depress the reset button (000). The figures on the tape counter change as the tape passes. Note the counter number for later reference.

❺ HEADPHONES jack

This jack accepts 8-32 ohm headphones to monitor the input signals being recorded, or to listen to playback of recorded material. The volume can be adjusted with the PHONES LEVEL control.

❻ 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 fully 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. Also, use this button for smooth start of recording. (See "Recording" on page 8.)

7 DOLBY NR switch*

FM: Use this position only when recording Dolby encoded FM broadcasts. For playback, set the switch to the ON position. (See "Recording Dolby encoded FM broadcasts" on page 10.)

ON: For recording and playback with Dolby NR process.

OFF: For non-Dolby NR processed recording and playback.

CAL: At this position, a fixed 400 Hz calibration tone is produced by the oscillator. While recording this tone, the tape sensitivity can be adjusted by setting the CAL controls so that the VU meters read "0 (CAL)". (See "Calibration level adjustment" on page 10.)

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

8 EJECT button

Depress this button to open the cassette holder lid. It cannot be depressed when the tape is in any operating mode.

9 LINE IN (STEREO) jack

Use this stereo binaural jack as an auxiliary input for recording from another tape recorder 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.

10 MPX FILTER switch

Set this switch to the ON position only when recording FM stereo programs with Dolby NR process and Dolby encoded FM programs. When recording other programs, set the switch to the OFF position. This switch is inoperative in playback mode.

11 MIC jacks

Any high-quality 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.

12 TAPE SELECT switches

On recording, set the EQ (for the correct equalization characteristics) and BIAS (for the optimum bias current) switches correctly according to the type of tape to be used. The type is indicated on the label of the ELCASET.

The switches have no effect upon the playback.

TYPE I for Sony SLH tape

TYPE II for Sony FeCr tape

TYPE III for CrO₂ type of tape

13 MIC ATT (attenuation) switch

This switch is useful for recording a large input signal on location (rock music, etc.) or when recording with a microphone close to the source without overloading recorder amplifier. It also eliminates having to set the REC LEVEL and REC MASTER controls too far downward. Set the switch to "15" or "30" when the pointers of the VU meters swing repeatedly over the 0 VU position even if the REC LEVEL and REC MASTER controls are set at a low level position. At "15" position, the input level is attenuated by one fifth (15 dB), and at "30" position, by one thirtieth (30 dB).

14 PHONES LEVEL control

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

15 REC LEVEL controls

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

The MIC controls adjust the record level from the microphones. The LINE controls adjust the level from the LINE IN jacks on either the front or rear panel. (See "Recording" on page 8.)

● When the REC MASTER control is set at "0" position, the input signal is completely reduced, and the record level cannot be adjusted with MIC or LINE controls.

16 MONITOR selector

For playback, set the selector to TAPE, and for record level adjustment, set it to SOURCE.

17 REC MASTER control and PRESET knob

This control adjusts the record level of both right and left channels simultaneously. (See "Recording" and "Use of REC MASTER control and PRESET knob" on pages 8 and 9.)

● When the REC LEVEL controls are set at "0" position, the input signal is completely reduced, and the record level cannot be adjusted with this control.

18 Record indicating lamp

This lamp will illuminate when the recorder is engaged in record mode.

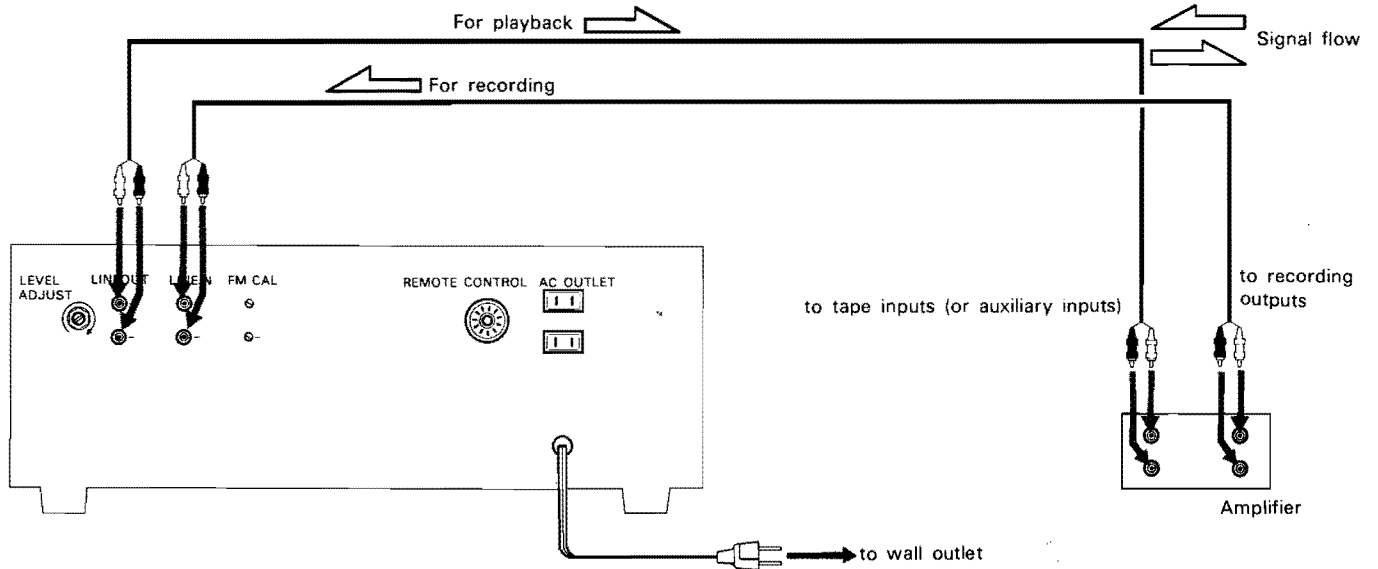
19 VU meters

With the MONITOR selector set to SOURCE, the meters indicate the input level while recording. When set to the TAPE position, the meters indicate recorded level being played back or monitor the level while recording. For correct record level setting, see "Record level adjustment" on page 8.

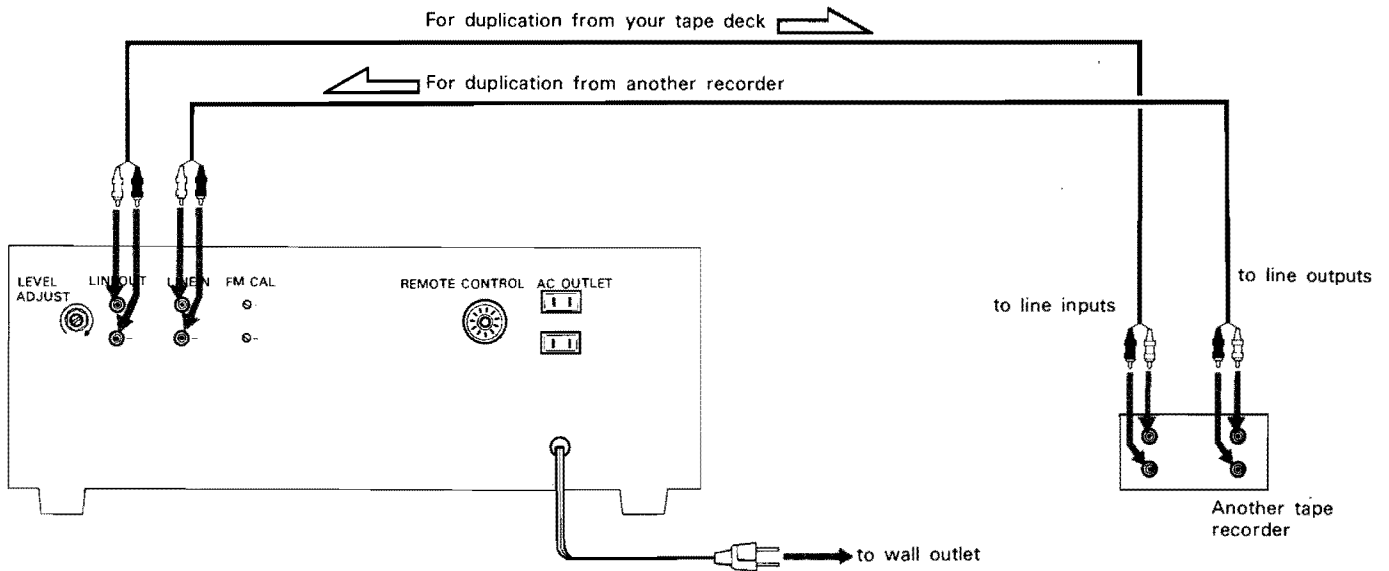
CONNECTIONS

- Be sure the amplifier is turned off while making connections.
- Insert the plugs 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 gray plug to the left channel.

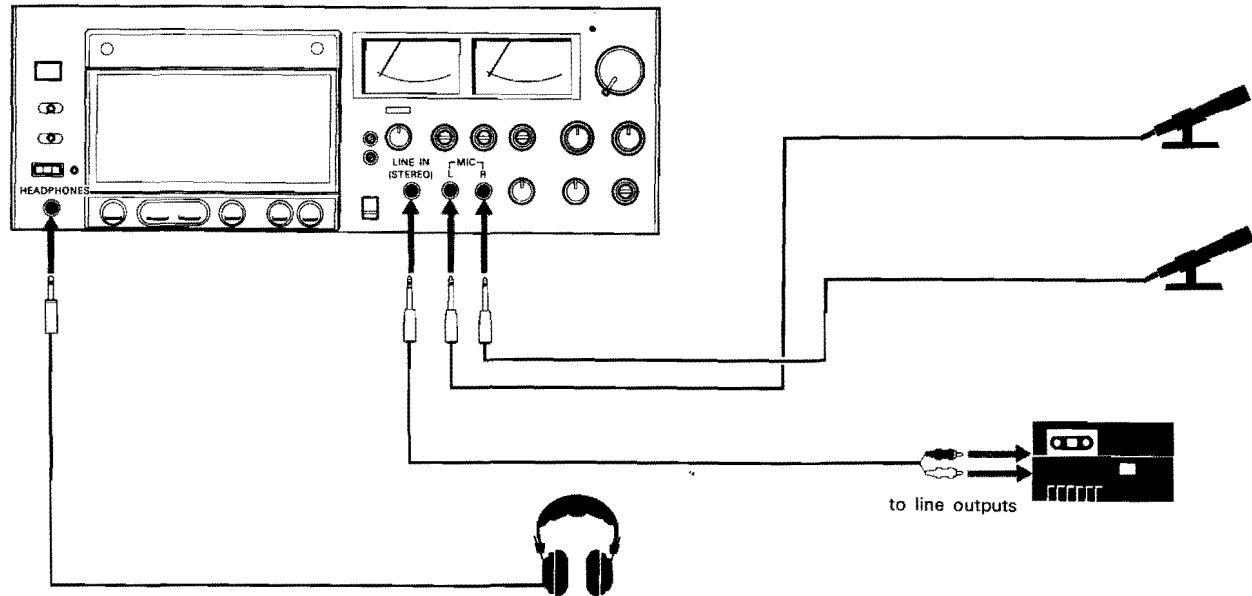
Amplifier connection



Tape duplication connection



Connection on front panel



LEVEL ADJUST control

The output level of the tape deck phono jacks can be set to correspond accurately to the output level of other sources connected to the amplifier. We recommend that you use either FM or Phono mode as a reference point. While adjusting, do not change the volume control of the amplifier. At the position turned fully clockwise, the output level is rated 0.775 V (0 dB). The control does not correspond to the VU meters.

REMOTE CONTROL connector

Plug the Sony RM-30 Remote Control unit (optional) in this connector. The RM-30 features "record muting"* as well as remote control operation. Read the RM-30 instruction manual before operating it with the tape deck.

*A device which is beneficial to short-circuit an unwanted program sources such as broadcasting commercials, thus allowing an interspace between the recordings.

FM CAL controls

When recording Dolby encoded FM broadcasts, set the record level with these controls. See "Recording Dolby encoded FM broadcasts" on page 10.

AC OUTLET

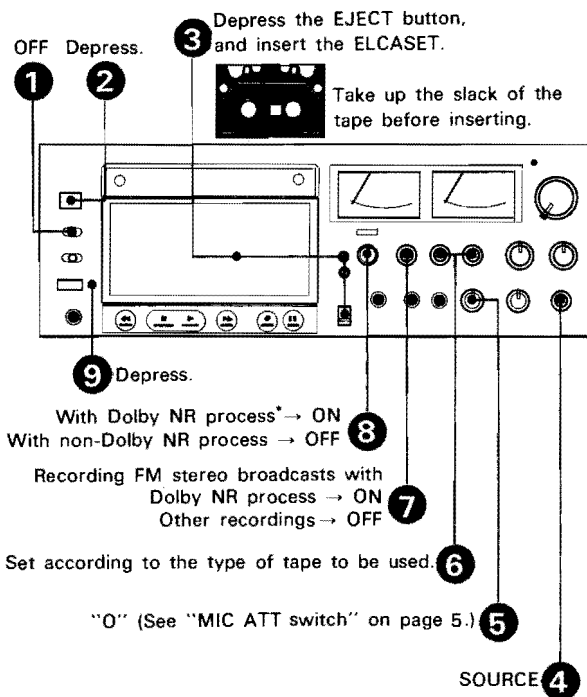
Use for the ac power supply of other audio components.

SWITCHED 200 W: Ac power is supplied only when the tape deck POWER switch is set on. Maximum consumption is 200 W.

UNSWITCHED 300 W: This outlet is not controlled by the tape deck POWER switch. Maximum consumption is 300 W.

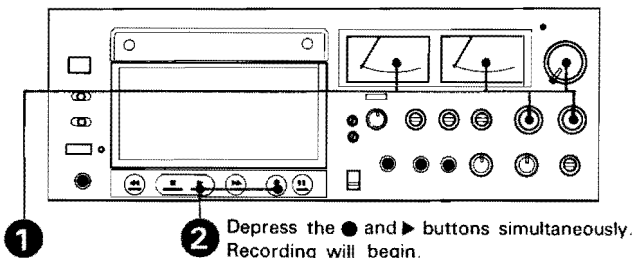
RECORDING

Set the controls in the order referenced below before adjusting the record level.



*Operation for recording Dolby encoded FM broadcasts is different in some steps. Refer to the "Recording Dolby encoded FM broadcasts" on page 10.

To record, follow the numbered diagram.



Set the record level as follows.

- 1) Set the REC MASTER control around 5-7 position.
- 2) Set the REC LEVEL controls so that the VU meters read about "0" with the maximum input signal. The signal from LINE IN jacks is adjusted with the LINE controls, and the signal from the MIC jacks is adjusted with the MIC controls.
- 3) If the fine adjustment is necessary, use the REC MASTER control.

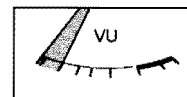
Using the pause [■] button when recording

You can start recording with greater ease by using the ■ button. Instead of the step ②, depress the ■ button first, then push ● and ► buttons simultaneously. To begin recording, depress the ■ button again, thus recordings will start smoothly.

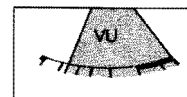
Record level adjustment

Generally the record level should be adjusted so that the pointers of the VU meters deflect as close as possible to 0 VU at the highest signal-level passage of the program to be recorded. The pointers may go over the 0 VU for an instance at a sudden high level burst, but this is not a problem. In the case of extreme short pulses, your ears are unable to recognize distortion. However, the VU meters do not follow transient peaks of short duration because of their inertia, and read much lower than the actual levels. Sometimes the input level of the short strong pulses may actually from +10 dB to +15 dB even if the meters read "0". You should be aware of this when recording programs containing short strong pulses.

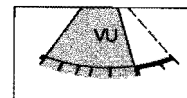
In order to verify the recording result, the record monitoring is used. This will disclose any deterioration of the sound introduces and assists you in adjusting the record levels.



Too low setting (noisy tape)



Too high setting (distorted tape)



Proper setting

Record monitoring

Using headphones, an immediate tape/source comparison is possible by setting the MONITOR selector of the recorder alternately to SOURCE (sound from source is heard) and to TAPE (sound from tape is heard an instant after it has been recorded).

If the amplifier connection is made through LINE IN and LINE OUT jacks, and the connected amplifier has a tape-monitor selector, this comparison is possible through the speakers by setting the MONITOR selector of the tape deck to TAPE and the monitor selector of the amplifier alternately to TAPE and SOURCE; or by setting the monitor selector of the amplifier to TAPE and the MONITOR selector of the tape deck to TAPE and SOURCE.

● While recording with a microphone, headphone monitoring is advisable since speaker monitoring may cause a howling effect.

PLAYBACK

Use of REC MASTER control and PRESET knob

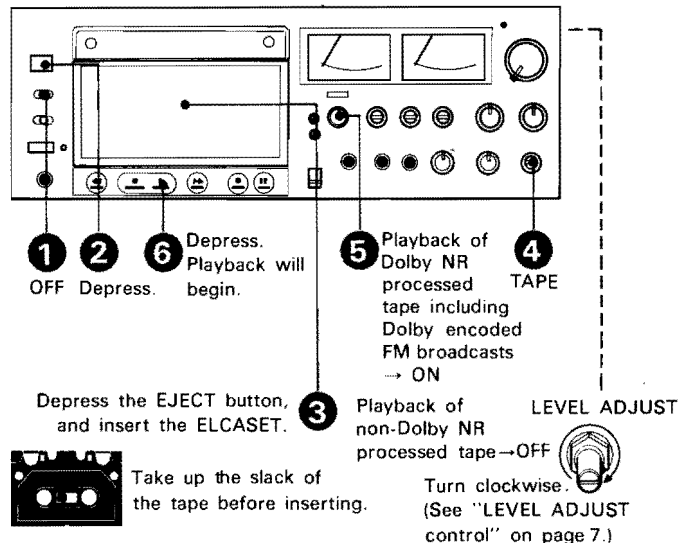
The REC MASTER control adjusts the record level of both left and right channels simultaneously. Once the REC LEVEL controls properly adjust the left and right record levels, the overall record level is easily adjusted with the REC MASTER control. Also the fine adjustment is possible. This facility is useful especially for recording FM broadcasts.

Your desired or standard record level is previously settled with the PRESET knob by turning it to the proper position with the REC MASTER control. Use this facility for disc recording (after setting down the stylus on the disc, turn the REC MASTER control to the preset position), or fade-in and fade-out effects (after starting to record, alternately turn the REC MASTER control gradually from "0" to the preset position and back again).

Recording a new material while the tape is in motion

The recorder may directly go from play to record while the tape is in motion. When playing back the tape, depress the ● button while pushing the ► button simultaneously. Recording will begin.

Follow the numbered diagram below to begin playback.



ERASING

When the tape deck is in the record mode, the erase head operates and previously recorded material is erased automatically. To erase a tape without adding a new recording:

- 1 Be sure that the erasure-proof tab is not slid down on the ELCASET.
- 2 Turn the REC MASTER control and all REC LEVEL controls fully to "0". (If all inputs are disconnected, more complete erasing will result.)
- 3 Set the BIAS switch according to the type of tape to be used.
- 4 Depress the ● and ► buttons simultaneously. Erasing will begin.

DOLBY NR RECORDING

DOLBY NR switch

Through the Dolby NR record-playback process, tape hiss (offensive noise of high frequency) which occurs during recording is reduced and signal-to-noise ratio is remarkably improved. During recording, the Dolby NR system boosts low-level high-frequency signals so that the quietest parts of the input signal are recorded louder than normal and maintains the record level away from inherent tape noise or tape hiss. During playback, the same boosted signals are attenuated in a complementary way and restores the music to its original level. As a result, noise level is reduced by the same amount as the boosted signal level. So the tape recorded with Dolby NR process should be played back with the DOLBY NR switch set at ON position.

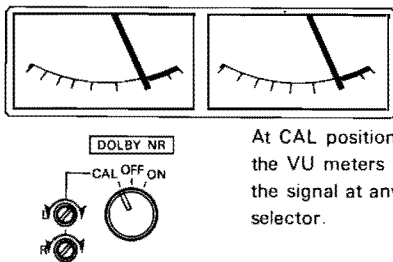
MPX FILTER switch

FM stereo broadcasts contain a 19 kHz FM pilot signal and a 38 kHz subcarrier which may affect Dolby characteristics. The multiplex filter eliminates these signals to activate the Dolby NR circuits correctly. When recording FM stereo programs with Dolby NR process, be sure to set the MPX FILTER switch at the ON position. For the other program recording, set the switch at the OFF position.

Calibration level adjustment

The CAL level, which compensates the tape sensitivity, is pre-adjusted at the factory using Sony tape. The level is automatically adjusted by the correct matching of the type of tape to be used and the TAPE SELECT switches. For more precise level adjustment, or for use of various other brands of tape, the CAL level readjustment is recommended. The Dolby characteristics are optimized by the correct record-playback Dolby level setting which is automatically adjusted correctly with the CAL level adjustment.

- 1 Insert the ELCASET.
- 2 Set the TAPE SELECT switches (EQ, BIAS) properly according to the type of tape to be used.
- 3 Set the DOLBY NR switch at CAL position. Then the 400 Hz calibration tone is produced.
- 4 While recording the 400 Hz tone, turn the CAL controls (L and R) so that the VU meters read "0 (CAL)" position.
- 5 The CAL level is now adjusted. Be sure to reset the DOLBY NR switch at ON or OFF position. Otherwise, the input signals are cut off internally.

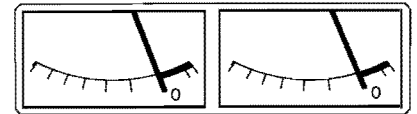


At CAL position of the DOLBY NR switch, the VU meters show the playback level of the signal at any position of the MONITOR selector.

RECORDING DOLBY ENCODED FM BROADCASTS

If your tuner is equipped with Dolby decoder, be sure to set the function selector to non-Dolby FM position before proceeding.

- 1 Insert the ELCASET.
- 2 Set the DOLBY NR switch to FM.
- 3 Set the MPX FILTER switch to ON.
- 4 Set the TAPE SELECT switches (EQ, BIAS) properly according to the type of tape to be used.
- 5 Set the MONITOR selector to SOURCE.
- 6 Adjust the record level while receiving the Dolby Level calibration tone from the FM broadcasting station. Set the pointers of the VU meters to the "0 (CAL)" position, using the FM CAL controls on the rear panel.
- 7 You are now ready to record.



Notes

- Once the FM CAL controls are set, re-adjustment is not required unless the control setting or receiving condition is changed.
- For playback of Dolby FM recorded tape, set the DOLBY NR switch at ON position.
- The REC LEVEL controls and REC MASTER control are inoperative for record level adjustment.
- During recording, the decoded Dolby FM signals can be monitored either in SOURCE or in TAPE position of the MONITOR selector.

TIMER-ACTIVATED RECORDING AND PLAYBACK

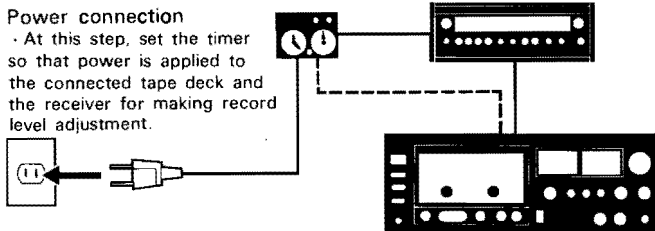
Automatic recording and playback at any desired time is possible using a commercially available timer. Continual operation may be accomplished with a timer designed to turn the recorder on and off any number of times.

Recording

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

Power connection

At this step, set the timer so that power is applied to the connected tape deck and the receiver for making record level adjustment.



- 2 Turn on the receiver and tune in the station of the program to be recorded.
- 3 Set the tape deck TIMER switch to OFF.
- 4 Insert the ELCASET. (Note that erasure-proof tabs on the ELCASET are not slid down.)
- 5 Turn on the tape deck and adjust the record level.
- 6 Set the timer for the desired time. (All the equipment in link at this time, is turned off.)
- 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 of the playback is the same as that of 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.
- 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

- Read the instruction manual of the timer carefully before using it.
- 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.

MIC AND LINE MIXING

Mixing may be accomplished with the four independent LINE (for LINE IN jacks) and MIC (for MIC jacks) input level controls. In addition, fade-in/fade-out techniques with the REC MASTER control will provide more creative and professional recordings.

- 1 Connect the source program to their respective jacks.
- 2 Adjust the record level by turning the respective controls. The VU meters indicate the composite record level. Headphone monitoring will help set the level for mixing.
- 3 Start recording.
- When mixing is finished, do not forget to turn the level control not in use fully to "0".

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

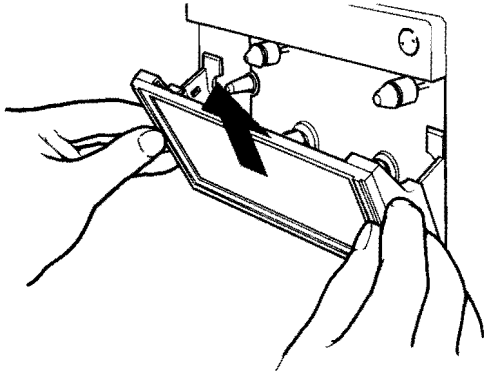
- To rewind the tape further than the "000" point, depress the ◀ button again.
- When using memory counter feature (for replay) from the beginning of the tape, wind up the transparent leader-tape portion where automatic shut off mechanism by photo electric method stops the tape motion before the tape counter reaches "000" reading.
- 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.

MAINTENANCE

Cleaning of heads and tape path

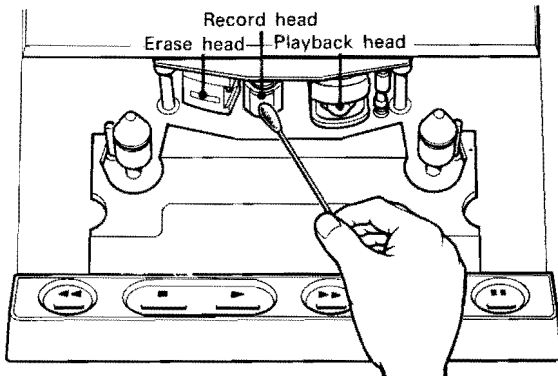
Generally, cleaning after every 10 hours of operation will be sufficient. However all surfaces over which tape travels should be cleaned before making high quality recordings.

① Depress the EJECT button to open the ELCASET holder, and remove the lid.

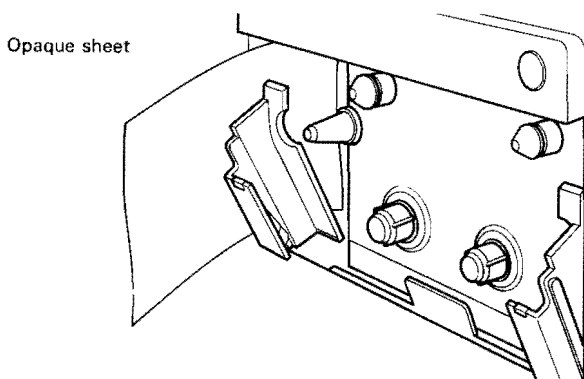


② Push the lid frame in.

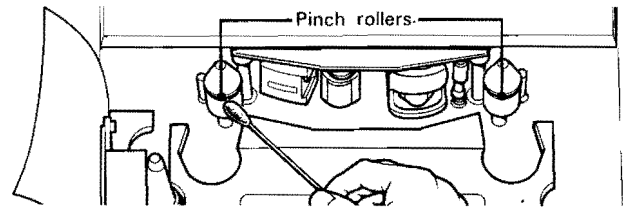
③ Clean the heads with the cleaning tip slightly moistened with alcohol. (Squeeze excessive alcohol from the tip when too moist.)



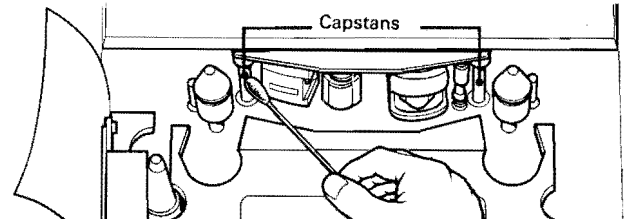
④ Insert an opaque sheet as illustrated. This cuts off the light beam which is emitted from the guide pole and helps deactivate the automatic shut-off mechanism while cleaning.



⑤ Set the POWER switch to ON and depress the ► button. Clean the pinch rollers as they rotate.



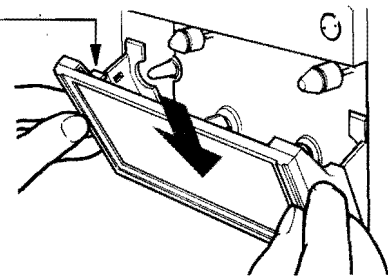
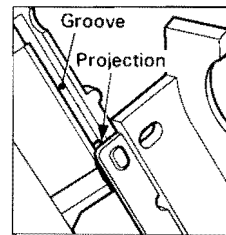
⑥ Depress the ■ button. (Pinch rollers come apart from the capstans.) Clean the capstans as they rotate.



Insert the tip from the right side to avoid jamming the cotton.

⑦ When the cleaning is finished, depress the ■ button.

⑧ Depress the EJECT button to replace the lid.



Match the grooves on the lid and projections in the frame and slide the lid down.

● Do not insert the ELCASET until the alcohol on the cleaned parts is completely dry.

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 tape deck 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.

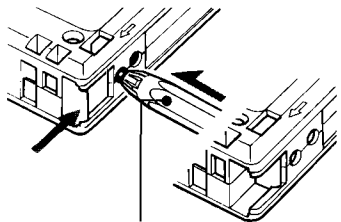
Inside check

Consult your nearest Sony service facility to maintain optimum performance.

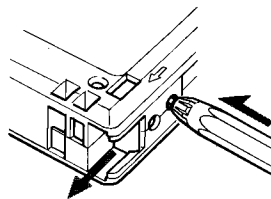
NOTES ON THE ELCASET

Erasure-proof tabs

To protect a recorded tape from accidental erasure, slide down the tab on the desired side (indicated by the arrow mark near the tab). Slide it up to record again on the tape.



Depress the tab lock with the pointed end of the supplied tape winder rod and slide the tab down.



To record again, slide the tab up, using the tape winder rod to depress the lock.

Care of the ELCASET

- Before inserting the ELCASET, take up the slack of the tape to prevent it from becoming entangled around the capstan.
- Lids and reel lock release button are provided in the ELCASET to protect the tape from damage. Careless handling of these parts will damage the tape itself.
- Avoid rewinding or winding in fast-forward mode just before storing the ELCASET as this may cause stretching of the tape edge if it is left over a period of time.
- Protect the ELCASET from excessive shock. Do not drop it.
- Keep the ELCASET away from magnetic equipment such as loud-speakers, amplifier, etc. as erasure or distortion on your recorded tape could occur.
- Do not expose the ELCASET to direct sunlight, extremely cold temperature, or moisture.
- Protect the ELCASET from dust by storing in the case. Even minor dirt or dust could cause contamination of the heads resulting in noise and sound drop-outs.
- When not in use for a long period, run the tape occasionally to prevent the onset of print-through.

FEATURES

Three-head function makes tape/source monitoring possible while recording.

The three motor system makes the EL-7 a highly reliable and durable tape deck with fast and stable tape motion in fast forward and rewind modes.

The closed-loop dual-capstan tape drive system isolates tape-to-head contact from external vibrations and tension irregularities caused by uneven spool winding and the inevitable inconsistencies of the back tension mechanism. The performance benefits of this system are reduced modulation noise and stable tape-to-head contact.

The logic-controlled function buttons allow feather-touch and direct switching from any one mode to another mode without affecting the tape.

The high performance F & F (Ferrite and Ferrite) heads assure the longer head life and stable characteristics.

By direct coupling system, the playback head is connected directly to the FET in the first stage of the playback preamplifier, resulting in better signal-to-noise characteristics.

The timer-activated recording or playback function is provided.

Using the built-in Dolby NR system in the record and playback process, tape hiss is significantly reduced, and signal-to-noise ratio is remarkably improved. A multiplex filter is incorporated to eliminate the 19 kHz FM pilot signal and 38 kHz subcarrier in recording FM stereo programs with Dolby process correctly.

The PHONES LEVEL control adjusts the headphone volume to your desired level.

The REC MASTER control with the PRESET knob adjusts the left and right record level simultaneously, and provide the function of fade-in and fade-out effects.

SPECIFICATIONS

Power requirements	120 V ac, 60 Hz
Power consumption	43 W
Tape speed	9.5 cm/s (3 3/4 ips)
Fast forward and rewind time	Approx. 60 seconds (by LC-60)
Recording system	4-track 2-channel stereo
Bias frequency	160 kHz
Signal-to-noise ratio	DOLBY NR OFF ● With Type II ELCASET (FeCr) 62 dB at peak level ● With Type I ELCASET (SLH) 59 dB at peak level DOLBY NR ON Improved by 5 dB at 1 kHz, 10 dB above 5 kHz
Total harmonic distortion	0.8%
Frequency response	DOLBY NR OFF ● With Type II ELCASET (FeCr) 15 - 27,000 Hz 25 - 22,000 Hz ± 3 dB ● With Type I ELCASET (SLH) 15 - 25,000 Hz 25 - 20,000 Hz ± 3 dB
Wow and flutter	0.04% WRMS
Inputs	Microphone inputs (phone jacks) 2 sensitivity 0.3 mV (-68 dB) for low impedance microphone Line inputs (stereo binaural jack) . . . 1 (phono jacks) 2 sensitivity 0.095 V (-18 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 LEVEL ADJUST control turned fully clockwise suitable load impedance more than 10 k ohms Headphone output 1 suitable load impedance 8 - 32 ohms
Dimensions	Approx. 460 x 170 x 320 mm (w/h/d) (18 1/8 x 6 3/4 x 12 5/8 inches) Including projecting parts and controls
Weight	Approx. 13.5 kg (29 lbs 13 oz)
Supplied accessories	Connecting cord RK-74H (2) Tape winder rod (1) Head cleaning tips (1 set)

Design and specifications subject to change without notice.

ELCASET—A new audio recording system

In the audio market, the Compact Cassette of the Philips standard has been widely accepted and has been extended even to use in hi-fi recording as a result of its easy operation and advanced technical development. On the other hand, open-reel tape is still strongly supported by music and audio enthusiasts, for its high quality sound reproduction, which has been difficult to attain with the Compact Cassette.

Your "ELCASET" system not only realizes both the convenience of the Compact Cassette and the high sound quality of open-reel tape but also has the following advanced features.

Wider dynamic range

The ELCASET tape is 6.3 mm (1/4 inch) wide and driven at a tape speed of 9.5 cm (3 3/4 ips). This results in a more extended frequency and wider dynamic ranges (noticeable in higher audio range) than those of the Compact Cassette.

This ample headroom does make a difference in the reproduction of many recordings. (Fig. ①)

Stable tape transport

With a conventional Compact Cassette, the tape is guided by a tape guide pin in the cassette itself, and the accuracy of tape travel is very much dependant upon the precision of the cassette shells. This has been an obstacle in achieving high performance with the Compact Cassette.

Another problem with the Compact Cassette is that a multi-head (3-head) system has been difficult to use successfully since heads of recorders are put into the very limited space of a cassette. In the ELCASET, tape is in a case but it is automatically pulled out by the transport mechanism of the recorder. Therefore, there is no influence over stability of tape travel by the lack of precision in cassette shells. As a result, characteristics such as wow and flutter, modulation noise, cross-talk and level changes are also remarkably improved. (Fig. ②)

Compatible tape track pattern between stereo and monaural

The ELCASET has the same tape format as the Compact Cassette. This means tape is divided into two halves for side A and side B, each side permitting 2-track stereo or monaural recording and playback.

This track pattern assignment makes possible stereo and monaural between them.

The four-track tape width in the ELCASET is almost twice that of the Compact Cassette and nearly equal to the four-track open-reel tapes. This also attains excellent S/N figures open-reel tapes are able to obtain.

Lids for tape protection

The ELCASET has lids at left and right front ends. When the ELCASET is out of your recorder, lids are closed to protect the tape. The lids are opened automatically by the tape deck for threading tape when the ELCASET is inserted and a function button is depressed. (Fig. ③)

Reel lock device

Reel lock device is also provided in the ELCASET to lock rotation of a reel hub to prevent tape from coming loose when the ELCASET is carried. The reel lock is automatically unlocked by your recorder when the ELCASET is loaded. (Fig. ④)

Erasure-proof tabs

In the Compact Cassette, recorded tapes are protected from accidental erasure by removing a tab in a cassette. But once the tab is removed, the cassette cannot be erased or re-recorded without covering the broken slot. In the ELCASET, the protection is achieved by sliding tabs. (Fig. ⑤)

Types of tape

There are three different types of tape for the ELCASET which are indicated on the labels.

One is called TYPE I which has the feature of low noise output (called SLH tape by Sony). TYPE II has the same performance as FeCr tape by Sony. TAPE III will be for the tape equivalent to CrO₂ type.

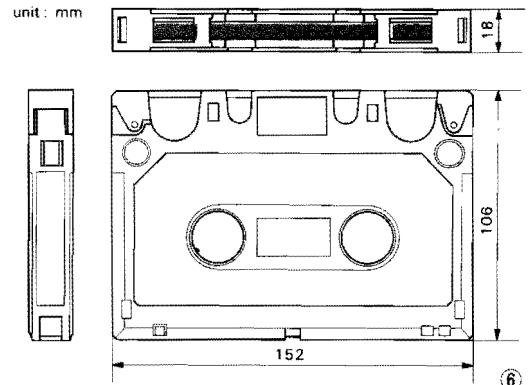
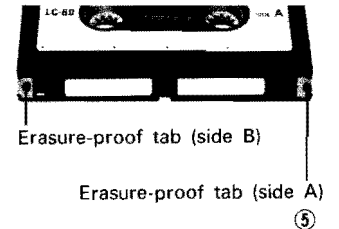
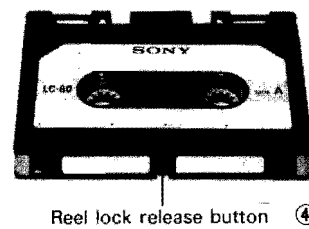
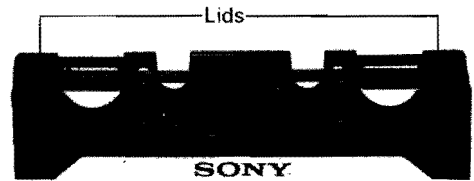
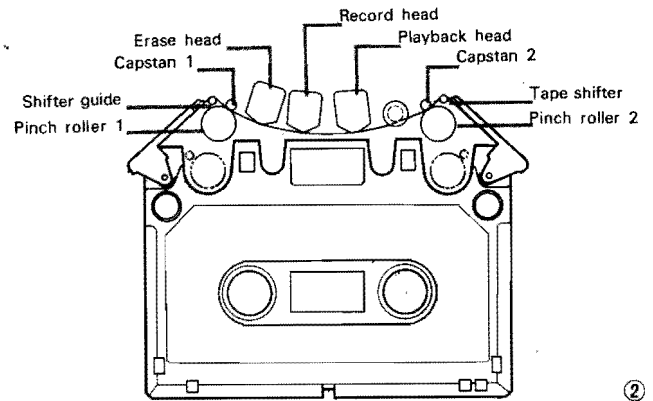
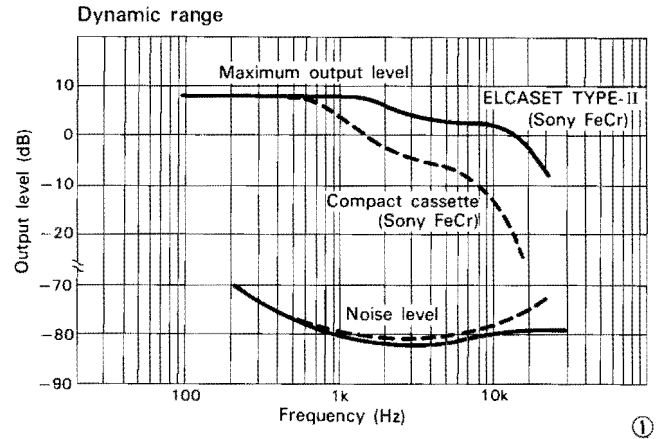
For optimum recording and playback results, match the tape selector on the tape recorder with the type of tape used.

Automatic shut-off with ELCASET leader tape at tape-end

The ELCASET has leader tapes at both ends of the tape. When the ELCASET is used on the tape recorder having the photo electric method, tape motion automatically stops at end of tape for any operating mode. This is because the tape deck senses the leader-tape portion and activates the automatic shut-off mechanism.

ELCASET specifications

Tape speed	9.5 cm/s (3 3/4 ips)
Tape width	6.3 mm (1/4 inch)
Time constant	3180 micro-sec. +70 micro-sec.
Reference recording level	185 nwb/m
Types of tape	TYPE I, II, III
Dimensions	See Fig. ⑥



①
②
③
④
⑤
⑥

TROUBLE CHECKS

The following chart will help correct most problems which may occur with the unit. If the problem persists after you have made these checks, consult your nearest Superscope Service Centers.

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, capstans and pinch rollers should be cleaned.
- The amplifier controls and switches should be set correctly.

FUNCTION BUTTONS AND TAPE PATH

The EJECT button cannot be depressed.

- This button is inoperative while tape is running or the **■** button is depressed.

Tape does not move even when function buttons are depressed.

- The **■** button is depressed.
- The ELCASET holder is not closed fully.

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

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

Cassette hubs turn a bit after the POWER switch is ON.

- This is to remove tape slack when put in the tape deck.

Automatic shut-off mechanism does not work.

- The guide-pole lamp is dirty. (See "Maintenance" on page 12.)

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

- Push the desired function buttons approximately two 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

No recording or decrease of sound level

- Erasure-proof tabs in the ELCASET are slid down. (See page 13.)

- Contamination of the heads (See page 12.)

- The MIC ATT switch is set to either "15" or "30" when recording from microphones.

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

- The LINE IN jack (phone type) on the front panel is connected.

VU meters do not swing.

- The REC MASTER control or REC LEVEL controls are turned down to "0".

Distorted sound

- CAL level is too high. (See "Calibration level adjustment" on page 10.)

- Recording level is too high.

Recording level drops when switching the MONITOR selector from SOURCE to TAPE.

- CAL level is too low. (See "Calibration level adjustment" on page 10.)

No playback or decrease of sound reproduction

- The MONITOR selector is set at SOURCE.
- The LEVEL ADJUST control on the rear panel is turned down.
- Contamination of the heads (See "Maintenance" on page 12.)

Too much wow or flutter, or drop-outs

- Contamination of capstans or pinch rollers

Insufficient erasure

- Contamination of the erase head

Increase of noise or erasure of high frequencies

- Magnetic build-up on the heads

Unbalanced tone in higher frequency range

- The Dolby NR processed tape should be played back with the DOLBY NR switch at the ON position, and the non-Dolby NR processed tape at OFF position.

- The TAPE SELECT switches should be in the same position in both record and playback modes. If recorded in the wrong position, adjust the tone on the amplifier in playback.

Tape stops before the tape counter reads "000", though the recorder is in memory counter operation.

- The tape counter is reset to "000" at the leader-tape portion. (See "Memory counter operation" on page 11.)

Sound comes out a few seconds after the POWER switch is ON.

- This occurs because muting circuit is provided to avoid any annoying "thump" noise, and is not abnormal operation.

Recording sources cannot be monitored in the playback mode, when setting the MONITOR selector to SOURCE.

- The DOLBY NR switch is set at CAL position.

HOWLING OR HUM NOISE

Oscillation occurs when trying to record from the amplifier.

- If the LINE OUT jacks of the tape deck are connected to the amplifier AUX jacks and these are switched on, change the amplifier input selector to another position.

Oscillation occurs when trying to record from microphones.

- The microphone is too near the loud-speakers. Keep the microphone away from them or reduce the amplifier volume.

Hum noise

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