

TASCAM

5700109600

TEAC Professional Division

102/103

Master Cassette Deck



OWNER'S MANUAL



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



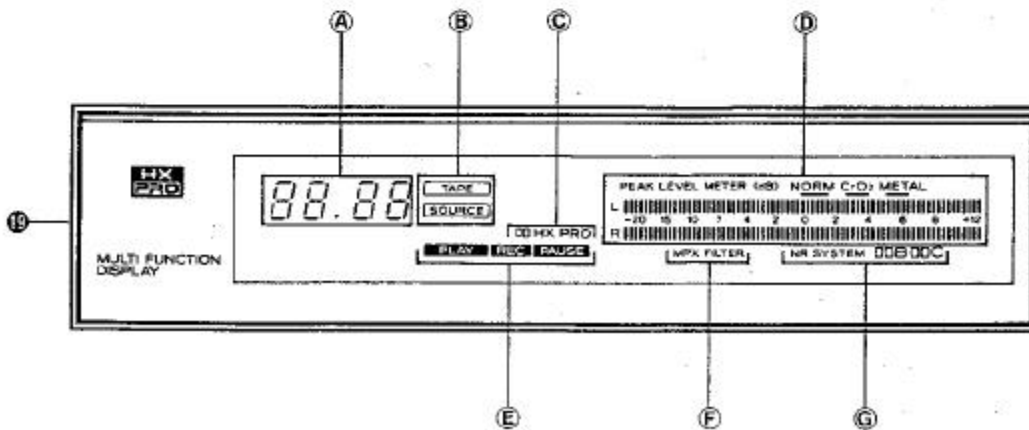
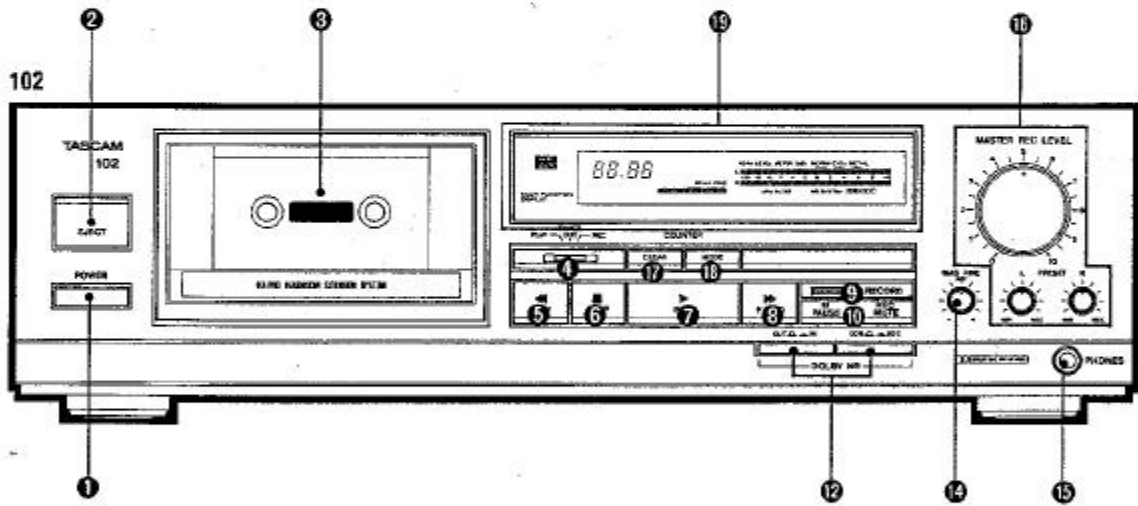
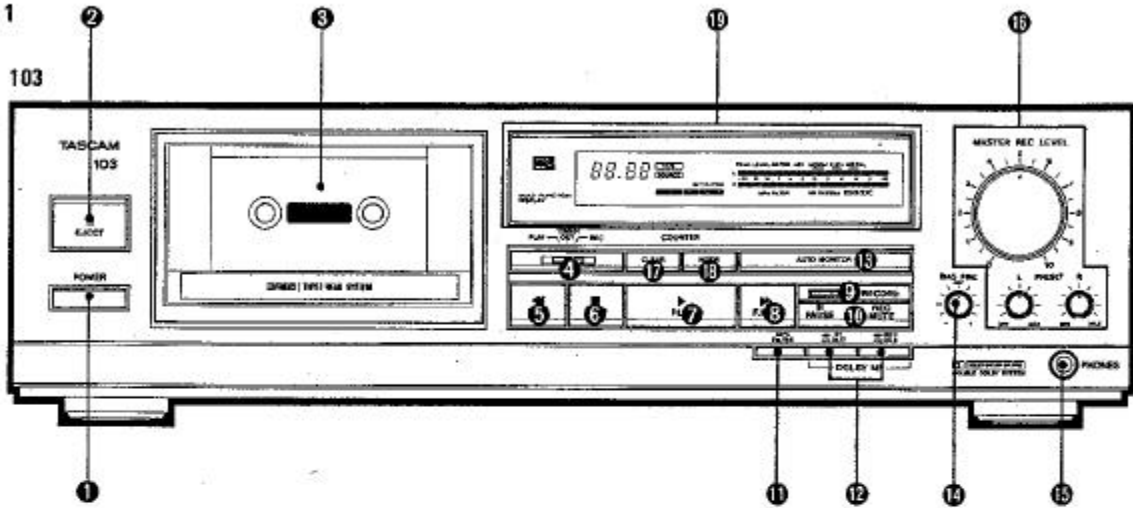
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

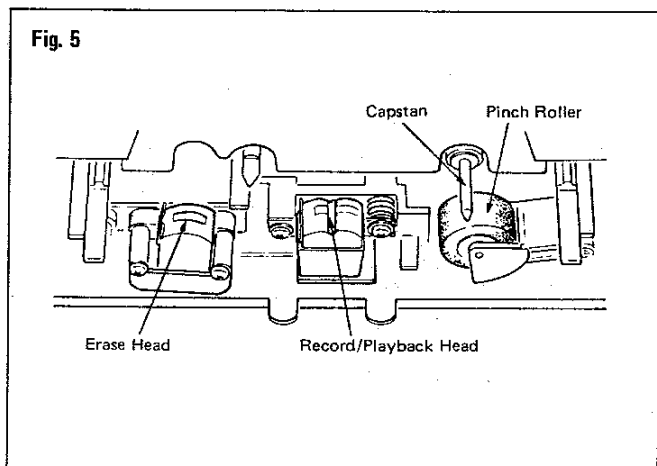
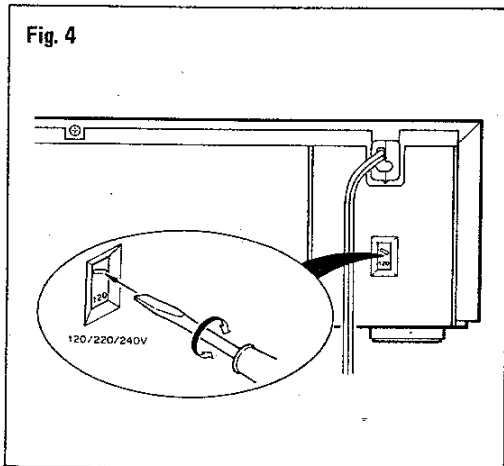
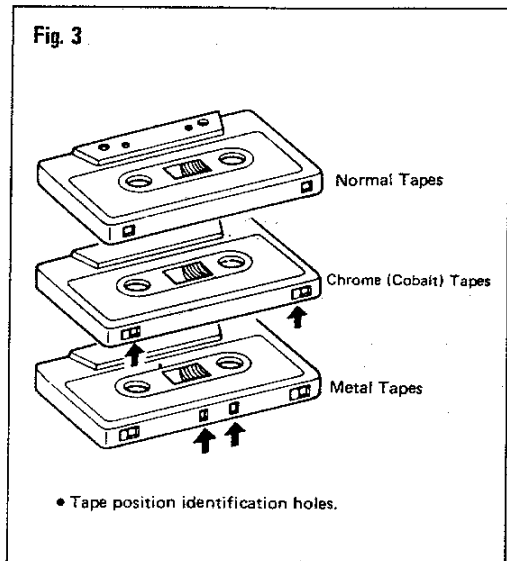
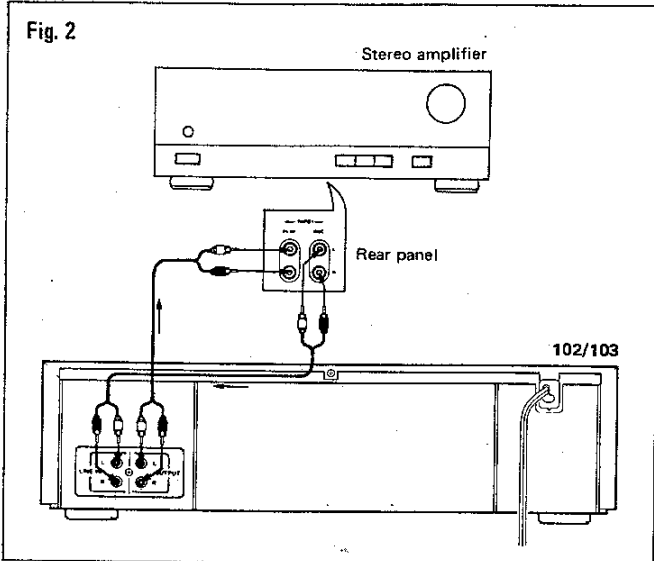
This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

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

Reference Illustrations

Fig. 1





Precautions

Environment

Avoid using the deck in the following circumstances:

- High temperature (such as heater, direct sunlight).
- Extremely low temperature.
- Excessive humidity.
- Dusty atmosphere.
- Where power line voltage fluctuation is severe (the use of a voltage regulator may be advisable).
- Be aware also that placing other units or any objects on the deck can leave marks depending on their weight.

Cassette Tape (Fig. 3)

Tape Selection:

For the automatic tape select function to work properly, metal and chrome (cobalt) formula tapes must have tape identification holes.

Tape Handling:

Do not store tape in the following places:

- On top of heaters, in direct sunlight or in any other high-temperature areas.
 - Near speakers, on TV sets or amplifiers or near any strong magnetic fields.
 - High-humidity areas or dirty, dusty areas.
- Avoid dropping or subjecting the cassettes to excessive shock.

Voltage Conversion (For general export models) (Fig. 4)

If it is necessary to change the voltage requirements of the deck to match your area, use the following procedure:

1. DISCONNECT POWER LINE CORD.
2. Using a screwdriver, turn the selector until the desired voltage marking appears.

IMPORTANT (for U.K. Customers)

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


BLUE	NEUTRAL
BROWN	LIVE

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

The wire which is coloured **BLUE**, must be connected to the terminal which is marked with the letter **N** or coloured **BLACK**. The wire which is coloured **BROWN** must be connected to the terminal which is marked with the letter **L** or coloured **RED**.

In the U.K., this unit is sold without an AC plug.

This product is manufactured to comply with the radio interference of EEC directive "82/499/EEC."

*Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Connections (Fig. 2)

- Turn off power for all equipment before making connections.
- Read instructions for each component you intend to use with the deck.

Features and Controls (Fig. 1)

1 POWER Switch

Press to switch the deck on. The display window will be illuminated. Press again to turn the deck off.

Note: If you switch the power on again, be sure to wait more than 2 seconds after the power has been switched off.

2 EJECT Button

Press in the stop mode to open the cassette holder.

3 Cassette Holder

4 TIMER Switch

PLAY: For timer playback

OUT: Set to this position when not using a timer.

REC: For timer recording

5 ◀◀ (Rewind) Button

Pressing this button rewinds the tape at high speed from right to left. When the tape is fully rewound, the auto stop mechanism stops automatically the tape transport.

6 STOP Button

Press to stop the tape travel and release any other mode.

7 ▶ (Play) Button

Pressing this button causes the tape to run at normal speed.

8 ▶▶ (Fast-Forward) Button

Pressing this button fast-forwards the tape at high speed for left to right. In the same way, tape transport stops automatically when the tape is fully wound.

9 RECORD Button

Press this button together with the ▶ button to start recording. The REC indicator lights in red.

10 PAUSE (||)/REC MUTE Button



Press the left side of this button to temporarily stop tape travel during recording or playback (the PAUSE indicator lights). Pressing the right side of this button, during



recording or record-pause mode, leaves about 4 seconds of blank space on a tape. Then the deck enters the record-pause mode. To restart recording, press the ▶ button.

11 MPX FILTER Button (103)

Press this button when making a Dolby NR recording of an FM broadcast; the indicator lights. It eliminates the pilot tone (19 kHz) and sub carrier tone (38 kHz) of the FM broadcast which could affect operation of the Dolby noise reduction system. To release this function, press the MPX FILTER button again.

12 DOLBY NR Switches

IN/OUT Switch: This switch is used to activate and deactivate the noise reduction system. To activate noise reduction, set to the IN (≡) position and select the NR-system with the  B/  C switch. Set this switch to the OUT (□) position to record or play back without noise reduction.

 B/  C Switch: Set this switch to the "≡" position to record with Dolby C-type NR or play back a cassette tape recorded with Dolby C-type NR, or to the "□" position to record with Dolby B-type NR or play back a cassette tapes recorded with Dolby B-type NR.

13 AUTO MONITOR Button (103)

This button allows you to select which signal is to be monitored and to display its level on the meter. When the power is applied to the deck, the monitor mode is set to TAPE, showing the signal recorded on the tape is monitored and displayed on the meter. When the deck enters the record-pause mode, the monitor mode is automatically switched to SOURCE, showing the signal input to the deck (from the LINE IN jacks on the rear panel) is monitored and displayed. And when the record-pause mode is released, it is automatically changed to TAPE.

To manually change the monitor mode, press this button.

14 BIAS FINE Tuning Control

This control allows fine bias level setting when recording. The center "click" position provides a nominal amount of bias current depending on the type of tape.

Turning the control toward + increases the amount of bias and thus decreases high frequency response.

Turning the control toward - decreases the amount of bias and thus increases high frequency response.

Keep this control in the center position when it's not being used.

15 PHONES Jack

Connect 8 ohms stereo headphones to this jack for private listening or monitoring.

16 Recording Level Controls

MASTER REC LEVEL Control:

When recording, turn the MASTER REC LEVEL control clockwise to fade the input sound in or turn it counterclockwise to fade out, for smooth tune-to-tune transitions. To balance between the left and right channels, use the PRESET controls.

PRESET Level Controls (L/R):

Adjust the precise recording level for the left and right channels independently to keep the level at a fixed level, so that the same recording level can be obtained at any time.

17 COUNTER CLEAR Button

Pressing the CLEAR button resets either the conventional tape counter or the tape-run-time counter to zero.

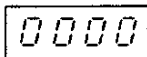
18 COUNTER MODE Button

Press this button to alternate the display mode between the conventional tape counter and the tape-run-time counter.

19 Display Window

A Multi-Counter Tape Counter Mode

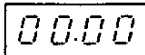
In this mode, the counter functions like a conventional tape counter, counting up when the tape is moving forward and down when the tape is being rewound. The display can be cleared by pressing the COUNTER CLEAR button, resetting the counter index to "0000".



Tape-Run-Time Counter Mode

In this mode, tape travel is measured in increasing minutes and seconds up to a maximum of 99.59 (99 minutes 59 seconds). Since this counter only functions in the play or record mode, it will be interrupted when the tape is fast-forwarded or rewound (and, of course, in the stop mode); counting up will be resumed when playback or recording restarts. The display can be cleared by

pressing the COUNTER CLEAR button, resetting the counter index to "00.00". To change the display mode press the COUNTER MODE button.



B Auto Monitor Indicators (103)

TAPE: Lights when the tape signal either in playback and record mode is selected.

SOURCE: Lights when the source signal is selected. The Auto Monitor indicator is changed automatically to the monitor mode so that SOURCE indicator lights when the deck enters the record-pause mode. When recording starts, the SOURCE indicator automatically goes out and the TAPE indicator lights.

C DOLBY HX PRO indicator

Lights when the deck enters the record mode, showing the built-in Dolby HX Pro circuit functions. For details, refer to page 8.

D PEAK LEVEL METER and Tape Type Indicators

This meter shows the peak level of the input or playback signal. In the record mode, the meter indicates the level of the source signals which have been adjusted with the Recording Level controls. The highest peak to be recorded should generally not exceed the meter reference reading for the type of tape used.

During playback, the meter indicates the level of signals recorded on the tape.

The deck automatically detects the type of tape which has been loaded, and these indicators (NORMAL, CrO₂ and METAL) indicate the type of tape being used.

A dash indicator below the appropriate tape type indicator is provided as the meter reference reading for the type of tape used.

E Transport Mode Indicators (PLAY/REC/PAUSE)

PLAY: Lights when deck is in the playback and record modes.

REC: Lights when deck is in the record and record-ready modes, and flashes during record-muting.

PAUSE: Lights when deck is in the stand-by mode for playback or recording.

F MPX FILTER Indicator

Lights when the MPX FILTER switch (103) or DOLBY NR IN/OUT switch (102) is pressed.

G NR SYSTEM Indicators

Lights to show the NR system currently selected.

Operations

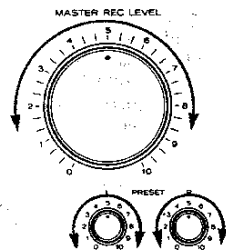
Playback and Recording

Stereo Playback

1. Set the TIMER switch to OUT.
2. Press the POWER switch to ON.
3. Load a pre-recorded cassette.
4. Select the NR system with the DOLBY NR buttons.
5. Press the ► button to start playback.
6. Adjust the volume with the amplifier's control.

Stereo Recording

1. Set the TIMER switch to OUT.
2. Press the POWER switch to ON.
3. Load a recordable cassette.
4. Select the NR system with the DOLBY NR buttons.
5. (103 only) Press the MPX FILTER button to IN when making a Dolby NR recording of an FM broadcast.
6. Press the PAUSE button together with RECORD button (both indicators light). This enables you to adjust the recording level without actually recording on the tape.
7. Adjust the BIAS FINE tuning control described in "Using the BIAS FINE Tuning Control".
8. Adjust the recording level controls so that the loudest peak briefly reaches the meter reference reading for the type of tape used.



9. Press the ► button to start recording. (103 only)

The Auto Monitor indicator is automatically changed to TAPE and the signal can be directly monitored immediately after it is recorded. To compare the recorded sound with the original source, press the AUTO MONITOR button to switch the signal being monitored between TAPE and SOURCE.



Notes:

- To stop recording, press the STOP button.

- To momentarily stop recording, press the PAUSE button. To resume recording, press the ► button.

Note:

Recording prerecorded tapes, records, or other published or broadcast material may infringe copyright laws. Check these laws before recording.

Setting the Recording Level

Setting the recording level correctly is essential if you want to make top-quality recordings. If the level is too low, the recording will be noisy. If the level is set too high, the recording will be distorted. Generally speaking, the recording level should be set so that the loudest peak to be recorded makes the meters briefly indicate the meter reference reading for the type of tape used. If the meters peak over the reference reading, decrease the recording level by turning the Recording Level controls counterclockwise. However, some program material of different tape formulations may require higher or lower recording levels. With a little time and practice you will be able to select the critical recording level that gives you the best hi-fi recordings. The type and condition of the tape, as well as the type of music source you are recording will affect the optimum setting of the recording level.

Record Muting Operation

The capability of creating blank unrecorded (erased) portions on a tape during recording is a real advantage in many recording situations. For instance, you may want to eliminate undesired portions of an FM broadcast that you are recording, such as commercials, station breaks or announcements. You may want to record a complete program with controlled spacing between each song. Such blank portions on a tape can be easily left using the REC MUTE function.

1. **Automatic Spacing Operation – for a 4-second blank – (during recording or record-pause mode)**
Press the REC MUTE button during recording or record-pause mode. The tape movement continues, and a blank space of about 4 seconds is recorded (the REC indicator flashes). The deck then switches automatically to the record-pause mode (both the REC and PAUSE indicators light). To begin recording the next tune, press the ► button (the PAUSE indicator goes off).

2. **For a Blank of More Than 4 Seconds**

During recording, keep the REC MUTE button pressed for a longer blank period. Release the button to enter the record-pause mode. To begin recording, press the ► button.

3. **For a Blank of Less Than 4 Seconds**

After pressing the REC MUTE button during recording, press the PAUSE button, before the 4-second interval has expired, to cancel the muting mode and engage the record-pause mode. To begin recording, press the ► button.

Erasing

A previously recorded tape will be automatically erased when you make a new recording on it. Alternatively it can be erased by "recording" on it with the MASTER REC LEVEL control set to "0".

Punch-In Recording

During playback, you can go from reproduce to record by holding in the RECORD button and simultaneously pressing the ► button. A new recording will start from that location. This operation allows you to record over or correct a recorded section of the tape without pressing STOP button first and then enabling the record mode.

Dubbing

Deck-to-deck copying of tapes (dubbing) can be done without using an external amplifier. Operation is the same as standard record and playback procedures described in the record and playback sections. This deck can be used as the "master" recorder with a second recorder used as the "slave" recorder. Connect the output of the master to the input of the slave recorder. To use this deck and the second recorder in opposite roles, simply reverse the input and output connections.

Using the BIAS FINE Tuning Control

The center position provides a nominal amount of bias current. Turning the control toward "+" increases the amount of bias current; a minute decrease in high-frequency response will be obtained. Turning it toward "-" decreases the amount of bias current; a noticeable increase in high-frequency response will be obtained.

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1. Place the deck into the record mode and begin recording by using a disc or a prerecorded tape of which sound quality you are familiar with.
2. Set the AUTO MONITOR switch to TAPE to monitor the reproduced sound. If the high frequency sound seems higher than the original of which you are comparing, turn the BIAS FINE tuning control toward "+" to obtain the best possible monitoring sound by ear. On the other hand, if the high frequency sound seems low, turn the control toward "-" until the appropriate bias current is obtained.
3. As a final check, alternatively set the AUTO MONITOR to SOURCE and TAPE to confirm the correct setting of the BIAS FINE tuning control by comparing the recorded sound against the original.

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1. Make a recording from a disc, etc.
2. After recording, rewind the tape to the beginning of the recorded section, then play it to monitor the reproduced sound.
3. By comparing the monitored sound with the original, adjust the BIAS FINE control, then try recording again.
4. Repeat steps 1 through 3 until correct setting of the BIAS FINE control is obtained so that the best possible sound can be recorded.

Timer-Controlled Operation

Timer-Controlled Recording Operation

1. Connect your deck and stereo system to a commercially available audio timer.
2. Make all the preparations as for normal recording, but leave the deck in the stop mode.
3. Set the audio timer to the required start (power on) and stop (power off) times.
4. Set the TIMER switch on the deck to REC.
When the preset start time is reached, power will be supplied and recording will start.

Timer-Controlled Playback Operation

1. Check that the deck is correctly connected to the amplifier for normal playback operation.
2. Connect the deck and amplifier to a audio timer as for timer-controlled recording (above).
3. Make all preparation as for normal playback, but do not set the tape in motion.
4. Set the audio timer to the required start (power on) and stop (power off) times.
5. Set the TIMER switch on the deck to PLAY.
When the preset start time is reached,

power will be switched on and playback will start.

Multi-Counter Function

With the multi-counter facilities incorporated in the unit, there are two different display modes available, depending on the setting of the COUNTER MODE button. **Tape Counter Mode:** The counter functions as a conventional tape counter. **TRT Counter mode:** The counter functions as a tape-run-time counter, measuring tape travel in minutes and seconds.

Using as a Tape Counter

Using the COUNTER MODE button, call up the tape counter mode; a 4-digit display will appear. Its function is identical to that of conventional tape indexing counters. During recording (included record muting), playback and fast-forward, the counter counts upwards as the tape moves from left to right, and downwards during rewind as the tape moves from right to left. The indicated numerals are not related to time lapse and are not compatible with the counter readings of other cassette decks. One typical example of using this display in the conventional tape counter mode is: First load a cassette and before recording, press the COUNTER CLEAR button to reset the counter to "0000". Then note the counter reading at the beginning of each piece of music to facilitate locating a particular selection when you wish to play it back.

Using as a TRT Counter

Using the COUNTER MODE button, call up the tape-run-time mode; a dot appears between the 2nd and 3rd digit. In this mode, tape travel is measured in increasing minutes and seconds while the tape is running at normal speed during recording (including record muting) and playback. Counting stops during rewind and fast-forward. This function can be used to measure the approximate length of a recorded song or to make a calculated estimation of how much tape is left.

"Visible" and "Invisible" Counters

Both counter modes are switchable at any time, with the one selected appearing on the display and the other functioning in memory. For example, when the conventional tape counter is selected with the COUNTER MODE button, counting of the tape-run-time also takes place and its reading can be called up at any time by pressing the COUNTER MODE button. Pressing the COUNTER CLEAR button resets only the counter which is visible. Both counters, "visible" and "invisible" are reset when power is switched off.

DOLBY HX PRO

Dolby HX Pro is an "active bias" technique that can improve the quality of audio tape recordings. High-level high frequencies can be recorded more accurately, without sacrificing signal-to-noise ratio, while such side effects of tape saturation as distortion are reduced.

What Is Bias?

Bias is a very high-frequency signal generated within a tape deck and recorded on the tape simultaneously with the program material. This inaudible signal allows a low noise, low distortion recording and flat frequency response. Different magnetic tape formulations require different amounts of bias for optimum performance. If the bias level is too high, high-frequency Maximum Output Level (MOL) decreases.

The Problem of Self-Bias

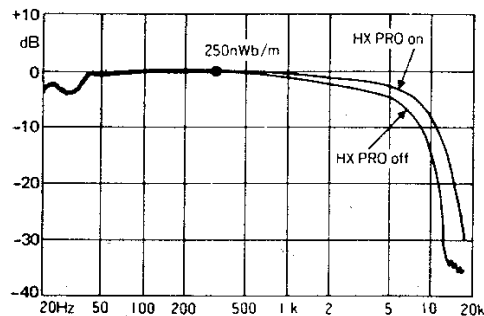
Unfortunately, bias level is often influenced by the signal being recorded. The high frequencies contained in some music act as bias. This unpredictable source of bias is added to the existing bias, resulting in a loss of high-frequency response. As the high-frequency content of the signal increases, the ability of the recorder to record high frequencies (MOL) decreases. This phenomenon is called self-biasing.

How Dolby HX Pro Solution

The Dolby HX Pro monitors the high-frequency content of the program material and adjusts the recorder bias oscillator to maintain a constant total bias level. The result is improved high-frequency response and lower distortion. Depending on the type of tape, the improvement in headroom can be 6 dB or more.

The Benefits

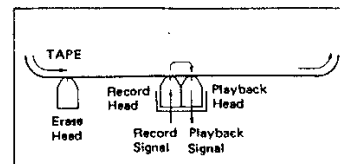
With Dolby HX Pro, it is easier to make more accurate recordings of the kind of music which contains high-level high frequencies. The improvement is similar to that of high-performance tape over conventional tape, so regardless of the type of tape used, the results will sound better. Most important of all, Dolby HX Pro requires no decoding process. Once the tape is recorded with it, the improvements will be realized when playing the tape back on any machine.



Example of improved frequency response using Dolby HX Pro function

Three-Head System (103)

A three-head system means that you can record on the tape and monitor from it at the same time (see illustration). Conventional combination record/playback heads permit only recording or playback. With the three-head system, you can check the quality of your recordings as you make them.



Record and Playback Heads