

TEAC®

Information Supplement

Stereo Cassette Tape Deck

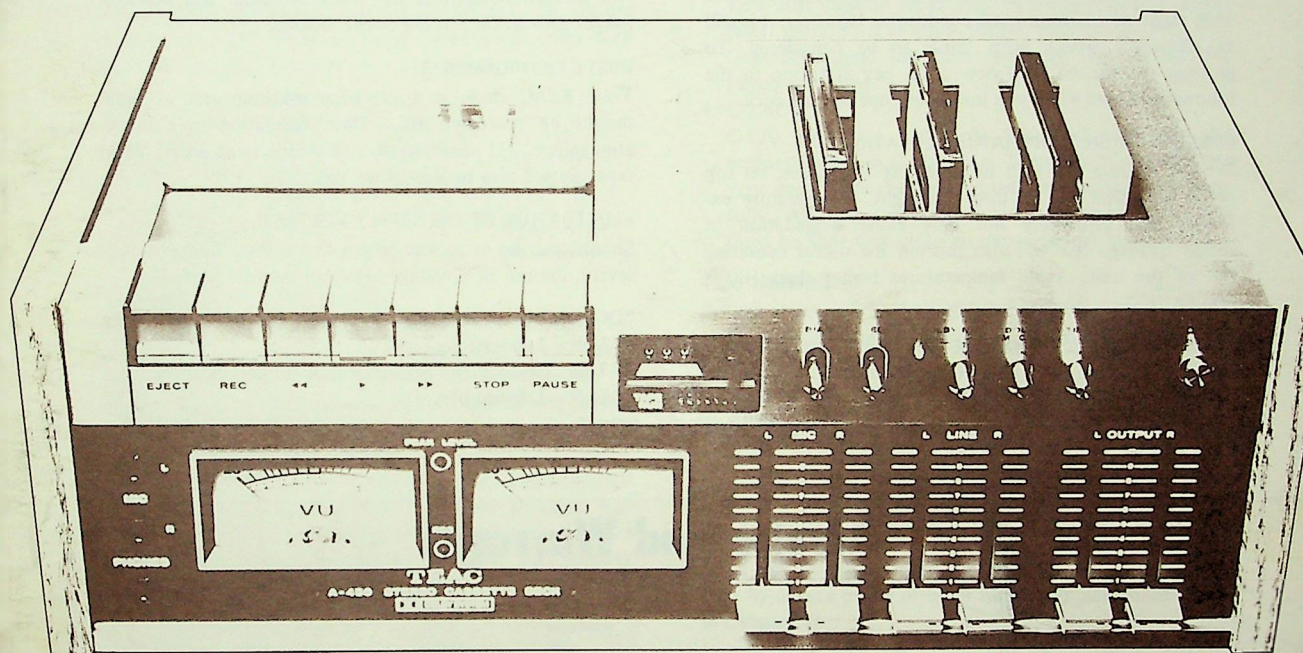


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The purpose of this manual is to supply our customers a fund of general information that applies to all or almost all cassette decks. We hope this supplement will increase your understanding and interest in TEAC Cassette Tape Decks and thereby increase your pleasure in owning and operating your own deck.

ENVIRONMENTAL PRECAUTIONS

Your TEAC Deck is well constructed, and adaptable to a wide range of environmental conditions. However, it is still an electronic device with limits to be considered. To prolong the life of your new deck, pay attention to the following factors when you install and operate the deck.

CONSTANT HIGH TEMPERATURE LOCATIONS

Do not operate this unit near heating appliances, on top of an amplifier, or in direct sunlight. Temperature extremes will ultimately not only cause degradation of sound quality, but will also shorten the useful operating life of the unit. Avoid temperatures higher than 100°F (38°C).

EXTREME LOW TEMPERATURE: In such locations, lubricants will harden and satisfactory operation cannot be expected. Operation will be sluggish and an overload may be placed on the drive motor. Avoid temperatures lower than 40°F (5°C).

HIGH HUMIDITY LOCATIONS


Will shorten equipment life from corrosion and possible fungus growth on printed circuit boards.

DUSTY ENVIRONMENTS

Your TEAC deck is a precision machine and as such should be protected from dust. Operation in a dusty atmosphere will result in excessive tape head wear. Your tapes should also be kept dust-free.

FLUCTUATION OF THE SUPPLY VOLTAGE

Should you be in an area where line voltage fluctuation is severe, the use of a voltage regulator may be advisable.

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Service and Warranty

SERVICE

Our investigation has shown that approximately 40% of the calls for service immediately after purchases resulted from improper operation of the equipment. Therefore, it is important that you thoroughly read and understand this manual before placing the unit in operation. Failure to properly clean your deck will result in degradation of performance. Careful observation of the cleaning and servicing hints contained in this manual will contribute to a lengthened, trouble-free unit life. Please consult the Corrective Action Guide chart before seeking service as most common problems are cov-

ered by this chart.

Should your tape deck need repair, contact the dealer where it was purchased or the nearest TEAC Authorized Service Center. They can also secure accessories for you. Your new TEAC Cassette Tape Deck has been manufactured under the strictest quality control procedures. Each unit has been thoroughly checked at the factory. Should any damage have been incurred during transit or should you have any doubts as to its performance, contact your dealer as soon as possible.

Please see the Warranty Card included with your deck.

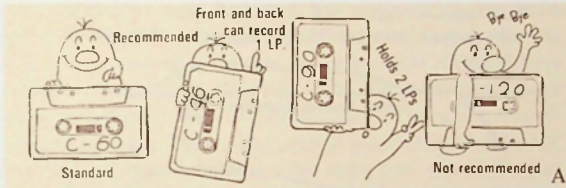
WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Cassette Tape

Recording Time

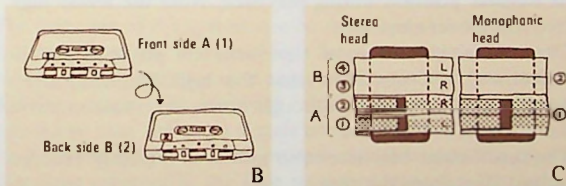
Cassette recording tapes are wound on reels in a special convenient case that is easily inserted into the cassette deck. The tape width, cassette container shape and size and the tape speed are standardized for compatibility. The standard C-60 cassette tape contains enough tape for 60 minutes of recording. The C-30, C-90 and C-120 cassettes contain enough tape for 30, 90 and 120 minutes respectively. (All times are total times when using both sides of the tape, A and B.)



Use Both Sides of The Cassette

Both sides of the cassette tape can be recorded (or played). See Diagram below left. The cassettes are usually marked Side A (or 1) and Side B (or 2) for reference. To change sides of the cassette to be recorded or played, simply remove the cassette from the deck (using the EJECT /STOP Button) and turn it over.

The cassette tape can be recorded in either a monophonic or stereo format. The various record and playback procedures as well as the head configurations have been standardized for compatibility. See the Stereo/monophonic head diagram on the right.



Cassette Preparation

Although the quality of most cassette tape is quite high,

Protection of Recorded Tapes

Pre-recorded cassettes can be protected against accidental erasure or re-recording by removing the "punch out" record tab as shown in Diagram E. Each cassette contains two record tabs, one for each side of the tape. With Side A (or 1) of the cassette facing up as shown, the record tab for Side A is on the right end of the cassette case and the record tab for Side B is on the left end. When this tab is removed and the cassette inserted into a tape deck the deck cannot go into a record mode because the deck has a special sensing arm which checks for the presence of this tab. If the tab is removed, the record and erase

the following suggestions may help to avoid some possible cassette problems.

- * Be careful of cassettes that appear to be warped or have deformities in the case shape. These deformities can cause uneven tape movement and noise due to the tape rubbing on the cassette case.
- * Low cost, economy tapes. Low cost cassette tapes may be cheaper due to having fewer parts, such as guide rollers, pad springs, etc. Generally, these low cost tapes are not suitable for stereo recording.
- * C-120 tape. C-120 tapes are extremely thin and weak and the magnetic coating is also thin. Therefore these tapes are very easily stretched and must be handled very carefully. Also the capstan and pinch roller on your deck must be kept very clean to insure proper operation.

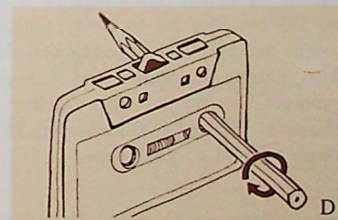
Tape Handling

Do not store tape in the following areas.

- * On top of heaters, or in direct sunlight or in any other high temperature area.
- * Near speakers, on TV sets or amplifiers, or near any strong magnetic fields.
- * High humidity areas.

Before Recording or Playing Back a Cassette Tape

A tape that is loose or slack inside the cassette case may become wound around the capstan or pinch roller. To avoid this problem, check and tighten (if necessary) the tape by using a pencil or other suitable implement as shown in Diagram D.



functions are inhibited and the tape cannot be re-recorded. If the tab is removed, (using a screwdriver as shown) and later the recordist decides to re-record the cassette, a piece of tape can be placed over the tab hole to allow recording. (Diagram F)



Bias and Equalization

The following figures show the output curves of CrO₂ and regular High Fidelity tape under various record and playback conditions.

In all cases the input level was set to -20 dB.

Figure 1 shows the output curve for a high fidelity tape that was recorded with the BIAS and EQ switches properly set to match the tape.

Curve 1a shows the playback output when the tape is played back with the EQ switch set to the Regular position. Curve 1b shows the output with the EQ switch mis-set to the CrO₂ position. Note the drop-off of the mid and higher frequencies caused by the CrO₂ equalization.

Note: On some decks CrO₂ and NORMAL Bias are labelled positions 1 and 2, respectively.

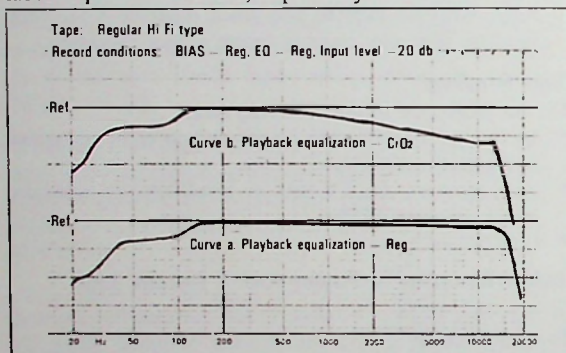


Fig. 1

Figure 2 illustrates a CrO₂ tape properly recorded with the BIAS and EQ switches set to CrO₂. Curve 2b shows the output with the playback equalization set properly for CrO₂ tape. Curve 2a shows the output with the equalization mis-set for regular high fidelity tape. Note the over-emphasis of the higher frequencies. This situation will give a "tinny" sound to your tapes.

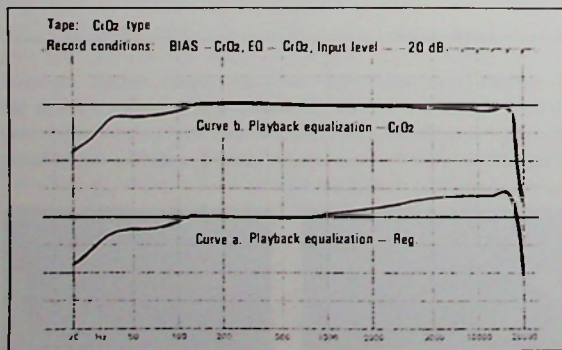


Fig. 2

Figure 3 shows a Regular Hi-Fi tape improperly recorded with the BIAS and EQ set for CrO₂ instead of Regular tape. The higher BIAS level needed for CrO₂ tapes is too great for regular tape and causes severe over-emphasis almost throughout the frequency spectrum and the signal is highly distorted. Neither CrO₂ nor regular playback equalization can do much to correct the distortion caused by over-bias during recording.

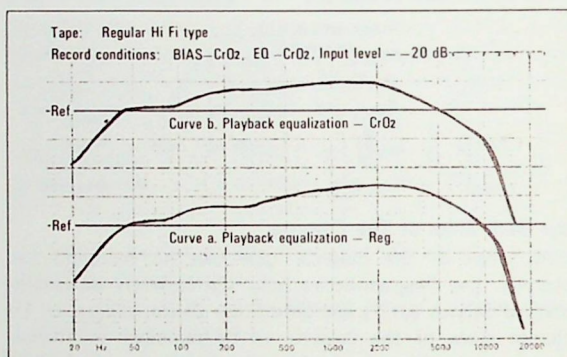


Fig. 3

Figure 4 illustrates a CrO₂ tape improperly recorded with the BIAS and EQ switches set for Regular Hi-Fi tape. Curve 4a shows the output results with the EQ switch set to Regular position during playback. Note the severe high frequency over-emphasis.

Curve 4b shows the same tape with the playback equalization set to CrO₂. Note that the high frequency over-emphasis is still present although not as severe as on curve 4a.

The insufficient bias level also results in a greatly reduced output level from the tape.

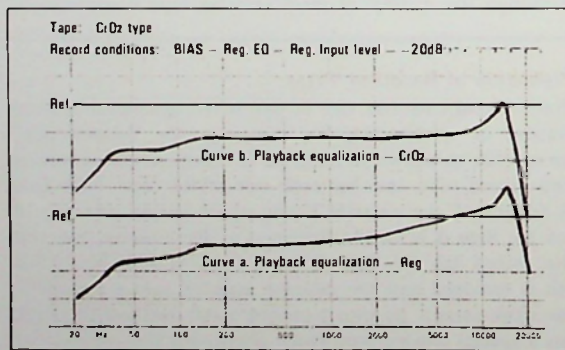


Fig. 4

About Dolby Noise Reduction

General

Tape hiss and noise from the cassette deck itself are problems inherent in any cassette tape recording. Compared with open-reel tape, the magnetic coating of a cassette tape is more thin and narrower than an open-reel type; thus, its magnetic saturation point is low (about +3 dB with 3% of the third harmonic distortion). This makes it difficult to improve the signal-to-noise ratio through high-level recordings as often practiced with an open-reel tape. Numerous ways have been contrived and tested over the years to reduce tape hiss and the noise which has been added by the recording process. One possibility — the use of a filter network — results in a somewhat changed tone quality, especially in the high end, the frequency range considered one of most important factors in music recording and playing back. The newly perfected Dolby NR system is an epoch-making noise reduction system in that the noise level itself is lowered to improve the S/N ratio. One of the best of noise reduction systems available today, it enables you to make recording and playback featuring extra-low noise and wider dynamic range approaching that of an open-reel deck. Dolby NR system comes in 2 types, A-type and B-type. The A-type is designed for studio use and comprises a complex and enormous circuitry structure which divides the audio spectrum (about 20Hz–20KHz) into four bands.

The B-type, designed for popular use, features simpler circuitry and is easier to use.

Principle and effects of the Dolby NR system

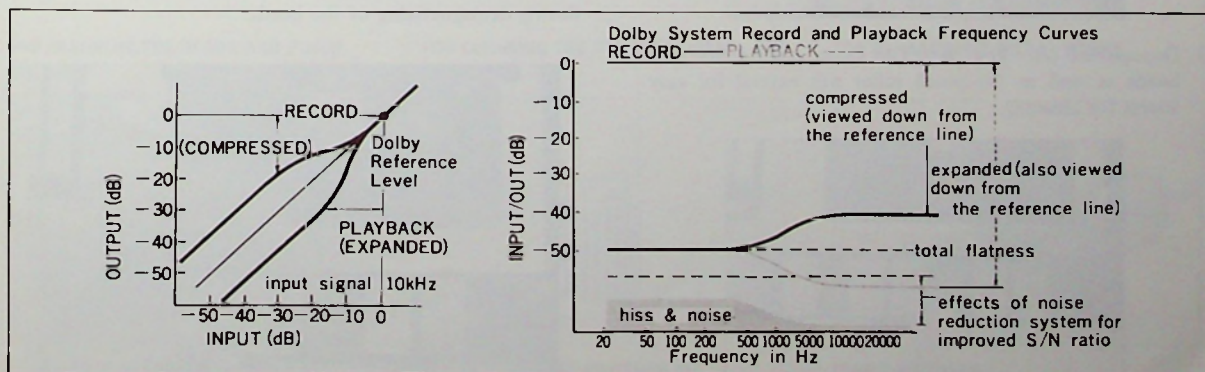
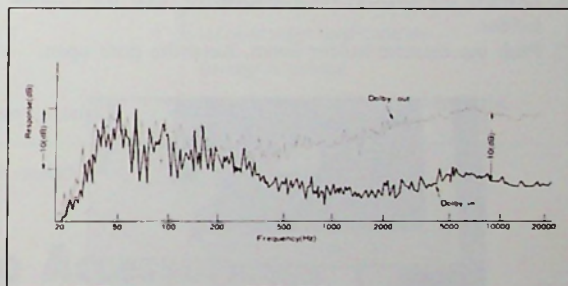
The principle of the system can be described as follows; On recording, low level mid-high frequencies are increased in amplitude resulting in a compression on the programs dynamic range. On playback, this dynamic range is expanded so that the same signals are decreased in amplitude to their original level. This process also decreases the tape hiss noise inherent in the tape recording process. Through this unique manipulation, the tape noise and hiss are

reduced below normal audibility. In the frequency range of 1 kHz or higher where the tape hiss and noises are more conspicuous, the B-type Dolby system incorporated in the deck thus can reduce such noise by 5 dB at 1 kHz, and 10 dB at about 5 kHz or higher in terms of S/N.

Inter-deck compatibility of Dolby-encoded tapes

Cassette tapes recorded with Dolby NR processing give the best results only when replayed by a similar Dolby NR player. Needless to say, no Dolby effects will be demonstrated when such tapes are played back by an ordinary deck, but the slight emphasis of the high frequencies is almost unnoticeable unless compared with the original source in an A/B monitoring situation. For playback of Dolby encoded (emphasized) tapes with an ordinary deck, therefore, it is advisable to somewhat de-emphasize the treble range by reducing the tone control on the amplifier. (Full noise reduction effects will not be obtained in that case).

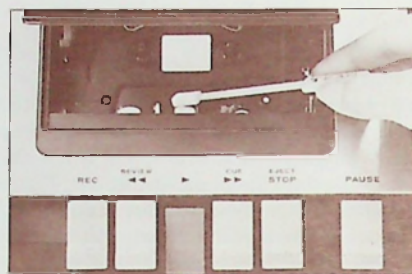
The Dolby system mentioned in this manual refers to B-type Dolby system unless otherwise indicated.



Maintenance

Heads

After the deck is used for a long time, tape oxide and other foreign matter tend to build up on the heads. Dirty heads will drastically reduce the overall efficiency of the heads and are a prime cause of both record and play problems, such as reduced high frequency response and "drop-outs". Extremely dirty heads may cause the heads to cease record and play altogether. To prevent such problems and to insure longer life for the heads, regular cleaning should be done; at least clean after every 8 hours of playing time. A good Cleaning kit such as the TEAC TZ-261 kit should be used. Fluid "A" in the kit is ideal for cleaning the heads. Isopropyl alcohol may also be used.



Pinch Roller

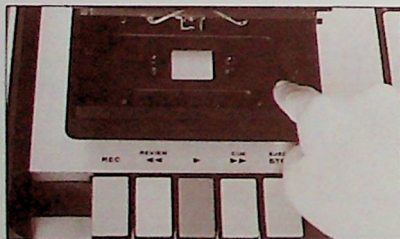
The pinch roller should also be cleaned regularly to prevent erratic tape movement and the increased wow and flutter that it causes. The TEAC TZ-261 kit also contains a special cleaning liquid (fluid "B" in the kit) that is especially effective in cleaning the pinch roller.

Stainless panel and case

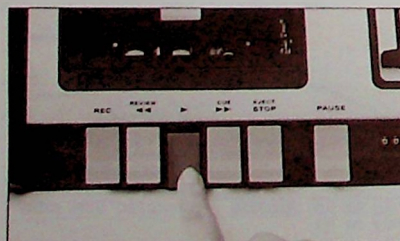
The TEAC TZ-270 Stainless Polisher kit is recommended for cleaning the case and stainless panel of your deck.

How To Clean

1. Depress the EJECT/STOP button to open the cassette holder.
2. Push the cassette holder down. Keep the door open.



3. Depress the play key ►. The Erase and Record/play heads as well as the pinch roller will extend for easy access for cleaning.



Demagnetization

The heads and tape path tend to become magnetized after extended use. When this occurs the record and playback efficiency decreases and the overall sound quality deteriorates. The magnetized heads and tape path can cause degradation of your pre-recorded tapes also. To prevent such problems, TEAC recommends that the heads and tape path be demagnetized after approximately every 50 hours of deck use.

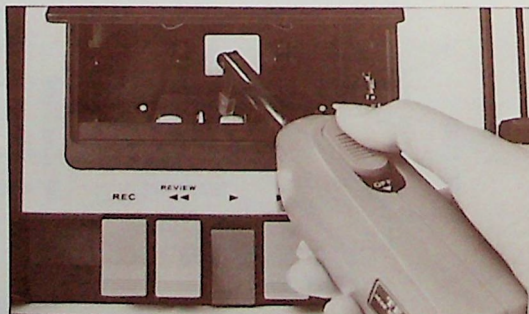
A good head demagnetizer or eraser such as the TEAC E-3 is recommended for this important preventive maintenance job.

The erase head and record/play head as well as all metal parts that contact the tape should be demagnetized.

Demagnetizing procedure.

1. Turn the deck power OFF.
2. Extend the heads as explained in steps 1-3 in the cleaning procedure.
3. Turn on the head eraser (demagnetizer) and bring the tip of it close to the heads.
Move the tip up and down across all the heads and other parts in the tape path.
4. Slowly withdraw the eraser about 12 inches away from the head area.
5. Turn OFF the eraser.

Be sure to keep all recorded tapes away from the eraser during demagnetizing of the heads.



Trouble-shooting Chart

TROUBLES	CAUSE	CURE
TAPE TRANSPORT		
No power	Power cord loose or not connected	Connect power cord
No tape movement	PAUSE key depressed Poorly wound cassette tape	Release PAUSE key Try high speed rewind or fast forward
PLAYBACK		
No sound (from Amplifier system)	Bad connection Input level too low Input and output too low, or not properly selected on amplifier controls	Check all connections Increase input level Increase amplifier output and recheck switch settings
Poor sound quality	Head dirty Head magnetized	Clean head Demagnetize head
Unsteady sound level	Pinch roller dirty	Clean pinch roller with TZ-261 kit
RECORDING		
Unable to depress REC key	No cassette installed Accidental erasure protection removed from cassette	Install cassette Place piece of tape over tab hole
No level indication on meters, unable to hear input signal	Input cord loose or not connected Recording level too low Head dirty	Recheck connections Increase input level controls Clean head
No record, sound weak or sound quality poor	Bad tape Recording level too low Head magnetized BIAS or EQ switch not set correctly	Replace tape Increase input level controls Demagnetize head Set switches according to chart in the Owner's Manual.

Lubrication Note: Under normal operating conditions lubrication of your deck is not required.

Maintenance Accessories

FOR CLEANING THE HEADS AND PINCH ROLLER



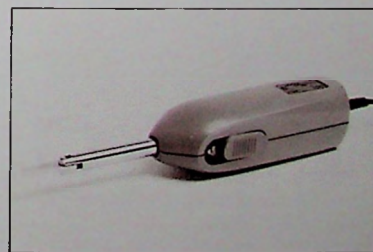
TZ-261 TAPE RECORDER CLEANER KIT

FOR CLEANING THE STAINLESS PANEL AND CASE



TZ-270 STAINLESS POLISHER KIT

FOR DE-MAGNETIZING THE HEADS



TEAC E-3 ERASER

Information Supplement

Stereo Cassette Tape Deck

TEAC

The leader. Always has been.

TEAC CORPORATION: 3-7-3 Naka-cho, Musashino, Tokyo Phone: (0422) 53-1111

TEAC CORPORATION OF AMERICA: 7733 Telegraph Road, Montebello, California 90640 Phone: (213) 726-0303

TEAC TONBAND-ANLAGEN VERTRIEBS GmbH: 6200 Wiesbaden-Erbenheim, Egerstrasse 2, West Germany Phone: (06121) 74225 ~ 8

TEAC HONGKONG LIMITED: Flat 78, Portland House, 7th floor, Block C, No. 41-D, Ma Tau Wei Road, Kowloon, Hong Kong Phone: 3-659071 ~ 4