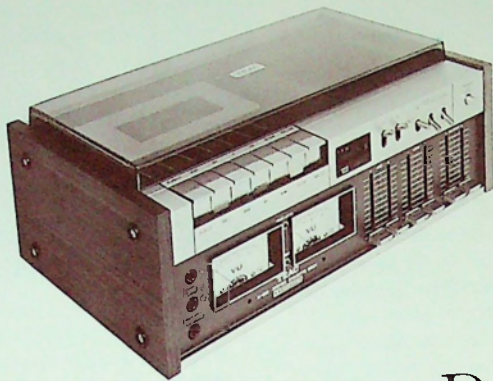


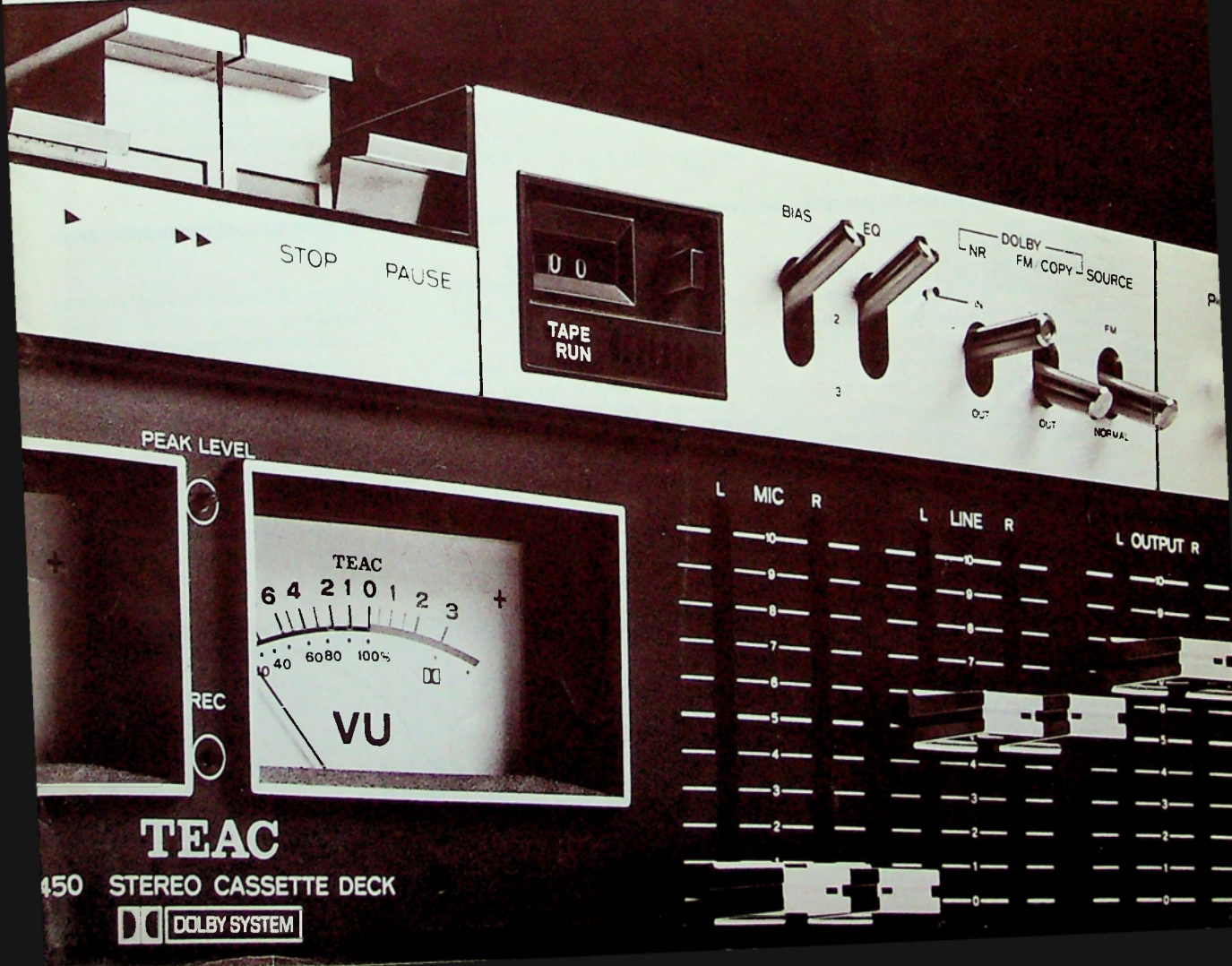
# OWNER'S MANUAL



## TEAC® A-450

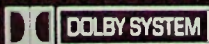
Stereo Cassette Deck with Dolby® System

51013670



TEAC

A-450 STEREO CASSETTE DECK





Thanks for buying a TEAC.

Your A-450 is a top quality deck of proven excellence and durability. It was built with all the patience and skill that has made TEAC the leader in the field of tape recording for over 20 years.

If this is your first stereo cassette deck we suggest that you read through this Owner's Manual carefully to familiarize yourself with all the capabilities of this fine deck before you begin using it. If you are an experienced recordist just stepping up to the superb A-450, (as many of our customers are) you will probably find the A-450 easy to operate and understand. It has been "human engineered" for you.

Good luck and good recording!

### Playback Procedure

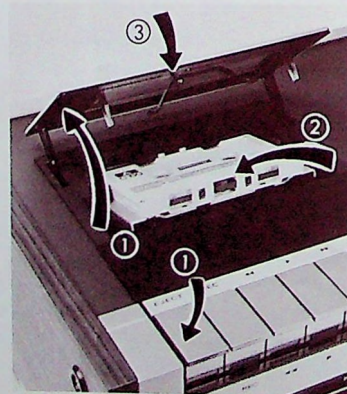
Prior to proceeding with this procedure, reduce volume level on your stereo amplifier to prevent sudden playback sound from damaging your speakers.

1. Insert the recorded cassette in the deck as shown, with the side of the cassette you want to playback facing up.
2. Set the EQ switch to match the type of tape you are using according to the chart on page 5. The BIAS switch has no effect during playback.
3. Set the DOLBY NR switch to IN position if the tape was recorded using Dolby noise reduction circuitry. Set the switch to OUT if the tape was recorded without using Dolby noise reduction circuitry. If this switch is mis-set during playback the music will not sound natural, especially on the higher notes above 5 kHz.
4. Set the DOLBY FM/COPY switch to OUT.
5. Set the OUTPUT level controls to about the #8 position.\*
6. Depress the ► (play) key to begin playback of the tape.
7. Adjust the OUTPUT level controls for the desired listening level if using headphones or for a 0 VU reading on the VU meters if you are using a separate stereo amplifier and speaker system.
8. Set the controls on the stereo amplifier or receiver (if used) to obtain the sound loudness you desire.

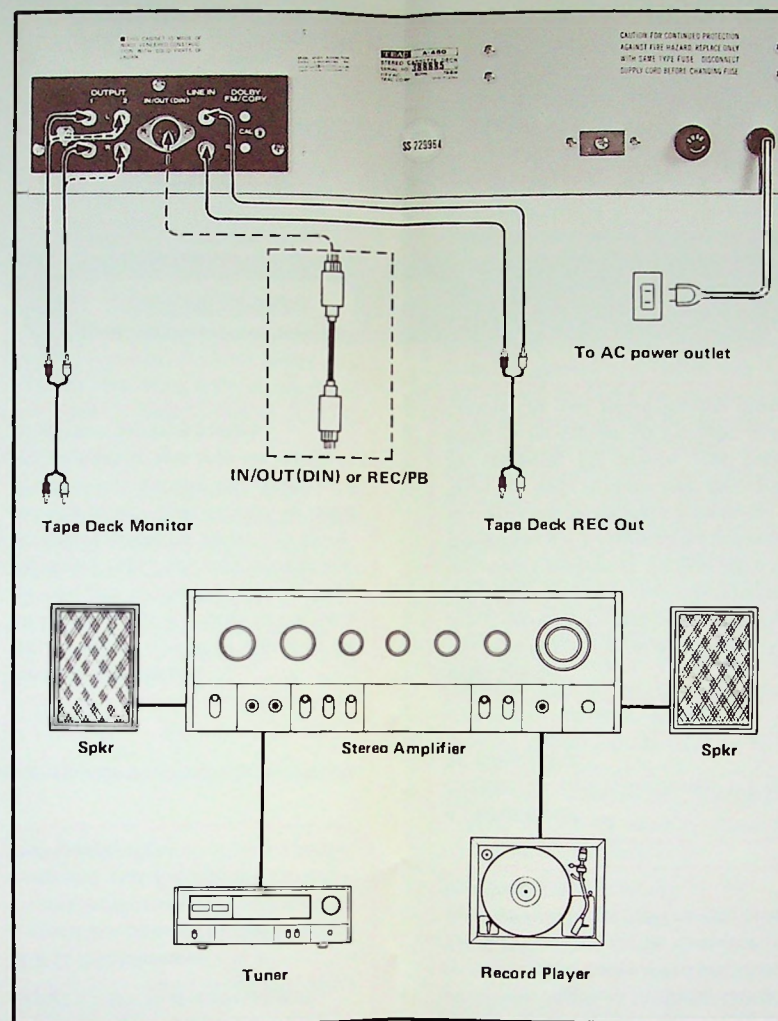
\* Position #8 will give a standard output level when playing back a properly pre-recorded tape.

### 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".



**CAUTION:** Do not place the A-450 on top of a television set or other device that may generate hum or radiated noise or excessive heat or magnetism.



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 deck might receive positive feedback to the point of oscillation.

**Record:** Your A-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 instances 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 diagram.

**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.

\* Noise reduction circuit made under license from Dolby Laboratories Inc. The word "DOLBY" and the Double-D symbol are trademarks of Dolby Laboratories Inc.

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

### Recording Procedure

1. Insert the cassette as shown in the playback procedure, with the side you wish to record facing up. Close the cassette lid.
2. Set the BIAS and EQ switches to match the type of tape you are using according to the chart on page 5.
3. Set the Dolby NR switch to the IN position to Dolby-encode your tape during recording so you can reduce inherent tape noise during playback. For recording without Dolby NR, set the Dolby NR switch to OUT.
4. Set the Dolby FM/COPY switch to OUT.  
If you are recording a Dolby FM broadcast, set the Dolby FM/COPY switch to IN.
5. If you are recording a Dolby FM broadcast set the SOURCE switch to FM.
6. Set the OUTPUT level controls to about position 2 or 3 on the scale.
7. Depress the PAUSE key to engage the control. Depress and hold the REC key and then depress the ► (play) key until both keys remain engaged and the REC lamp illuminates.
8. Begin the source music, i.e., tune in the FM station or start the record player to get an initial test recording level.
9. Increase the MIC or LINE input level controls until the loudest levels read about 0 VU without igniting the peak level indicator. See page 6 for an explanation of the peak level indicator and setting the proper recording level. 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.
10. Raise the OUTPUT level controls to a comfortable listening level through the headphones or stereo amplifier. Control speaker volume level at the amplifier.
11. Re-start the source program you wish to record, from the beginning. Push and release the PAUSE button as the program begins. This starts the actual recording.
12. The recording may be stopped in one of the following three ways:  
End-of-tape: Automatic shut-off will release all keys to stop the deck.  
PAUSE key: Depress the PAUSE key to eliminate all commercials, breaks in the music, etc.  
STOP key: Depress the STOP key to completely release all selected functions.

### End-Stop Function

During any tape movement, when the cassette tape reaches the end of tape, the deck will stop and the selected key or keys will be automatically released after a short delay of 3-6 seconds. If the tape is already at the end of tape and any tape movement operation is selected that would move the tape toward the end-stop, the end stop function will continually release the selected key after the 3 to 6 second delay. The Pause key, if selected, will not be released.

### MIC/LINE Mixing

You can record both MIC and LINE inputs at the same time. This feature allows you to add your voice commentary to music as it is being recorded via the LINE jacks or to sing along with the music. You can also mix "live" music using microphones with pre-recorded music fed to your A-450 via the LINE jacks. Use a stereo headphone connected to the PHONES jack to monitor the MIC and LINE inputs and adjust the appropriate input control for the desired balance between them. Watch the VU meters and peak level indicator to insure that the combined inputs do not exceed 0 VU or ignite the peak level indicator.



# Features and Controls

This large center page is intended to give you a compact, concise explanation of the operating controls and features of your A-450 stereo cassette deck. Also included is information about some of the special features such as Dolby NR, FM/Copy facility, FM MPX filtering, peak level indicator and setting the recording level. We invite you to read through this manual as it may help to increase your knowledge and understanding of your deck which will lead to greater enjoyment and pleasure for you.

## Specifications

Track system	4 track, 2 channel stereo
Heads	Two: erase, record-playback
Type of tape	Cassette tape C-60 and C-90 (Philips type)
Tape speed	1-7/8 ips
Motor	Hysteresis synchronous outer-rotor motor
Wow and flutter (NAB weighted)	0.07%
Frequency response (overall)	CrO <sub>2</sub> tape: 30 — 16,000Hz (+2dB, -3dB 40 — 14,000Hz) FeCr tape: 30 — 16,000Hz (+2dB, -3dB 40 — 14,000Hz) Hi-Fi tape: 30 — 13,000Hz (+2dB, -3dB 40 — 12,500Hz)
Signal to noise ratio (overall)	60dB (with Dolby process)
Fast winding time	Approximately 95 seconds for C-60 tape
Inputs	Line: 0.1V, 100 k ohms or more MIC: 0.25mV/-72dB (600 — 10,000 ohms)
Outputs	Line: 0.3V for load impedance of 10,000 ohms or more Headphones: 8 ohms
Power requirements	117V AC, 60Hz
Power consumption	18W
Dimensions	17-1/2"(W) x 6-15/16(H) x 10-5/8"(D) 445(W) x 176(H) x 270(D) mm
Weight	9.5kg [21 lbs]net
Included accessories	Input/output connection cords, Silicon cloth, Cleaning stick, Plastic cover.
* Features and specifications subject to change without notice.	
* Specifications were determined 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.	

### GND Terminal

This ground terminal may be used to ground the deck to your system ground or external ground to eliminate certain hum or noises.

### OUTPUT jacks

Two pairs of parallel high impedance terminals. Use supplied connection cords to connect the deck to your stereo system.

### IN/OUT (DIN) connector

A special DIN cable may be used to connect the deck to your stereo system. However we recommend that the supplied connection cords be used instead.

### LINE IN jacks

High impedance input terminals for connecting this deck to another amplifier or tape deck LINE OUT jacks. Use the supplied connection cords.

### DOLBY FM/COPY CAL controls

These controls are used for setting the record level to the +3 VU Dolby reference mark on the VU meters. When the DOLBY FM/COPY switch is IN these controls over-ride the MIC and LINE controls on the front panel.

### AC POWER cord

Connect this cord to the normal 117 volt AC power outlet.

### Cassette Holder and Lid

The lid may be opened by depressing the EJECT key lightly for access to the heads and tape path for cleaning or maintenance. Depress the EJECT key more firmly to raise the cassette holder for insertion or extraction of a cassette tape. Keep the lid closed to prevent dirt and dust from entering the head area and to help hold the cassette in the optimum operating position.

### Index Counter

When the Play key ► or Fast Forward key ►► is depressed the tape moves to the right and the Index Counter counts up to indicate the relative position of the tape. When the Rewind key ◀◀ is depressed the tape moves to the left and the counter counts down. When you begin recording, reset the counter by depressing the counter reset button which is located just to the right of the counter. As you record log the counter

### BIAS

During recording the amount of bias included with the recorded signal affects the sensitivity, distortion, signal to noise ratio and frequency response of the tape. To get the maximum performance out of any tape it is very important to match the amount of bias supplied to the tape you are using.

### EQ (equalization)

Tape decks do not record and reproduce all audio frequencies at the same level. Various tapes also produce different output levels for different frequencies. To compensate for these factors manufacturers have added circuitry to try to restore the "flatness" of the original music. This circuitry is called equalization and is standardized throughout the audio industry to provide compatibility between the decks made by various manufacturers. EQ affects the signal during both record and playback operation and therefore the EQ switch should be set to match the tape in both cases.

BIAS and EQ switch setting chart		
BIAS/EQ switch	Brand	Type of tape
1 (CrO <sub>2</sub> )	FUJI FILM	FC-C-60 FC-C-90
	MAXELL	CR-C-60 CR-C-90
	TDK	KR-C-60 KR-C-90
	SONY	C-60-CR
	BASF	Chromdioxid C-60 C-90
2 (FeCr)	AGFA-GEVAERT	Chromdioxid C-60 C-90
	SONY	C-46 DUAD C-60 DUAD
3 (Low noise high output)	SCOTCH	CLASSIC C-45 C-60, C-90
	SONY	C-60-HF, C-90-HF C-60, C-90
	TDK	ED-C-90 SD-C-60, SD-C-90 D-C-60, D-C-90
	FUJI FILM	FX-C-60, FX-C-90 FL-C-60
	MAXELL	UDXL-C-60 UD-C-60, UD-C-90 LN-C-60, LN-C-90
	BASF	C-60-LH, C-90-LH C-60, C-90
	SCOTCH	LD-C-90

### POWER switch

Depress to apply power to the deck.  
Depress and release to remove power.

### OUTPUT level controls

Separate control for each channel to adjust the volume level of the signal off the tape. Also controls the volume level to the PHONES jack.

### LINE Input level controls

Separate controls for each channel to adjust the record level of the signal that is connected to the LINE jacks at the rear of the deck.

### MIC Input level controls

Separate controls for each channel to adjust the record level of the signals that are connected to the MIC jacks and the IN/OUT (DIN) connector. The LINE and MIC Input level controls are bypassed when the DOLBY FM/COPY switch is in the IN position.

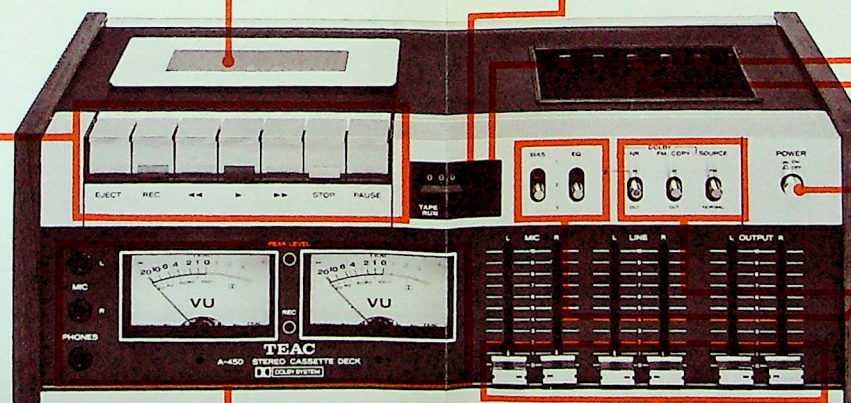
### EJECT key

The EJECT key is used to open the cassette lid and to eject the cassette. A gentle push on the EJECT key will open the cassette lid only. A slightly firmer push will raise the cassette for easy removal. Never fully depress the EJECT key during a tape movement operation.

### Play key ►

This key causes the tape to move from the left to the right side for both normal Record and Playback operation. When the tape reaches the end, the special end-stop feature will release the key or keys that were depressed.

### Fast Forward key ►►



### Tape Run Indicator Light

This flashing lamp indicates the tape is moving and its relative speed.

### Cassette Tray

Use for temporary storage of up to six tapes.

### BIAS and EQ switches

Separate 3-position switches for the selection of the correct Bias and equalization. Use the switch setting chart above for reference.

### DOLBY NR switch

### DOLBY FM/COPY switch

### SOURCE FM/NORMAL



When depressed the red REC indicator will light and the record circuitry will be activated. To actually begin recording and tape movement, depress the Play key while holding the REC key down. Both keys will lock in the down position and the tape will be recorded. The REC key must be depressed before depressing the Play key.

#### NOTE :

You cannot depress the REC key if a cassette is not inserted in the cassette holder. You cannot depress the REC key if the cassette that is inserted has had the Record protection tabs removed. See page 3 of the Information Supplement for further information about protection of recorded tapes.

#### Rewind key ◀◀

When depressed, the tape will rewind quickly onto the left reel of the cassette. This will move the tape to the beginning of the tape. When the tape is completely wound onto the left reel, the unique end-stop feature of the A-450 will automatically release the Rewind key and stop the tape movement.

Note that if the Rewind key is depressed while the tape is already rewound onto the left reel, the Rewind key will again be automatically released after a short delay of 3-6 seconds.

from the left reel to the right reel of the cassette to allow you to by-pass or skip over portions of the tape that you don't wish to record or play. The end-stop feature also releases this key when the end of tape is reached.

#### STOP key

This key will stop the tape and release the keys and de-activate any function that was selected (except PAUSE)

#### PAUSE key

If depressed during Record or Play mode, the tape movement will be halted but the electronics will remain in the previously selected state (Record or Play). The capstan remains in motion, but the pinch roller is retracted. When you want to resume tape movement just depress the PAUSE key again and release it. Pause mode can also be used to set the Record input levels prior to starting an actual Record operation. To do this, depress the PAUSE key first and then depress the REC and Play keys together. Electronically the deck will be in the Record mode but there will be no tape movement and therefore no recording of the tape. The PAUSE key allows you to stop the tape without releasing the selected keys or mode. Thus, you can resume the previous operation by just releasing the PAUSE key.

#### Indicator Lamps

##### PEAK LEVEL Indicator Lamp

This lamp ignites when high level signals which would saturate your tape appear at the MIC or LINE inputs. See paragraph below entitled "Peak Level Indicator" for further explanation of the Peak Level indicator.

##### RECORD Lamp

A red lamp that lights when the deck is in the RECORD mode.

##### VU Meters

These easy to read meters indicate output level during playback and input levels during recording. The lamps in the meters illuminate when the power switch is depressed ON.

##### MIC and PHONES connection jacks

Use microphones with impedances of 600 ohms to 10 Kohms and connect them to the MIC L-R jacks on the front panel. Low impedance mics with impedances of 150 to 600 ohms may also be used satisfactorily. Use 8 ohm stereo headphones and plug them into the PHONES jack on the front panel.

recording and playback. The DOLBY NR indicator will illuminate. The switch must be IN for Dolby processing of the input signal prior to recording and during playback of Dolby encoded tapes.

OUT — Bypasses the Dolby circuitry for ordinary recording and playback.

or Dolby encoded tapes.

OUT — For recording of any source other than Dolby FM broadcasts or Dolby encoded tapes and during the playback mode.

circuitry to remove the 19 kHz FM sub-carrier signal employed in FM transmissions and connects a special 25 microsecond de-emphasis network for Dolby FM broadcasts.

NORMAL — 19 kHz filter and 25 microsecond de-emphasis network are bypassed in the circuit.

#### 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. DOLBY NR switch must be in IN position for decoded monitoring.

#### DOLBY FM/COPY calibration

When copying music from an FM station that is transmitting a Dolbyized signal or when copying a Dolbyized tape from another tape recorder it is important that the recording levels match the original playback levels.

When the DOLBY FM/COPY switch is IN, all Input Level controls (LINE, MIC) are replaced by the two 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 +3VU (0 mark) level on the VU meters.

To set the record level when copying from another (master) deck which has Dolby NR circuitry use the following procedure:

1. Playback the MTT-150 tape on the Master and adjust its OUTPUT controls for the Dolby mark (00) 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 A-450 rear panel until both meters indicate +3 VU (00).

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.
- 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 A-450.

#### 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 de-coding on the A-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 encoded program is being recorded.

**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 and the SOURCE switch must be in the FM position.

#### Other considerations

The A-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 80), then reprocess the program on the A-450 with the DOLBY FM/COPY switch OUT.

For more information about Dolby Noise reduction in general, see page 5 of the included Cassette Information Supplement.

#### Peak Level indicator

The peak level indicator on the A-450 is a light emitting diode (LED) which flashes on instantly when a signal of about +6 dB is input to the deck. This peak indicator is a warning device that complements the VU meters on the deck. The VU meters are designed to read average signal level and do not respond to sudden changes in level such as certain percussion instruments produce or a shout or similar sound of a very short duration. These sudden sounds, often called transients, can however cause tape saturation and distortion. The LED reacts purely electronically, rather than mechanically, and illuminates at the instant that signals reach into the saturation domain no matter how briefly. Therefore, the peak level indicator is your final judge of the true intensity of the signal. Whenever this illuminates, your recording level is a little high and you should reduce your recording level to prevent saturation and distortion of the tape. See the next paragraph for more about selecting the optimum recording level for your tape.

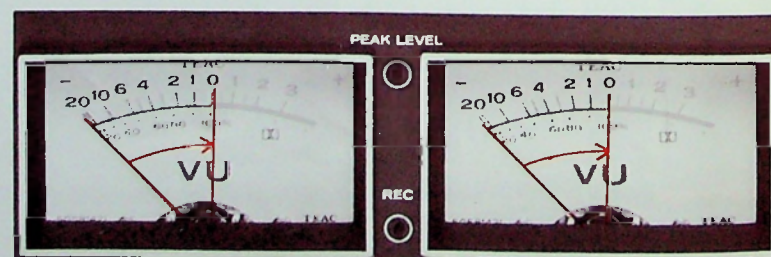
#### Basic record level setting

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.



Source signal	Type of recording	DOLBY NR sw	DOLBY FM/COPY sw	SOURCE sw
Normal FM	Normal Recording	OUT	OUT	FM
Normal Source	Normal Recording	OUT	OUT	NORMAL
Normal Source	Dolby encoded	IN	OUT	NORMAL
Normal FM	Dolby encoded	IN	OUT	FM
Dolby encoded	Dolby encoded	OUT or IN *	IN	NORMAL
Dolby FM	Dolby encoded	OUT or IN *	IN	FM
Dolby FM	Normal Recording	not possible		
Dolby encoded	Normal Recording	not possible		

For the purpose of this chart "Normal" means a non- Dolby encoded signal.

\*When the DOLBY FM COPY switch is IN during recording, the DOLBY NR switch has no effect on recording signal to the tape, but it affects the record monitor signal.



# A-450 Stereo Cassette Deck with Dolby System

## TEAC®

The leader. Always has been.

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