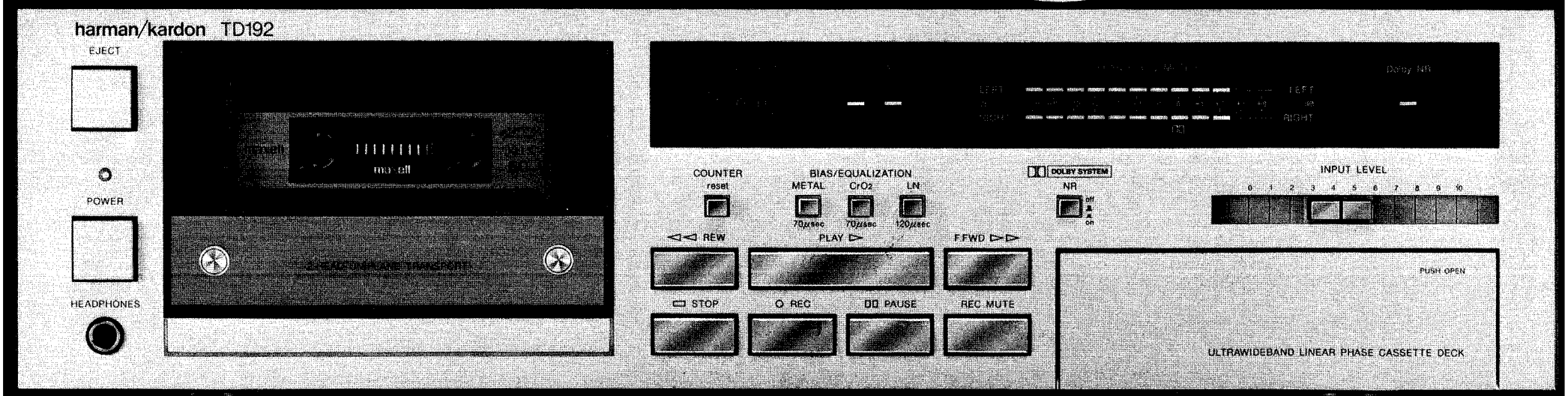
owner's manual
mode d'emploi

harman/kardon
ULTRAWIDEBAND
LINEAR PHASE
CASSETTE DECK

TD192



SPECIFICATIONS

Congratulations on your purchase of the Harman Kardon TD192 Ultrawideband Linear Phase Cassette Deck.

In order to appreciate the full performance of this sophisticated unit, please be sure to read this owner's manual and use your cassette deck only in accordance with its instructions. Keep it in a safe place for future reference.

Frequency Response (±3dB, Dolby NR out with any tape formation)	: 20 — 20,000Hz
Wow and Flutter	
NAB, WRMS	: 0.05%
CCIR, WP	: 0.08%
Signal-to-Noise Ratio (CrO_2)	
Dolby NR Off	: 57dB
Dolby NR	: 65dB
Input Level/Impedance	: 50 mV/22k Ohms
Output Level (0dB, 10k Ohms load)	: 500 mV
Headphones Impedance	: More than 8 Ohms
Fast Forward and Rewind Time (C-60 tape)	: 90 sec.
Heads	: 2 heads
Recording/Playback Head Type	: Sendust
Dimensions (W x H x D)	: 443 x 122 x 334 mm (17-7/16" x 4-13/16" x 13-1/8")
Weight	: 5.7kg (12lbs.9oz.)
Power Supply	: AC 120V, 60Hz
Power Consumption	: 18W

All specifications and features subject to change without notice.

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.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

■Ultrawideband Frequency Response

The frequency response of this unit is 20Hz — 20kHz ±3dB with low noise (standard), chromium dioxide (CrO_2) and metal tapes.

■Solenoid Logic Control

This gives a pleasant, feather-touch feel to the functioning of the transport. It also allows direct function changes such as rewind-to-play.

■Sendust Record/Play Head

A sendust head material was chosen instead of permalloy or ferrite, because sendust offers excellent frequency response, a high overload level and long life.

■Metal-Tape Compatible

Dolby* Noise Reduction System

The TD192 provides the Dolby B-type noise reduction system that virtually eliminates noise from cassette recordings.

What causes tape noise

Tape noise is inherent to some extent in all magnetic recordings. With cassette tapes, the most objectional noise is in the midrange and high frequencies and is perceived as "hiss". The amount of "hiss" is affected by many factors, such as the tape speed, the size of the magnetic particles on the tape and the level of the recorded signal. The tape speed is standardized and the TD192 is optimized for popular low noise tape formulations.

The operating principle of Dolby noise reduction

In short, the Dolby noise reduction systems boost weak midrange and high frequency signals during the record mode, and then reduce them to their original level during playback. This enables the weak signals to be recorded at higher levels and therefore be played back at higher levels relative to the "hiss".

Dolby noise reduction system is not capable of removing noise from the signal source.

English

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

GENERAL INSTRUCTIONS

Always Use at 120V AC

This unit is designed for operation with 120V AC. Connect only to domestic AC outlets. Never connect the unit to an outlet supplying a higher voltage. This may create a fire hazard.

Handle the Power Cord Gently

- Do not disconnect the plug from the AC outlet by pulling the cord, always pull the plug itself. Pulling the cord may break the wire.
- If you do not intend to use your unit for any considerable length of time, disconnect the plug from the AC outlet.
- Do not place furniture or other heavy objects on the cord, and avoid dropping heavy objects on it. Also do not make a knot in the power cord. Not only may the cord be damaged, it can also cause a short circuit and a consequent fire hazard.

Place of Installation

Place your unit on a firm and level surface. Avoid installing your unit under the following conditions.

- ▶Moist or humid places.
- ▶Places exposed to direct sunlight or close to heating equipment.
- ▶Extremely cold locations such as those in the direct draft from an air conditioner.
- ▶Places subject to excessive vibration or dust.
- ▶Poorly ventilated places.
- ▶Near a television, speaker or other object that generates a strong magnetic field.

Moving the Unit

Before moving the unit, be sure to unplug the power cord from the AC outlet and disconnect the interconnection cords to other units.

Do Not Open the Cabinet

To prevent fire or shock hazard, do not tamper with internal components for inspection or maintenance. Harman Kardon does not guarantee against performance degradation resulting from any modification.

If water, a hairpin or wire accidentally enters the unit, immediately unplug the power cord from the AC outlet to prevent shock and consult an authorized Harman Kardon service station. If you use the unit under this condition, it may cause a fire or shock hazard.

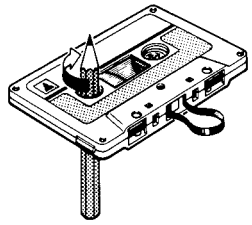
Cleaning

When the unit gets dirty, wipe it with a soft dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water and then wipe with a dry cloth.

Never use benzine, thinner, alcohol or other volatile agent, and avoid spraying an insecticide near the unit.

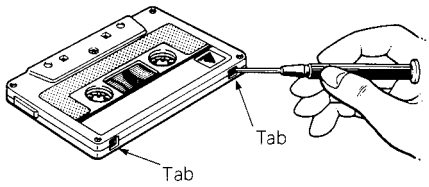
Cassette Tape Handling

- Be sure to remove the cassette tape from the cassette compartment at the end of operation to preserve the tape quality and maintain the cassette deck's performance.
- Store cassette tapes away from a strong magnetic field such as near a TV set, receiver or speakers to prevent an adverse effect on the recorded signal.
- Before a cassette tape is played back or recorded, be sure to eliminate any tape slack. A slackened tape, if used, may cause jamming in the tape transport mechanism.



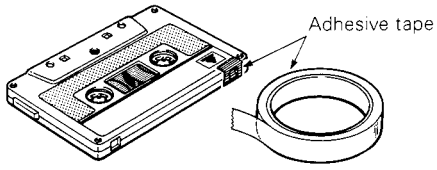
Remove tape slackness by winding the tape reels with a pencil.

- If the sound recorded on the tape is to be protected from accidental erasure, remove the erase-prevention tabs in the cassette shell. With these tabs broken out, accidental erasure is prevented, because your unit will automatically detect that the tabs have been removed, and will not enter the record mode.



Break the tabs off with a screwdriver.

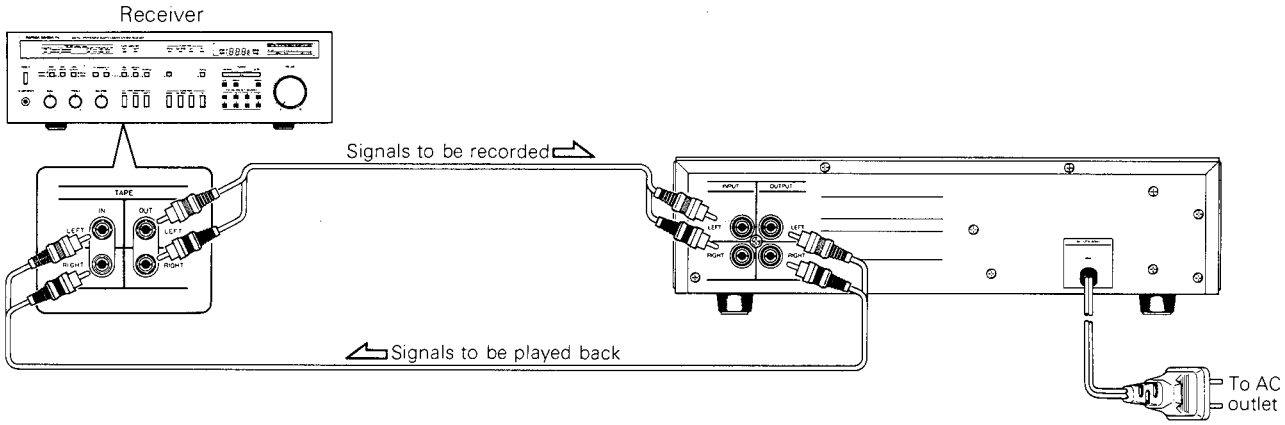
- If it is later desired to record on a cassette tape protected in this way, cover the holes with adhesive tape.



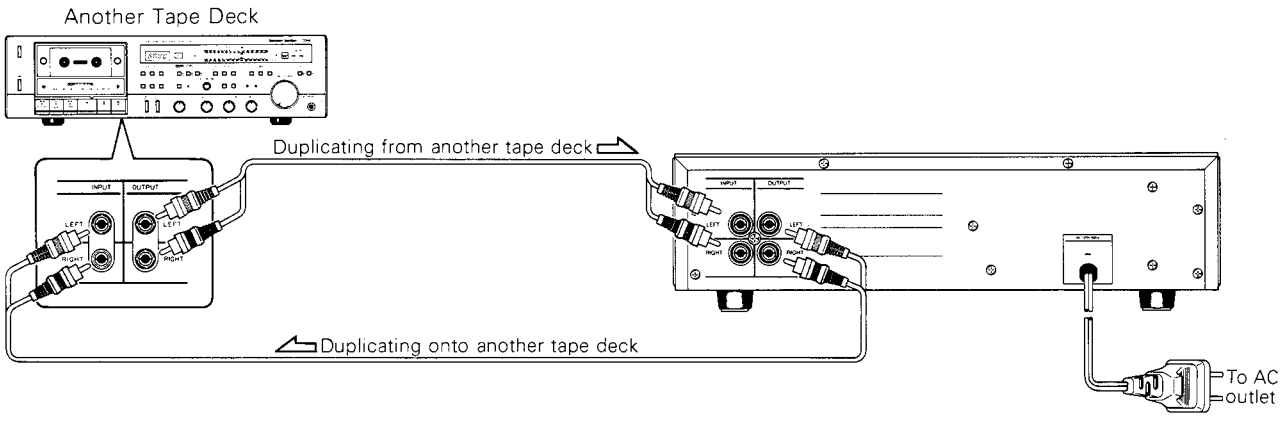
Carefully connect the plugs of the connection wire to the left and right channel jacks. Push the plugs in all the way. Poor seating tends to cause noise or intermittent sound.

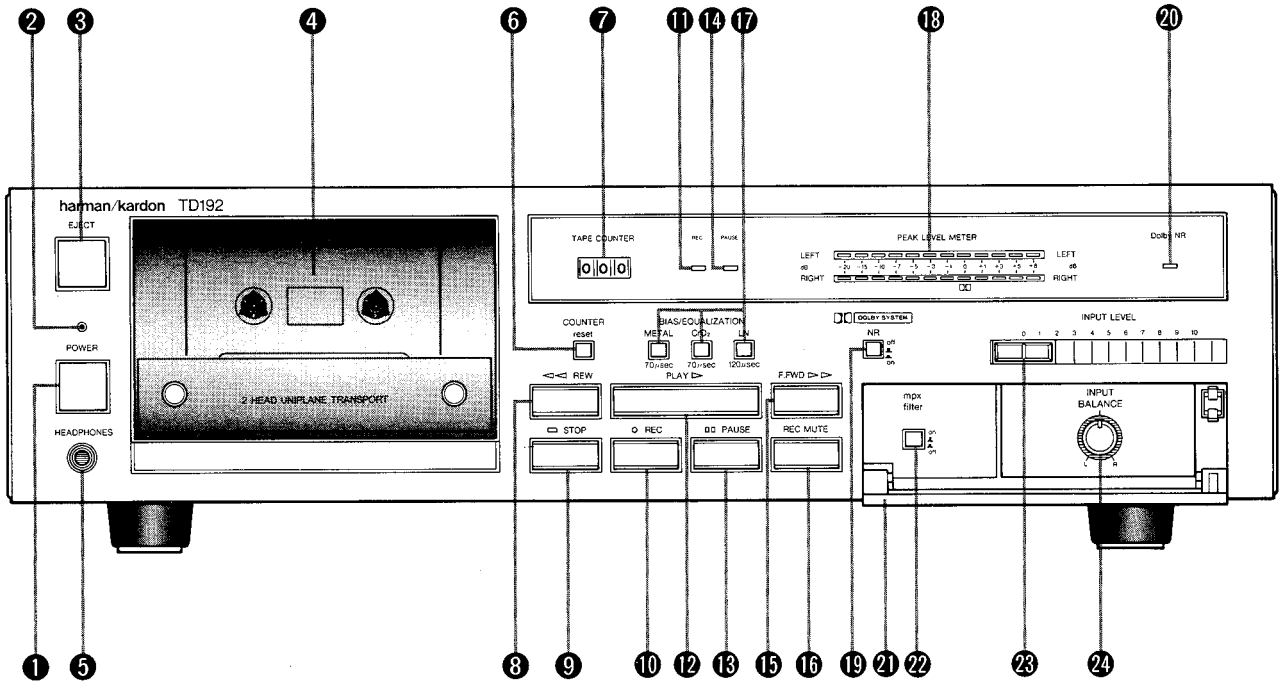
CAUTION: While you are connecting your cassette deck to the rest of your high fidelity system, unplug the power cords, disconnecting all of the components as well as your cassette deck, from the AC outlet.

Connection to the Receiver



Connection to Another Tape Deck for Dubbing





❶ POWER SWITCH (POWER)
Pressing this switch will turn on the power and the POWER indicator will light up. Press the switch again to turn the power off.

❷ POWER INDICATOR

❸ EJECT BUTTON (EJECT)
The soft eject mechanism opens the door slowly when this button is pressed.

CAUTION: This button cannot be depressed while the tape is running. Be sure to press the STOP button before pressing the EJECT button.

❹ CASSETTE COMPARTMENT

❺ HEADPHONES JACK (HEADPHONES)
Stereo headphones with a standard 1/4 inch plug can be connected to this jack. When headphones are connected, the sound during recording or playback can be listened to without connecting this unit to a receiver.

❻ COUNTER RESET BUTTON (COUNTER reset)
Press this button to reset the TAPE COUNTER when starting to record.

❼ TAPE COUNTER
For a digital indication of the position on a cassette tape. The figure changes as the tape runs. Cueing for the start of a selection is facilitated by making a note of the counter reading.

❽ REWIND BUTTON (REW)
Press this button to rewind a tape at high speed.

❾ STOP BUTTON (STOP)
Press this button to stop each operation. Pressing this button stops the playback, recording, fast forward and rewind modes. It also cancels the standby mode activated by the PAUSE button.

❿ RECORD BUTTON (REC)
Press this button and the PAUSE button simultaneously to provide the record standby mode. The RECORD and PAUSE indicators will illuminate. Recording starts when the PLAY button is pressed.

⓫ RECORD INDICATOR
For indication that the tape is being recorded.

⑫ PLAY BUTTON (PLAY)
Press this button to start playback.

⑬ PAUSE BUTTON (PAUSE)
Press this button to temporarily stop playback or recording. This button also activates the record standby mode when pressed simultaneously with the RECORD button.

⑭ PAUSE INDICATOR
For indication that the pause mode has been activated.

⑮ FAST FORWARD BUTTON (F.FWD)
Press this button to quickly advance the tape in the same direction as it is played.

⑯ RECORD MUTE BUTTON (REC MUTE)
This button allows you to create a silent segment of tape at any time while recording. The button is a momentary contact type and will not lock in the depressed position. The record mute feature will only operate while the button is held in the depressed position.

⑰ TAPE SELECTORS (BIAS/EQUALIZATION)
For selection of the record and playback circuitry that provides the lowest distortion and flattest frequency response for metal, chromium dioxide (CrO_2) or low noise (LN) tape.

⑱ PEAK LEVEL METER
The level of the signal being recorded or played is displayed clearly on this meter.

⑲ DOLBY NR SWITCH (NR)
Depress this switch for recording or playback using the Dolby NR system. The green DOLBY NR indicator illuminates. Press the switch again to turn off the Dolby NR system.

⑳ DOLBY NR INDICATOR
For indication that Dolby noise reduction circuitry is activated.

㉑ SUB-PANEL DOOR
Press the upper right part of the SUB-PANEL DOOR and it will release. Then open the door to access the sub-panel switch and control.

㉒ MPX FILTER SWITCH (mpx filter)
The MPX filter is a high frequency filter that has very little effect below 16kHz, but has 30dB attenuation at 19kHz, the frequency of the FM stereo pilot signal. Depress and release this switch (to the "on" position) when recording from an FM stereo tuner or receiver. However, to appreciate the ultrawideband frequency response of the TD192, depress this switch (to the "off" position) when recording all other sources, such as a turntable, tape deck, etc.

㉓ INPUT LEVEL CONTROL KNOB (INPUT LEVEL)
This knob adjusts the record level of the input signal. See the "Recording Level Adjustment" section on page 7.

㉔ INPUT BALANCE CONTROL KNOB (INPUT BALANCE)
This knob is used to restore the input level balance when the levels of the right and left channels are extremely different or to deliberately upset the input level balance as you like. Usually, it is set at the center. Turn it clockwise, the recording level of left channel is decreased. Turn it counterclockwise, the recording level of right channel is decreased.

Tape Recording

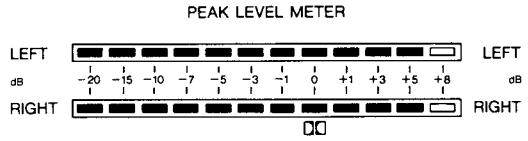
1. Turn the volume control knob of the receiver to the minimum level and turn on the receiver. Then press the TD192 POWER switch. The POWER indicator lights up.
2. Press the EJECT button to open the CASSETTE COMPARTMENT door and carefully insert a cassette tape. Incorrect cassette insertion may cause a malfunction in door closing or recording.
3. Press the TAPE SELECTOR button corresponding to the type of tape being used.
4. To record with the Dolby NR system, depress the DOLBY NR switch to the "on" position and DOLBY NR indicator will illuminate in green.
5. To record from an FM stereo tuner or receiver with the Dolby NR system, set the MPX FILTER switch to the "on" (out) position. This is not necessary if the tuner or receiver has 19kHz pilot cancelling.
6. Press the RECORD and PAUSE buttons at the same time. The RECORD and PAUSE indicators illuminate. The record level is accurately displayed on the PEAK LEVEL METERS.
7. Adjust the record level with the INPUT LEVEL control knob as per the instructions provided in the "Recording Level Adjustment" section on this page.
8. Adjust the INPUT BALANCE control knob if necessary. (Refer to CONTROLS AND FUNCTIONS on page 6.)
9. Press the COUNTER RESET button to reset the TAPE COUNTER indication to "000".
10. Press the PLAY button to start recording. The PAUSE indicator goes out.
11. Press the PAUSE button for temporarily stopping the tape. Press the PLAY button to restart recording.
12. Press the STOP button to stop recording.
13. Tape recording automatically stops when the end of the tape is reached and the record mode is cancelled.

Recording Level Adjustment

With the INPUT BALANCE control knob at 12 o'clock position, adjust the optimum record level by moving the INPUT LEVEL control knob while observing the PEAK LEVEL METER in order to meet the type of the tape to be recorded.

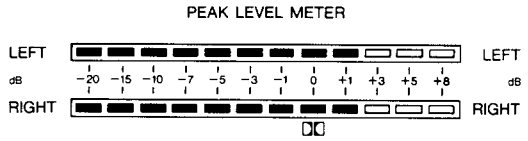
● Make adjustment as described below when the sound level is relatively high.

When using a metal tape.



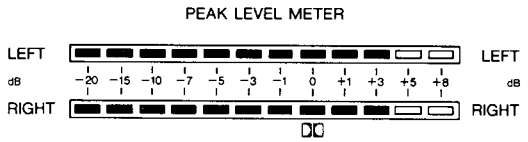
Momentary illumination up to +5dB is allowable.

When using chromium dioxide tape.



From time to time illumination up to +1dB is allowable.

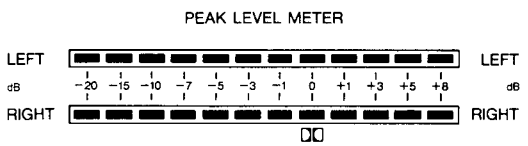
When using a low noise tape.



Momentary illumination up to +3dB is allowable.

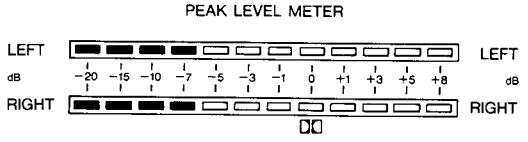
● The following adjustments will cause excessive sound distortion or tape noise.

Too high an input level setting (illumination up to +8dB).



A recording with excessive distortion will result.

Too low an input level setting (peak illumination of less than 0dB).



A recording with excessive tape noise will result.

Record Mute

When the TD192 is in the record mode, the RECORD MUTE button can be used to create a silent space on the tape. Depressing the RECORD MUTE button cuts the signal to the record circuitry. This feature only functions while the button is held in the depressed position. Record mute is especially convenient when recording from a source that has excessive noise between selections.

Erasing Recorded Signals

When a new recording is made on a recorded tape, the recorded sound on that part of the tape is automatically erased. To erase a recorded tape without making a new recording, operate as follows:

1. Check to be sure that erase-prevention tabs of the cassette are not broken out. Then insert a cassette tape in the CASSETTE COMPARTMENT. If broken, cover the holes with adhesive tape.
2. Set the INPUT LEVEL control knob to the "0" position.
3. Press the TAPE SELECTOR button corresponding to the type of the tape.
4. Press the RECORD and PLAY buttons at the same time.
5. The portion of the tape that passes the tape heads will be erased.

Cassette Tape and Corresponding Tape Selector Settings

The table below shows several types of major brand tapes and the corresponding tape selector settings.

Position	LN	CrO_2	METAL
MAXELL	UDI *XLI XLI-S	XLII XLII-S	MX
TDK	AD AD-S AR AR-X	*SA SA-X	*MA MA-R
SONY	HF-S HF-ES HF-PRO	UCX UCX-S	Metal-S Metal-ES
AXIA (FUJI)	PS-I GT-I	GT-II	
DENON	DX-3 DX-4	HD-6 HD-S	DX-M
BASF	PRO-I	PRO-II	PRO-IV

Tapes with the mark (*) are the standard reference tapes.

Tape Playback

1. Turn the volume control of the receiver to the minimum level and then turn it on. Select the tape monitor input to which the TD192 is connected.
2. Depress the TD192 POWER switch, and the POWER indicator lights up.
3. Press the EJECT button to open the CASSETTE COMPARTMENT door, and carefully insert the recorded cassette tape in the compartments. Incorrect insertion may cause failure in door closing or playback.
4. Press the TAPE SELECTOR button according to the type of tape being played.
5. Press the DOLBY NR switch to the "on" position for a tape recorded with Dolby NR encoding.
6. Press the PLAY button and the tape will begin playing.
7. Gradually turn the volume control of your receiver until the playback level is adequate.
8. Press the PAUSE button to temporarily stop the tape. Press the PLAY button to restart tape playback.
9. Press the STOP button to stop tape playback. Press the PLAY button again to start tape playback.
10. The TD192 will automatically go into the stop mode when the end of the tape is reached.

Solenoid Logic Control

The function buttons (STOP, PLAY, REW, F.FWD, REC, PAUSE) are the momentary contact type. The user needs only to lightly press and release each button in order to engage its function. An electronic circuit automatically determines whether or not to stop the transport between functions, thereby safely permitting direct changes by the user.

English

TROUBLESHOOTING CHECKLIST

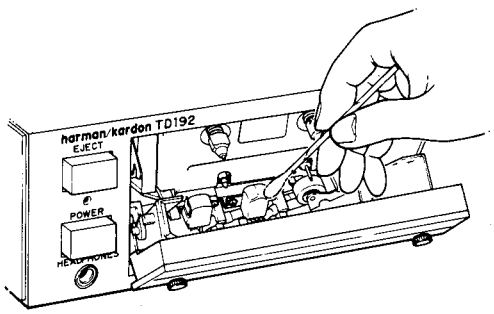
Most of the problems consumers have with their high fidelity system are due to incorrect operation. If this unit does not operate as you intended, first check the items in the following checklist. Also check other related components such as the receiver, turntable, speakers and other electrical equipment you use with this cassette deck.

Problem	Cause	Remedy
The tape does not run. (Cannot record or play-back.)	• The power cord is not plugged in. • The tape is at its end. • Pause mode is activated.	• Plug the power cord. • Rewind the tape. • Cancel the pause mode by pressing the PLAY button.
Unit does not play.	• Sound is not recorded on the tape. • Incorrect operation of the receiver. • Incorrect connection to the receiver.	• Exchange with a recorded tape. • Turn on the power switch and tape monitor switch of the receiver. • Reconnect this unit to the receiver, referring to page 4.
Unit does not record.	• The erase-prevention tabs are removed from the cassette shell. • Incorrect connection to the receiver. • INPUT LEVEL control knob is set to "0" position.	• Change the tape, or cover the holes with adhesive tape. (See page 3.) • Reconnect this unit to the receiver. (See page 4.) • Adjust the INPUT LEVEL control knob. (See page 7.)
Sound is distorted.	• Distorted sound is recorded on the tape. • The tape is worn out. • A Dolby-encoded tape is reproduced with DOLBY NR switch "off". • Tape head is dirty or magnetized.	• Record again by setting the correct recording level. (See page 7.) • Change to a new tape. • Press the DOLBY NR switch to the "on" position. • Clean the tape head with a cotton swab or demagnetize the tape head. (See page 10.)
High frequency sound is not reproduced clearly.	• Tape head is dirty or magnetized. • Incorrect TAPE SELECTOR button is depressed. • A tape not recorded with the Dolby NR system is reproduced with the Dolby NR system ON.	• Clean the tape head or demagnetize it. (See page 10.) • Press the correct TAPE SELECTOR button according to the type of tape. (See the table on the page 8.) • Repress the DOLBY NR switch to the "off" position.

HEAD CLEANING

Clean the tape heads, capstans and pinch rollers from time to time to assure optimum sound reproduction. Otherwise, your TD192 may be subject to drop-outs, frequency response degradation or wow and flutter.

1. Before cleaning, open the CASSETTE COMPARTMENT door.
2. Use a cotton swab dampened with diluted anhydrous alcohol and clean the record/playback head, erase head, capstans and pinch rollers.
3. DO NOT START tape playback or recording until alcohol is thoroughly evaporated (about 10 minutes).



The record/playback head, erase head and capstans will gradually become magnetized. Since the magnetism causes noise and high frequency response degradation, be sure to demagnetize these parts with a demagnetizer especially designed for this purpose.

English