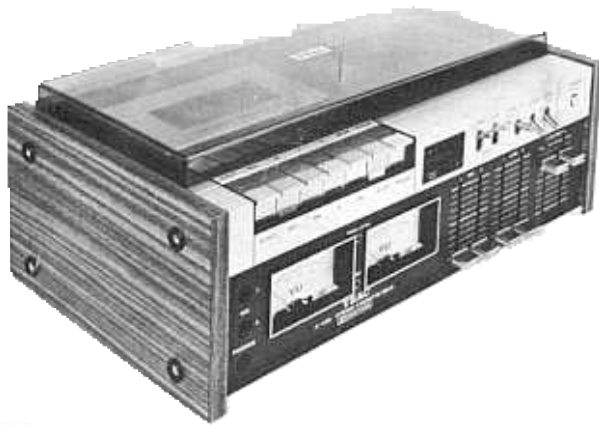


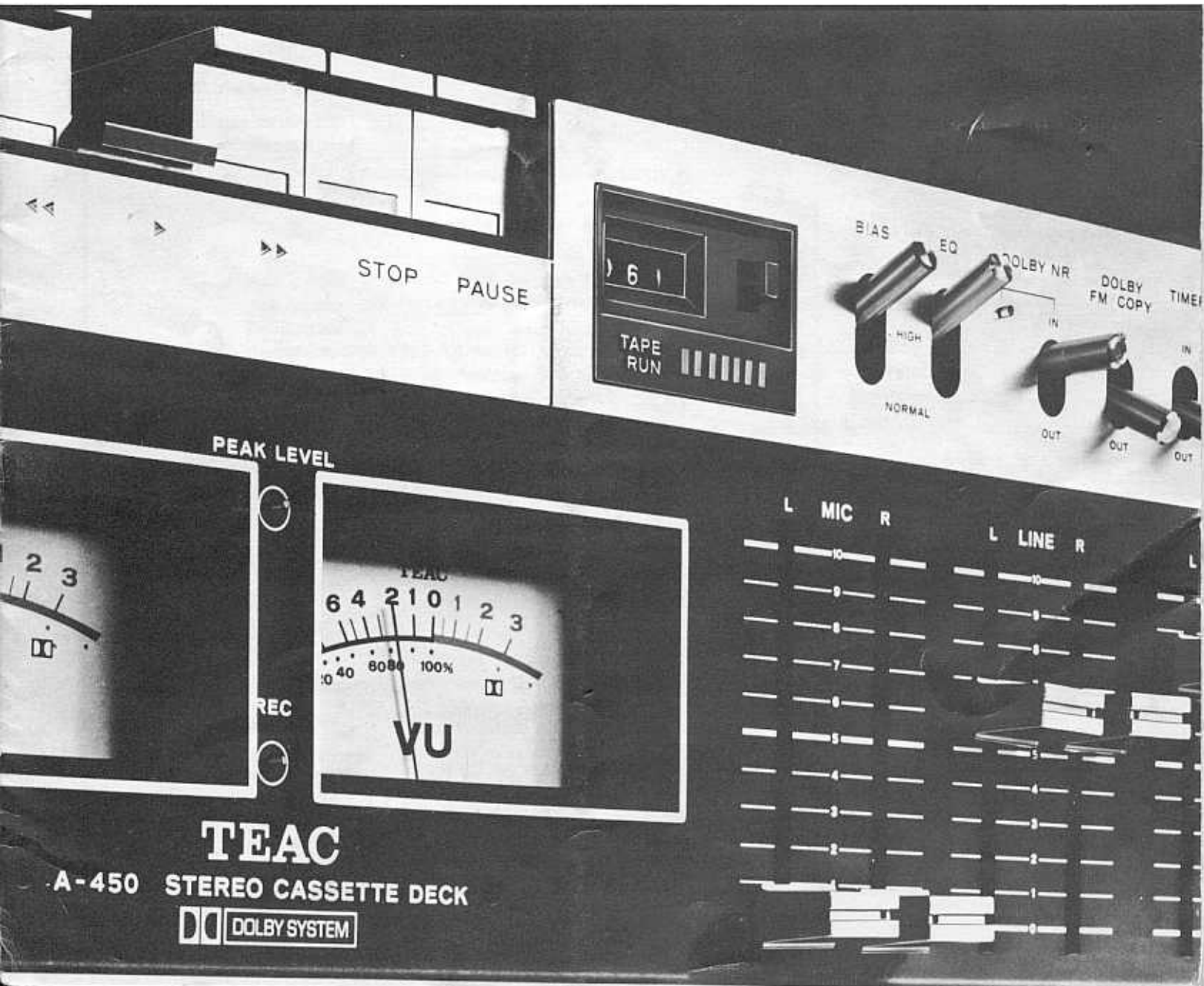
OWNER'S MANUAL



TEAC® A-450

Stereo Cassette Deck with Dolby System

51013250



Introduction

Congratulations on your purchase of the TEAC 450 Stereo Cassette Deck. You now own one of the most exciting and versatile stereo cassette decks ever developed, and you will soon be enjoying the pleasure of outstanding high fidelity recording.

SERVICE and WARRANTY

Should the equipment need repair, contact the dealer where it was purchased, the TEAC Sales Office or Service Station nearest you, or the TEAC Head Office Factory Service Department. Addresses and telephone numbers of TEAC are listed on the rear cover of this manual.

*The Warranty period is described on the enclosed warranty card, read the card for complete details.

*For repairs after expiration of the warranty period, a service charge will be required in addition to the cost of repair parts.

*If only repair parts are required, please contact the dealer or the nearest authorized TEAC Service Station.

Notice: Although the unit may still be under the warranty period, you may be charged for repairs made necessary due to misuse or damage incurred as a result of improper operation. Therefore it is important that you thoroughly read and understand this manual prior to placing the unit into operation. Retain the box and packing material of the 450. If improperly packed, you will be responsible for any damage incurred during shipment.

We know you desire to begin using your 450 immediately. First, however, we should urge you to take a few moments to read this Owner's manual completely. The short time required to familiarize yourself with the many unique features and the proper

operating techniques of this outstanding cassette deck will result in a more professional-sounding recording and will help insure you many years of uninterrupted enjoyment.

IMPORTANT: Fill in the warranty Registration Card and return it to TEAC Corp. immediately. Retain your Certificate of Warranty and keep it properly.

Environmental conditions required

The TEAC 450 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.

*"DOLBY" and the double D symbol  are trade marks of Dolby Laboratories, Inc.

*This product is manufactured under license from Dolby Laboratories, Inc.

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

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Features

- * Dolby* Noise Reduction system incorporated for a wider dynamic margin
- * Less than 0.07% wow & flutter from total refinement of the tape transport
- * BIAS and EQ selectable in 3 steps for a wider range of tape acceptability
- * Two professional-type VU meters and an LED-type PEAK LEVEL Indicator for accurately utilizing the full signal-to-noise ratio with no distortion available
- * Dolby COPY/Dolby FM facility, unique from TEAC, for enhanced recording pleasure
- * MIC/LINE mixing, with full stereo control
- * Front panel designed for easier operation
- * High Density Ferrite heads for improved frequency response with longer head life
- * Convenient cassette tape storage compartment
- * End-of-tape auto-stop (electronic) with mechanism protection
- * Dual output terminals for increased operating flexibility and convenience
- * Strobe tape-run pilot light for quick status determination

Specifications

Type of tape	Two: erase, record-playback (4 track 2-channel stereo) Cassette tape C-60 and C-90 (Philips type)	Outputs	Line: 0.3V for load impedance of 10,000 ohms or more Headphones: 8 ohms
Tape speed	1-7/8 ips.	Power requirements	117V AC, 60Hz, 18W
Motor	Hysteresis synchronous outer-rotor motor	Dimensions	6-15/16"(H) x 17-1/2"(W) x 10-5/8"(D) [176(H) x 445(W) x 270(D) mm]
Wow and flutter	0.07%	Weight	21 lbs. (9.5 kg) net
Frequency response	CrO ₂ tape: 30 – 16,000Hz (+2, -3dB 40 – 14,000Hz) Hi-Fi tape: 30 – 13,000Hz (+2, -3dB 40 – 12,500Hz) Regular tape: 30 – 10,000Hz (+2, -3dB 40 – 10,000Hz)	Standard accessories	Fuse, Silicone cloth, Input/output connection cords, Cleaning stick, Plastic cover
Signal to noise ratio	60dB (with Dolby process) 52dB	<ul style="list-style-type: none"> * Features and specifications subject to change without notice. * Specifications were determined by using Hi-Fi tape, except as noted. * Photographs and/or illustrations may differ slightly from the appearance of your deck when production design improvements are incorporated. 	
Fast winding time	Approximately 95 seconds for C-60 Line: 0.1V, 100,000 ohms or more Microphone: 0.25mV/-72dB (600-10,000 ohms)		

Terminals, switches & controls

Cassette Holder & Lid: press the EJECT key lightly to open this lid. Push the lid from above with your finger to close it. The cassette holder holds the cassette tape in place when the cassette is inserted and ejects it when the EJECT key is fully depressed.

PAUSE: use this key for quick stop/start control of the tape during recording or playback.

STOP key

➡ (Fast forward)

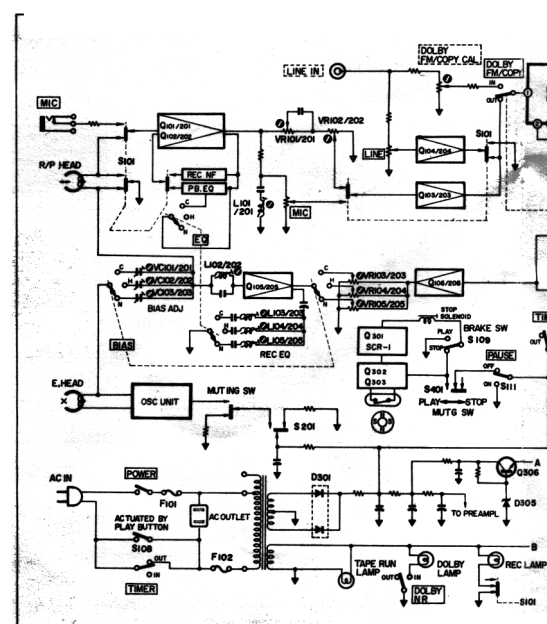
➡ (Play)

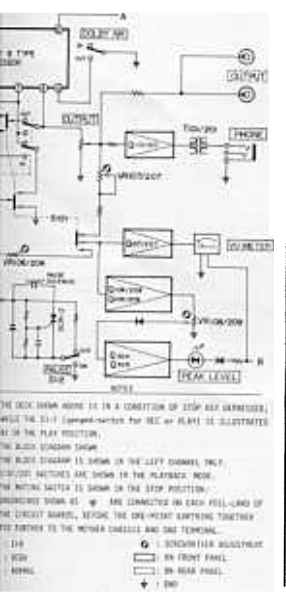
⬅ (Rewind)

REC (record) key: must be depressed in conjunction with the – (play) key to record.

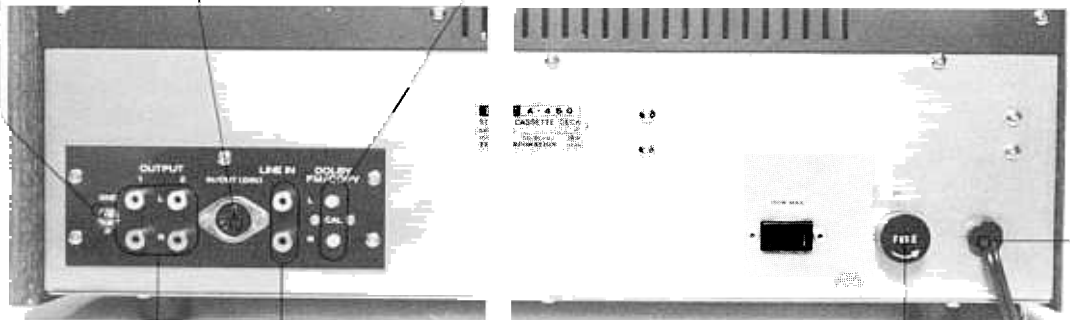
EJECT key: this is 2-step pushbutton key control. Push it halfway and the lid will open. Fully depress it and the holder will come up to eject the cassette.

Block diagram





DIN IN/OUT jack



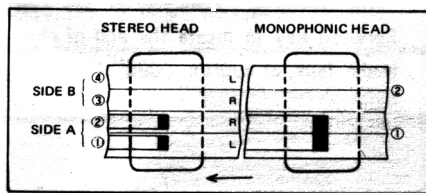
OUTPUT: two pairs of high impedance outputs (for LINE or AUX use).

About tapes

A cassette is a small cartridge containing a "reel-to-reel" tape. Blank cassettes are available in a variety of brands and in several lengths such as C-30, C-60, C-90 and C-120. The numbers correspond to the total recording time available in each cassette, (i.e., C-30 = 30 minutes of recording time, 15 minutes per side one-way.)

Cassette tape track positions (Stereo/monophonic compatibility)

The 450 will playback monophonic as well as stereo. Tracks #1 and #2 are combined

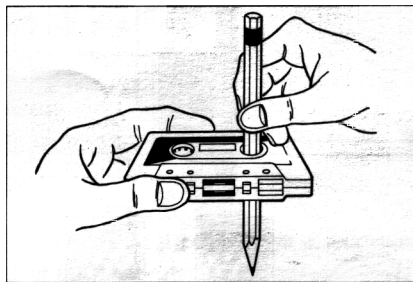
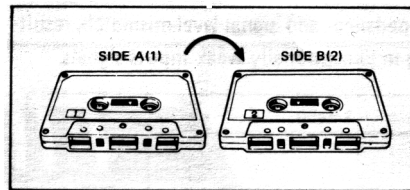


Before loading the cassette tape

into the deck, we recommend a quick check for loose tape inside the shell. If tape is very loose (unwound), there could be severe damage to the tape when operation begins, such as from wrapping around the capstan, etc. As illustrated, a pencil or similar tool can be twisted in the reel cavity (gently) to wind the tape before loading the cassette.

The TEAC 450 has been designed for the tape thickness and proper tape tension for either C-30, C-60 or C-90 cassettes. Since the C-120 tapes are so thin and different tension, we do not recommend their use on the 450 deck. (For recommended tapes, see page 10.)

to form one side (side A) of the cassette, and tracks #3 and #4 form side B as shown below.



What is chrome (CrO₂) tape?

The magnetic material coating on chrome tape is primarily CrO₂ (chromium dioxide). This tape gives such outstanding performance as to be very comparable to that of the low-noise tape used by professionals. The features include:

1. Excellent frequency response.
2. Superb high-frequency characteristics and dynamic range.
3. Minimum distortion and vastly improved signal-to-noise ratio.

The overall performance of chrome tape is thus said to be remarkably superior to that of an ordinary tape. The BIAS and EQ switches on your 450 readily select proper electronic characteristics for the tape used, insuring maximum performance.

Accidental Erasure protection

The deck is provided with a recording safety feature which protects your recorded cassettes against accidental erasure. This feature works in conjunction with two plastic tabs on the rear of the cassette shell. These tabs will have been removed already from pre-recorded cassettes you might purchase, leaving two small, square indentations on the rear of the shell.

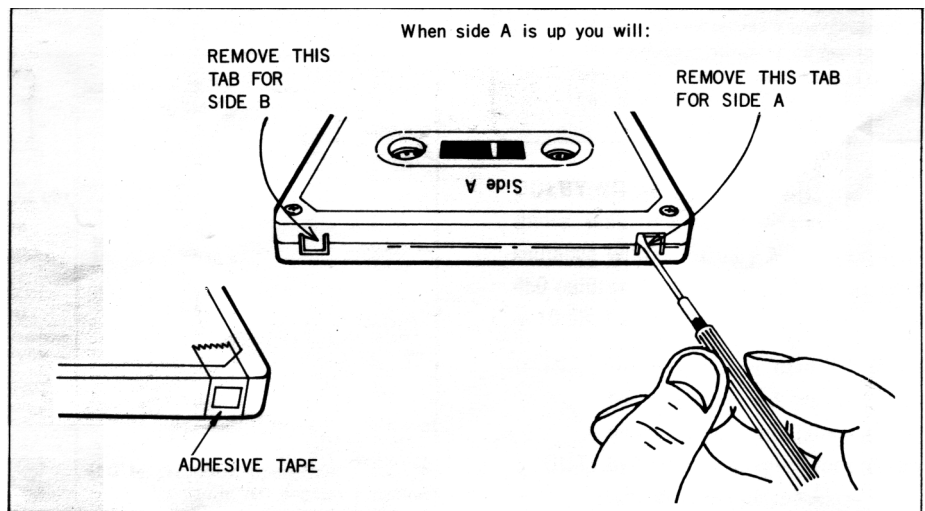
To protect your new recordings, insert a thin screwdriver into the opening around the tabs and pry them both completely out. If only one side of the cassette has been recorded, place the cassette on a table with the recorded side up and the exposed tape side facing towards you. The correct tab to be removed will be in the rear lefthand corner of the cassette.

A previously protected tape may be restored for re-recording by adhesive tape placed over

the tab opening. Removal of the adhesive tape after the recording will again protect against accidental erasure.

NOTE: The deck has a record safety inter-

lock that is engaged when the tabs are removed from the cassette. Do NOT attempt to engage the REC control when a protected cassette is loaded.



Connections

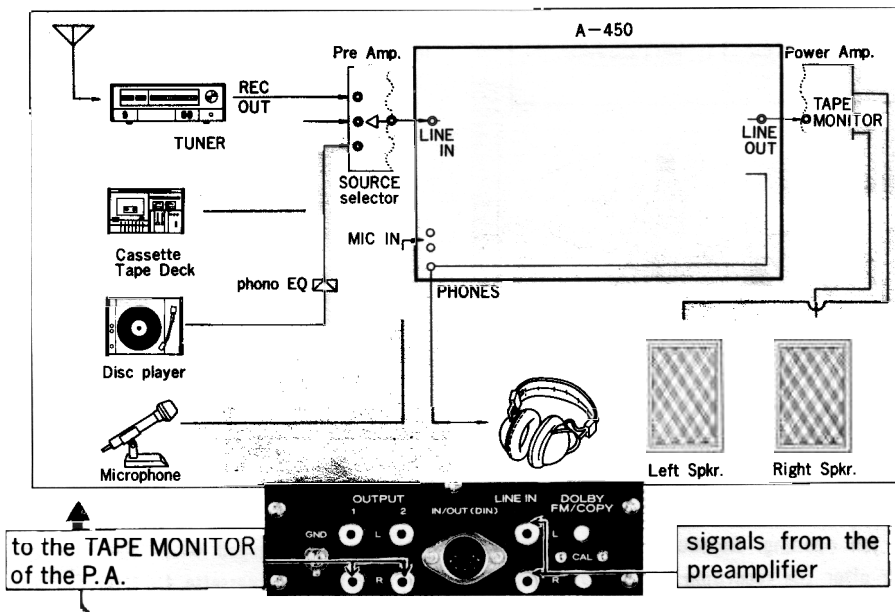
Connections

Playback: Connect OUTPUT jacks to the tape monitoring or AUX jacks on your receiver/amplifier. If DIN cord is used, do NOT use pincords simultaneously for the deck might receive positive feedback to the point of oscillation.

Record: Your 450 is equipped with dual inputs; DIN and MIC inputs are common and should be used for low level signals from lower impedance sources; the LINE IN jacks are used when recording from a tuner, amplifier or another tape deck's outputs (high impedance, perhaps 50k ohms or more). Optimum noise reduction is achieved

through the LINE IN jacks. These signals are generally of a higher level and tend to mask the noise. In some instance the use of the DIN cord may result in slightly increased hum and/or reduced high frequency response. We recommend that you use the individual cables supplied with the unit, connected to the LINE IN and OUTPUT jacks as shown in the diagrams.

NOTE: Especially avoid using what is called a DIN-PIN plug cord. Such cords will give an impedance- and signal level-mismatch, resulting in exceptionally weak inputs signals.



Basic recording &

Loading cassette tape onto the deck

1. Depress the EJECT key fully; cassette compartment lid opens and the holder raises up.
2. Place the cassette onto the holder with selected side up and open end (tape exposed) towards you.
3. Press the cassette downward until the holder locks in place; close the lid.
4. Depress the ◀◀ Rewind key to reach the beginning of the tape; Automatic stop releases control at full rewind.
5. Push the Counter Reset button for a "000" reading; use ▶▶ Play or ▶▶ Fast Forward key to locate the end of clear leader tape, at approx. "005".

Recording operation

1. Re-start the source program you wish to record, from the beginning.
2. Push the PAUSE key again to release it as the program begins. This starts the actual recording. Time available is:
C-30 = 15 min. per side
C-60 = 30 min. per side
C-90 = 45 min. per side
3. Stop recording in three ways:
end of tape — automatic shut-off will release all keys up to stop the deck;
temporary — use the PAUSE key to pass ads, pauses in speech, etc.;
complete — the STOP key will release all.

Switches and function control settings

Proceed by setting the following switches.

1. TIMER Control — OUT
2. DOLBY FM/COPY — OUT
3. DOLBY NR — IN (lamp illuminates)

NOTE: These standard settings will be changed only for conditions explained elsewhere.

4. BIAS and EQ (equalization) switches—as explained in the list of recommended settings to match the type of tape (See page 10).
5. All slide-controls (MIC, LINE, OUTPUT) to the "0" mark (lowest position).



Playback operation

1. Rewind the tape to the beginning or to desired reference number on Index Counter.
2. Depress the ► Play key, adjust the

Preparation for the record function

1. Depress the PAUSE key to engage the control for the following steps.
2. Depress and hold the REC key while you depress the ► (play key) until both keys remain engaged and the REC lamp illuminates.
3. Start the recording source material by tuning in the radio station, playing a phonograph disc, playback from another tape deck, performing into microphones, etc. Proceed immediately with Setting the Level, below.

Basic record level setting

The PAUSE key should remain engaged for the following. Substitute MIC for LINE as appropriate to the source.

1. Raise the LINE Input Level controls until the pointers in the VU meters approach 0 VU (100%), both L and R.
2. Using the loudest parts of the program, make a final adjustment with both controls so the pointers do not exceed 0 VU.
3. If the PEAK LEVEL Indicator illuminates or flashes even at 0 VU, reduce the L and R LINE controls until it remains out.
4. For MIC/LINE Mixing, both pairs of inputs are adjusted to indicate below 0 VU and the inputs are balanced by monitoring through headphones at the PHONES jack.
5. Raise the OUTPUT Level controls to a comfortable listening level through the headphones or stereo amplifier. Control speaker volume level at the amplifier.

OUTPUT level controls for a maximum of 0 VU indicated on the meters.

3. Listen with headphone or a stereo amplifier and speakers. Select "Tape Monitor" and control volume at the amplifier.

Recording with MIC

Make connections and set the following: POWER switch of the 450 ON.

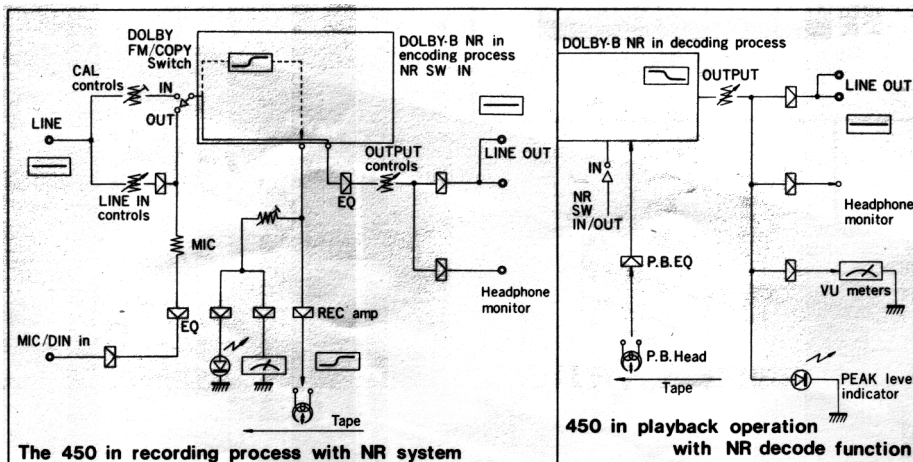
Each a 600–10k ohms (150 ohms allowable) type microphones to MIC jacks.

Depress the PAUSE until it locks. Next depressing REC and PLAY buttons until these locked.

Adjust the recording levels (L & R) to the predesired optimum limit as described above.

Unlock PAUSE button to release and start the recording. The tape travel indicator light illuminates for tape run in normal speed.

MIC/LINE mixing capability is also obtainable (add your narrations or singings onto program fed through LINE i.e. from other tape deck, etc.)



DOLBY NR switch

(noise reduction system) Selector switch equipped with the Dolby NR circuit, your 450 reduces the tape hiss noise by as much as 10 dB. Functions:

IN..... this position is used for Dolby NR recording and playback. The indicator lamp will illuminate.

OUT.. bypasses the circuitry for ordinary recording and playback.

Wider Dynamic Range from the 450

From the smaller tape size and slower tape speed with cassette tape, several problems in the recording dynamic range could be greater with cassette than open reel tape. Dynamic range is the useable margin for recording between the distortion from too high a level and the noise heard when the input level is too low. Accompanying that consideration is the need for proper frequency response while having a reduced tape-head gap size.

The 450 has overcome these limitations with cassette tape by advanced TEAC engineering and the following resulting features. Dolby Noise Reduction extends the dynamic range by up to 10 dB at the quieter end, further assisted by low-noise electronics. Accurate high-level recording results from the PEAK LEVEL indicator, and wide-scale, accurate VU Level meters to assist in proper setting of the precise slide record level controls. Total harmonic distortion is also reduced by accurate Bias and Equalization selections and the outstanding High Density Ferrite tape heads with the exact head gap for perfect response.

PEAK (L.E.D.) indicator

This light emitting diode is a warning device which complements your VU meters by indicating transient peaks or spikes that might exceed the tape saturation point. VU level meters are very accurate for most inputs for they show the average level of the programs. Sudden loud peaks from percussion or electronic instruments usually cannot truly be shown by a meter pointer movement, however, because the intensity is not held for a long enough period (attack time) to allow the meter to register. The LED reacts purely electronically, rather than mechanically, and illuminates at the instant that signals reach into tape saturation domain no matter how briefly. Therefore, the PEAK level indicator is your final judge of the true intensity of signal inputs recorded. Whenever this illuminates, your recording level is little high and you should reduce the recording volume to prevent saturation and harmonic distortion of the tape.

Optimum recording level

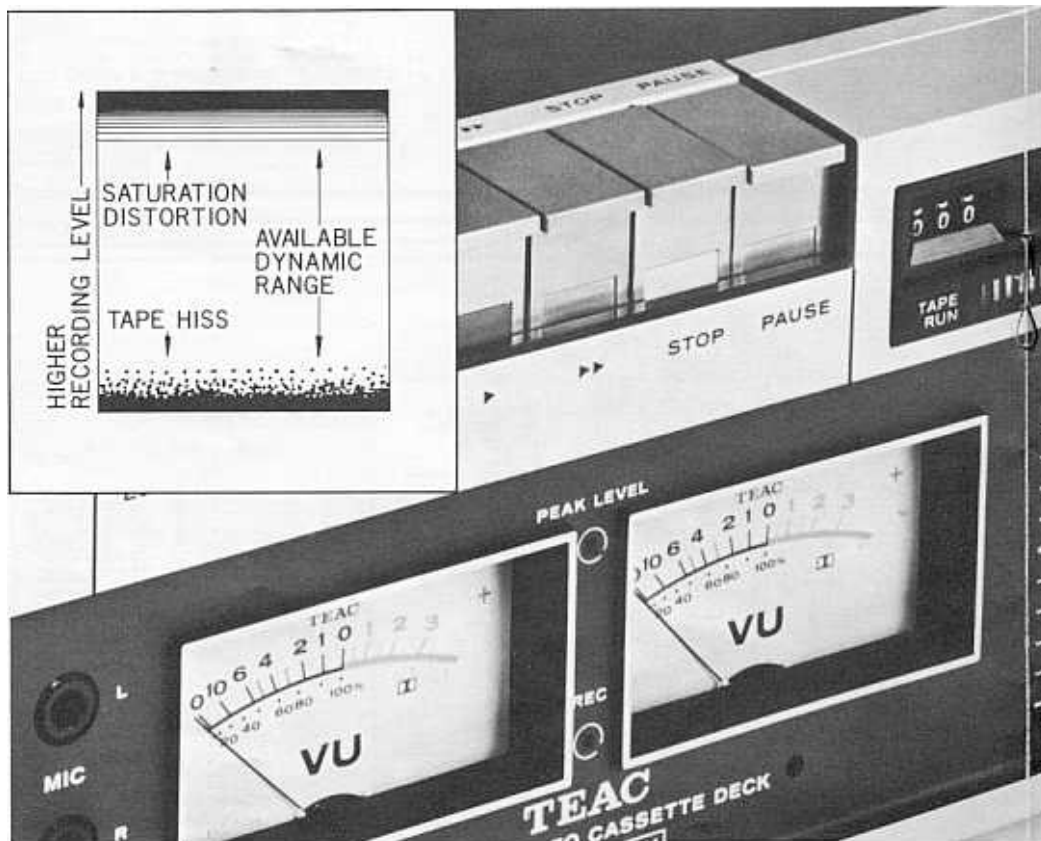
The VU meters indicate output levels in playback and input level in record. For the recording level adjustments (L & R-ch), first depress the PAUSE key; then, depressing the REC button fully, hold it while pressing down ► play button.

The VU meters again are now ready to indicate the input levels, that is, the recording levels. Set as above your 450 permits you to monitor the input signals through the headphone. While watching the VU meters, align the recording levels with MIC (microphone) input volume controls for the microphone or DIN inputs, or with LINE input volume controls for other signals. Set the recording levels to the positions where the VU meter pointers will not deflect too far to the maximum even with the momentary peaks or sharp spikes of pulses. The PEAK LEVEL indicator should not be flashing. A recording with the best S/N ratio and with minimum distortion can be obtained when the recording levels are kept to such that the VU meter pointers will be swung as fully as possible within the range

Using the PAUSE key facility

The PAUSE key is used effectively for well-cued starts when recording. With a cassette tape loaded in the deck, depress the PAUSE key to engage it down. Then, depressing the REC and ► Play key prepares the deck for recording. Adjust the recording levels in this Record-Pause mode, then wait for the time to begin recording.

Set as above, when the PAUSE key is depressed again (to release it), the tape starts moving forward and recording begins immediately. To temporarily halt the tape travel during a recording, use the PAUSE key rather than STOP for this quick-start feature.



quality recordings

BIAS & EQ (equalization) switches

TAPE!

Equalization (EQ) is the electronic method employed to maintain a natural or total "flatness" over the recording and playback responses. This equalization circuitry in the deck provides compensation during recording and playback for the higher frequencies. You should, therefore, set the EQ switch to match the type of tape during both recording and playback. Use the accompanying list for a guide.

Recommended Selections

Have used TDH - SD 90 on H₁-H₁ & OH

Dolby NR system

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

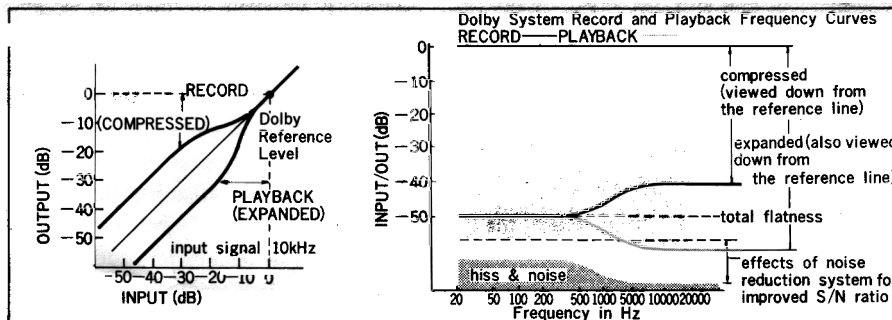
itself is lowered to improve the s/n ratio. One of the best of noise reduction systems available today, it enables you to make recording and playback featuring extra-low noise and wider dynamic range approaching that of an open-reel deck. Dolby NR system comes in 2 types, A-type and B-type. The A-type 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.

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.



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 of the program's 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 450 thus can reduce such noise by 5dB at 1kHz, and 10dB at about 5kHz or higher in terms of s/n.

Dolby encode:

refers to passing an ordinary signal through a Dolby system to add the Dolby effect.

Dolby decode:

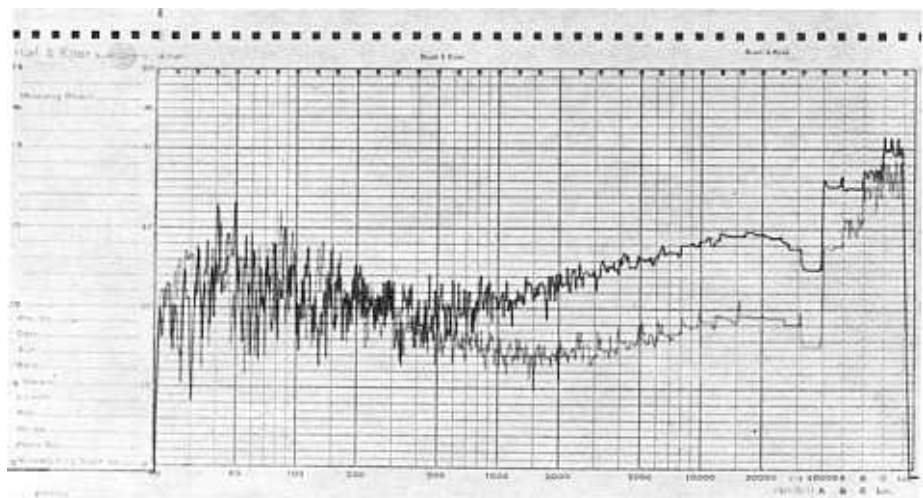
refers to returning a Dolby-encoded signal to an ordinary signal by the action of a Dolby NR system which, by that process, reduces tape noise and hiss.

Dolby processor:

sometimes simply referred to as "processor". In general, it refers to the Dolby circuit. When passing a signal through this circuit, Dolby-encoding and -decoding will result.

Dolby Tone:

refers to the 400 Hz signal used in aligning the input calibration levels to the specified Dolby Reference Levels.



Featured applications

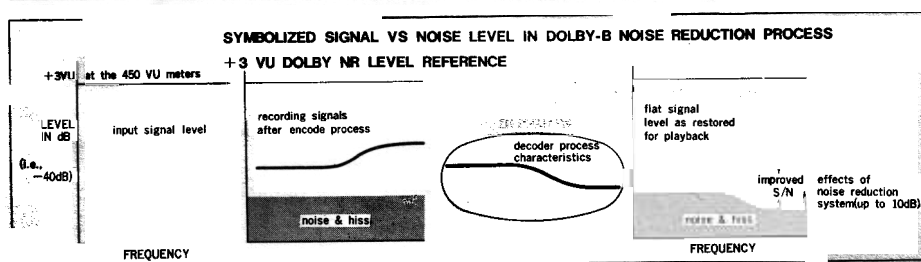
DOLBY FM/COPY facility

One of the chief advantages of the Dolby Noise Reduction System is the freedom from tape noise and hiss build-up which occurs when successive generations of tapes are used to make additional copies. When a copy of a copy is used to transcribe yet another copy, the noise level from each preceding generation is carried into the

next — unless the copies are recorded with Dolby NR processing from the beginning.

TEAC has enhanced this feature of the Dolby NR system by adding a special circuit to increase your listening pleasure. This Dolby FM/Copy delivers the Dolby-encoded signal "as it is" to the recording circuits while restoring the monitored audio in the Dolby NR processor. Thus, the music is

heard as it was originally created while a Dolby-encoded copy is recorded without tape noise build-up. For comparison, when copying from a Dolby-encoded tape or broadcast without a Dolby FM/Copy facility, one would have to listen to the high-pitched treble emphasis of a non-decoded program.



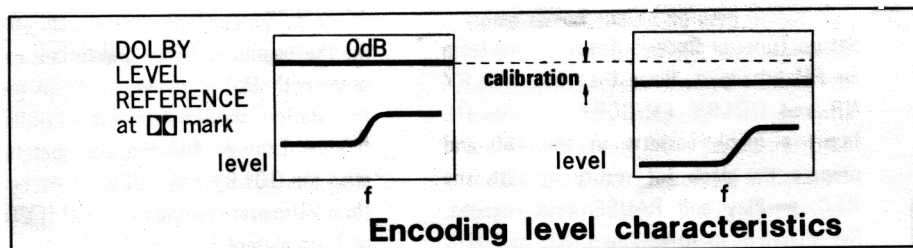
Calibration

Maintaining the Dolby Reference level between the playback (master) deck and the recording deck (450 as "slave") is essential. Highest accuracy requires the MTT-150 Dolby Reference Level Test Tape, an optional accessory exclusively from TEAC.

2a. Playing back the loudest section of the tape you wish to copy, adjust the DOLBY FM/COPY — CAL controls for identical VU level meter readings between the master and the 450.

Dolby NR Principle in Copying

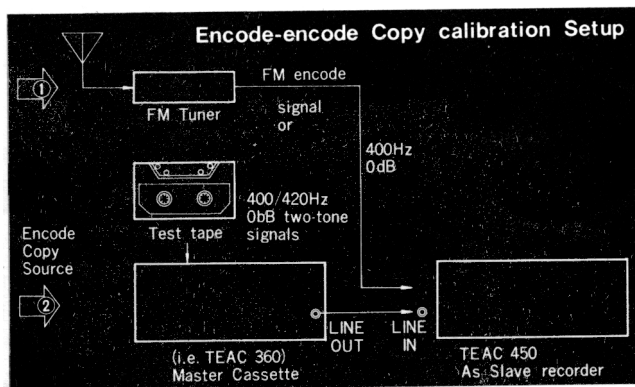
As the Dolby NR system uses a "mirror image" kind of processing, the original recording levels must closely match the playback levels. This is easily done by using the Dolby Reference level which is identified on the 450 meters as $\square\square$. Whenever copies of Dolby-encoded music are made, the level controls are replaced by the DOLBY FM/COPY — CAL controls on the rear of the 450. These must be set as explained in the following instructions for alignment. The reference to be used is either a Dolby Level Reference Test Tape (TEAC MTT-150) or the tone broadcast by an FM station for Dolby calibration.




1. Playback the MTT-150 tape on the Master and adjust its OUTPUT controls for the Dolby mark ($\square\square$) on its VU meters. Keep the Master deck's Dolby NR switch OUT.
2. Continuing to playback the tape MTT-150, adjust the DOLBY FM/COPY — CAL (L and R) controls on the 450 rear panel until both meters indicate +3 VU ($\square\square$).

Alternately, lacking a Test Tape, use the following procedure for a provisional, approximate setting.

- 1a. Set the Master deck Output controls to the normal playback setting, keep the Dolby NR switch out on that deck.



Dolby copy calibration

When the DOLBY FM/COPY switch is IN, all Input Level controls (LINE, MIC) are replaced by the two screwdriver adjustable resistors on the rear connection panel. Labeled DOLBY FM/COPY -CAL, these calibration adjustments are used to adjust the input level to the Dolby Reference Tone when the tone is received (from a test tape or FM radio), adjust these CAL controls for a +3 VU ( marked) level on the VU meters.

Dolby FM Radio Broadcasts


A few areas in the world now are using the Dolby NR system to encode some programs for FM broadcasting. As such broadcasts are already Dolby encoded at the station, they may be recorded directly without further Dolby NR processing. When played back with Dolby NR decoding on the 450, there is a significant reduction in both radio and tape noise. The DOLBY FM/COPY facility thus permits decoded listening to the broadcast while the program is recorded with Dolby NR encryption.

IMPORTANT: If the FM broadcast is not specifically a Dolby FM program from the radio station, leave the DOLBY FM/COPY switch OUT. In that case, the DOLBY NR switch should still be IN for normal Dolby NR processing.

Timer-controlled recording and playback

With a commercially available clock timer controlling the ac power to the deck, the 450 may be used as an "alarm" clock to awaken to music, or you can record a radio broadcast scheduled for an inconvenient time. Recording and playback procedures are the same as given elsewhere in this manual, with the following added steps.

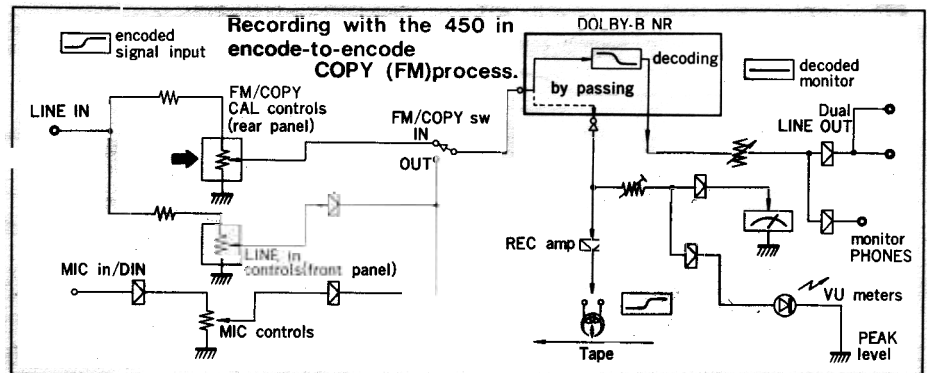
Preparation

Connect the Playback cassette deck's output to the 450's LINE IN jacks. On the 450, place the DOLBY NR and DOLBY FM/COPY switches both IN. Insert blank cassette in the 450. Engage the REC, , and PAUSE keys; set the other switches (BIAS, EQ) and set POWER to ON.

Operation


Load and rewind the recorded cassette in the Playback deck. Begin playback and simultaneously release the 450's PAUSE control. Do not change any level control on either deck except the OUTPUT control on the 450 may be adjusted as desired for listening. LINE and MIC controls have no effect.

Copying Dolby-encoded Cassettes




Copying Dolby-FM Broadcasts

Preparation


Set up Tuner or Receiver for recording from an FM broadcast. Place the 450's DOLBY NR and DOLBY FM/COPY switches IN. Insert a blank cassette in the 450 and prepare the deck for recording with the REC, , and PAUSE keys engaged. Set POWER to ON. The LINE and MIC controls will have no effect.

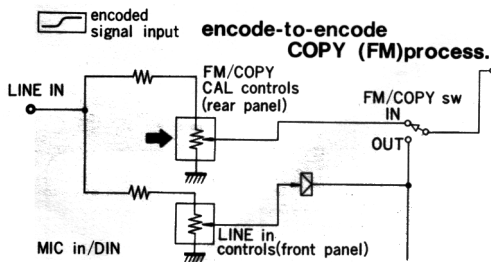
Calibration

At the beginning of an FM broadcast program with Dolby, or sometime in the day, the station should transmit a Dolby Reference Tone of 400 Hz. Use that tone to align the DOLBY FM/COPY - CAL controls for a VU meter reading of +3 VU ( mark) on both meters.

Electrical connections: Connect the 450 to an AC outlet (unswitched is preferred) on the rear panel of your Stereo Amplifier; connect the amplifier to the AC outlet on the Clock Timer which is then connected to a house-hold current (wall or mains) outlet.

Note: If your amplifier (or tuner) has no outlets available, connect all these components directly to the clock timer.

Preparation: With the 450 TIMER switch OUT, and the clock timer "on" (current time), engage the PAUSE control and the  Play (and REC) keys. Make all preliminary adjustments except for releasing the PAUSE control.



Operation

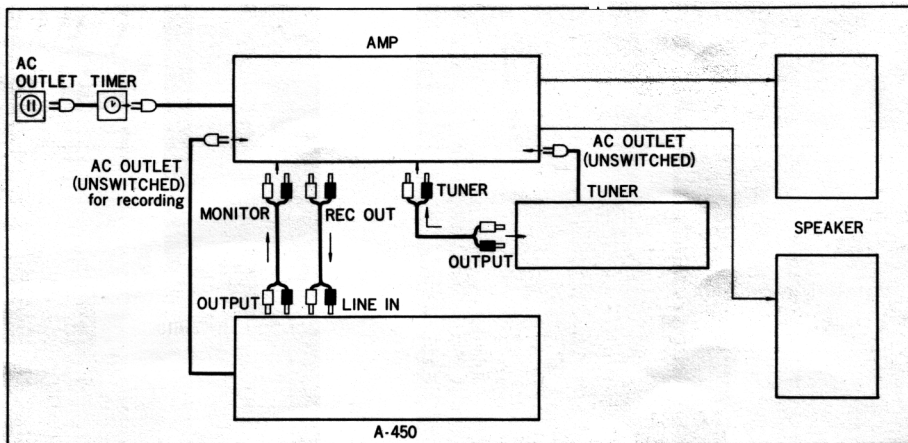
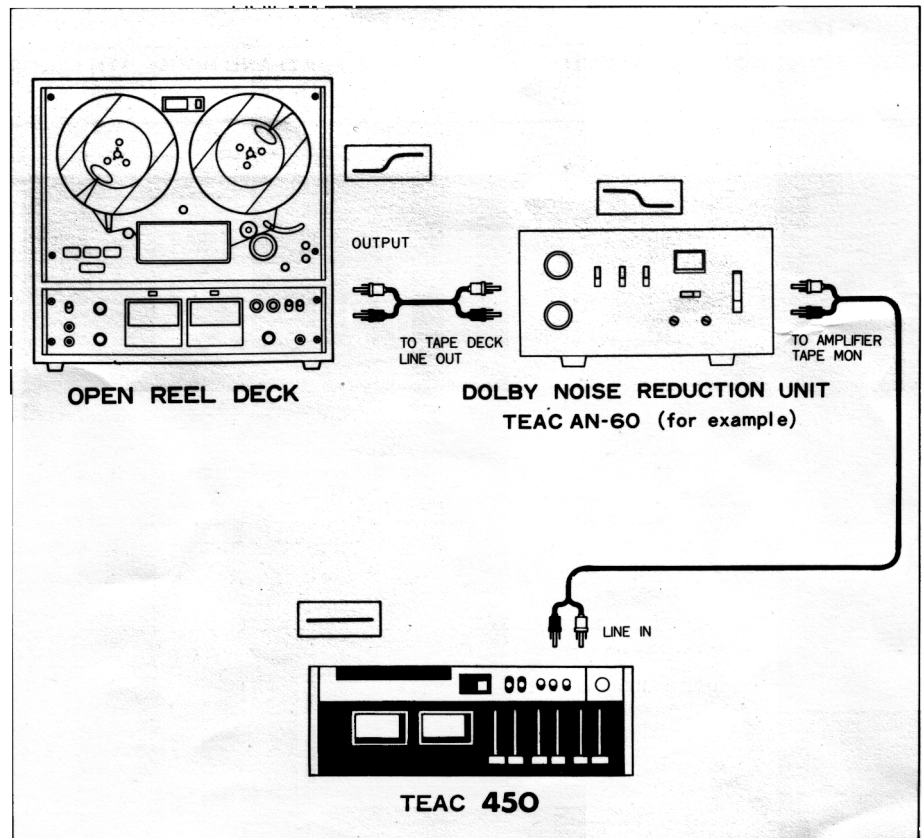
With the desired station tuned in, release the PAUSE key at the start of the program. To edit the commercials, use the PAUSE key. Control the listening level with the OUTPUT level controls set to the normal level by using the Volume control on the amplifier.

Other considerations

The 450 can be used as a Dolby NR decoding processor without actually recording. Follow the regular procedures given for Dolby FM or Copy recording but leave the PAUSE key engaged. The monitored signal will be decoded for your listening pleasure.

Open-reel tapes are often recorded at such a high level that a direct copy of Dolby

encoded tapes is impractical because of overload saturation on the cassette. Direct copies of Dolby NR processed open reel tapes using the DOLBY FM/COPY facility are not recommended. Decode such tapes through a separate Dolby NR unit (i.e., TEAC AN-60), then reprocess the program on the 450 with the DOLBY FM/COPY switch OUT.



Set the desired time on the clock timer when everything else is prepared. Then change the TIMER switch on the 450 to IN.

When the clock timer applies electricity to the 450, the PAUSE key will be automatically released after a few seconds and Playback (or Recording) will begin. At the end of the tape, the 450 will shut-off completely.

Owner's care

Troubleshooting guide

SYMPTOM	POSSIBLE CAUSE	SUGGESTED ACTION
Deck will not turn ON; lamps on VU meters do not illuminate when the POWER switch is ON.	1. TIMER switch set to IN. 2. Power cord disconnected. 3. Fuse blown (burned out).	1. Set TIMER switch OUT. 2. Check Power cord (mains). 3. Replace with good fuse after the Power cord is unplugged.
Deck will not operate; VU lamps do light up.	1. PAUSE control engaged. 2. Tape sticking in the cassette.	1. Release the PAUSE control button. 2. See Excessive Wow, below and use the Before loading procedures on page 5.
REC control key cannot be depressed fully.	1. Cassette tape not loaded. 2. Cassette shell safety tab removed or damaged.	1. Insert cassette tape. 2. See "Accidental Erasure Protection" on page 5.
Input Level controls have no effect while recording.	DOLBY FM/COPY switch IN.	Change DOLBY FM/COPY switch to OUT.
Monitored audio sounds distorted while recording.	Input levels are too high.	Reduce Record level controls (LINE or MIC) to prevent PEAK LEVEL light from illuminating on loud passages.
Distorted audio in Record and/or Playback modes.	1. Dirty or magnetized tape head. 2. Cassette tape stretched.	1. Clean and demagnetize tape head. 2. Replace the cassette itself.
No audio in Playback.	1. DOLBY FM/COPY switch IN. 2. OUTPUT Level controls 3. Cassette tape erased or not recorded.	1. Must be at the OUT position. 2. Should be raised to the point just below where VU meters show 0 VU. 3. Check another recorded cassette.
Excessive wow (waving or "vibrato" sound).	1. Dirty capstan, pinch roller. 2. Irregularly wound tape.	1. Clean capstan and pinch roller. 2. Wind tape in Fast Forward ►► then Re-wind tape ◄◄
Noise is excessive on a tape recorded with 450.	1. Pin cords not fully connected or ground connection faulty. 2. Defective cassette.	1. Check all connections carefully. 2. Record same program on another cassette tape: if satisfactory, discard or completely demagnetize first cassette; if also noisy, clean and demagnetize tape heads, check other components in stereo system.
Loud hum heard in Playback.	1. Deck is too near a high magnetic field.	1. Move deck to another location.

Optional accessories



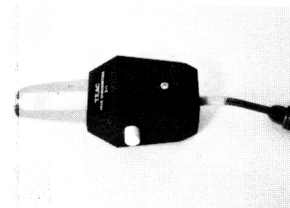
MC-201
Electret condenser Microphone



HP-103
Dynamic Headphone



TZ-261
Head and Rubber Cleaner



E-1
Head Demagnetizer

Owner's care -continued-

Routine procedures

About cleaning

With dirty or contaminated heads, the tape deck not only fails to faithfully reproduce highs but there are dropouts or audible skips of sound. When the pinch roller and/or capstan are dirty, the tape may become entangled with them as it travels. Clean them periodically and especially before making any important recordings. The head, pinch roller and capstan can be cleaned comparatively easily if you clean while the cassette holder is pushed in and the Play button is depressed, extruding the heads for access. TEAC offers the TZ-261, a head and rubber cleaner kit supply for all cleaning needs (optional accessories).

Note that Guarantee does not cover tape damage due to improper cleaning of capstan shaft or pinch roller.

Clean all metal parts over which the tape passes.

Demagnetization of the head

After many hours of use, the head and metal parts in the mechanism may become slightly magnetized. As a result, the performance at high frequencies deteriorates or noise increases. In the worst case, your valuable music tapes may become intolerably deteriorated in the treble range and often mixed with noise. Using the TEAC head demagnetizer (available as an option, E-1), demagnetize the head and capstan shaft at least once every 50 hours of use. This practice is highly recommended for maintaining consistently high performance. Procedures are: Turn off the deck, open the lid.



Push the cassette holder in until it locks in place, and depress the play key until it locks, extruding the head.

Turn on the head demagnetizer and bring it close to the tip of the head from above. Move the demagnetizer slowly from the front of the head to the rear four or five times.

Then slowly lift the demagnetizer away from the head.

Demagnetize the capstan shaft likewise.

When the demagnetization treatment is finished, turn off the demagnetizer only after it is separated 30cm (12") or more away from the head.



Dolby FM Copy Feature Note

Recent technical developments in the application of Dolby noise reduction to FM broadcasts have given broadcasters the opportunity to increase the quality of their signal at the transmitter while improving the compatibility of the signal for listeners without Dolby NR equipment.

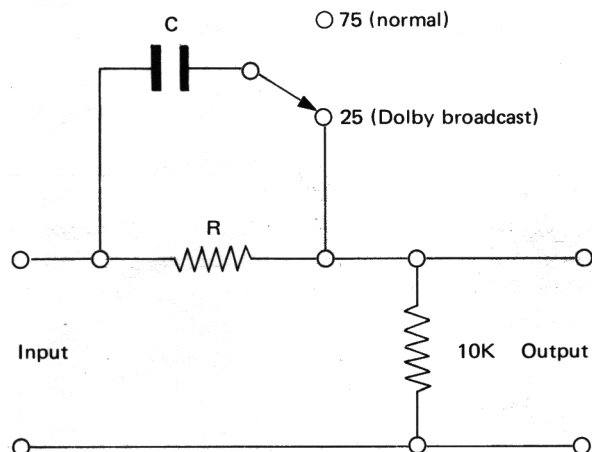
At the same time, however, the characteristics of the broadcast signal have changed such that, to properly achieve the full benefits of Dolby-processed broadcasts, an additional, simple circuit is required between the tuner and the Dolby NR unit or

tape deck with Dolby FM Copy facilities. Please be guided by the following notes.

1. For maximum benefit, a simple additional circuit should be used in conjunction with the Dolby NR unit whenever listening to and/or recording a Dolby FM broadcast. Two ready-made add-on units are now available from Switchcraft, the model 621 and 622 Dolby FM Compensator. Alternatively, the circuit shown below may be built by you to add to your system. Either an adapter or the components may be obtained from your

local electronics parts or hi-fi store.

2. If a Compensator (or the circuit) is not used, then the Dolby FM broadcast should be treated as a normal FM signal. Thus, you will listen to it without decoding or you will record it after processing through the Dolby NR unit or tape deck Dolby NR circuitry.
3. Do not use the procedures in this manual regarding FM Dolby broadcasts unless the Compensator or the equivalent circuit is included in your system.



	Normal time constant	R	C
North America	75	20K	3900pF
Other Countries	50	10K	5000pF

A-450 Stereo Cassette Deck with Dolby System

TEAC

The leader. Always has been.

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