

harman/kardon

FLOATING SUSPENSION
AUTO-LIFT TURNTABLE


TC60




Thanks and congratulations on your purchase of the T60 Floating Suspension Auto Lift Turntable. In order to make the best use of its features and performance, please read the owner's manual before you use the turntable. After you have used it, keep it in a safe place, for future reference in case of suspected malfunction or other need.

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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 of 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 of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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

Features

- **Low-Mass Straight Tonearm**

This highly sensitive tonearm ensures perfect tracking by even the highest of high compliance cartridges.

- **An Offset Angle of 25.5 Degrees**

In order to reduce tracking error to the minimum, we have adopted the Harman Kardon headshell with its uniquely designed offset angle.

- **Capacitance Trim**

A selector has been provided so that the load impedance can be adjusted to ensure the optimum cartridge performance.

- **Uses Miniature DC Servomotor with Quartz Locked Circuit and Frequency Generator Servo-control**

The independent Frequency Generator Servocontrol circuit along with the adoption of the Quartz Locked circuit using a quartz oscillator assures very accurate and stable speed both in manual and automatic operation.

- **Auto-lift Function**

At the end of the disc, the tonearm lifts up automatically, a convenient function that avoids the disadvantages of extra load on the cartridge. This ensures that the highly sensitive arm can always deliver its maximum performance. Full manual operation is also possible under switched control.

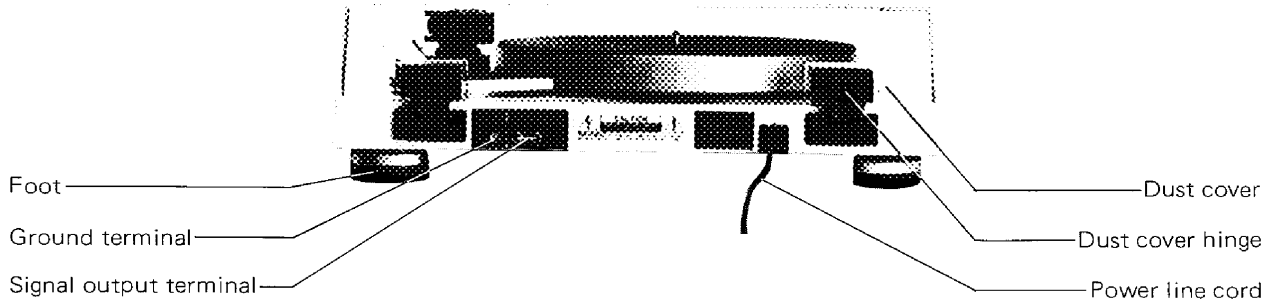
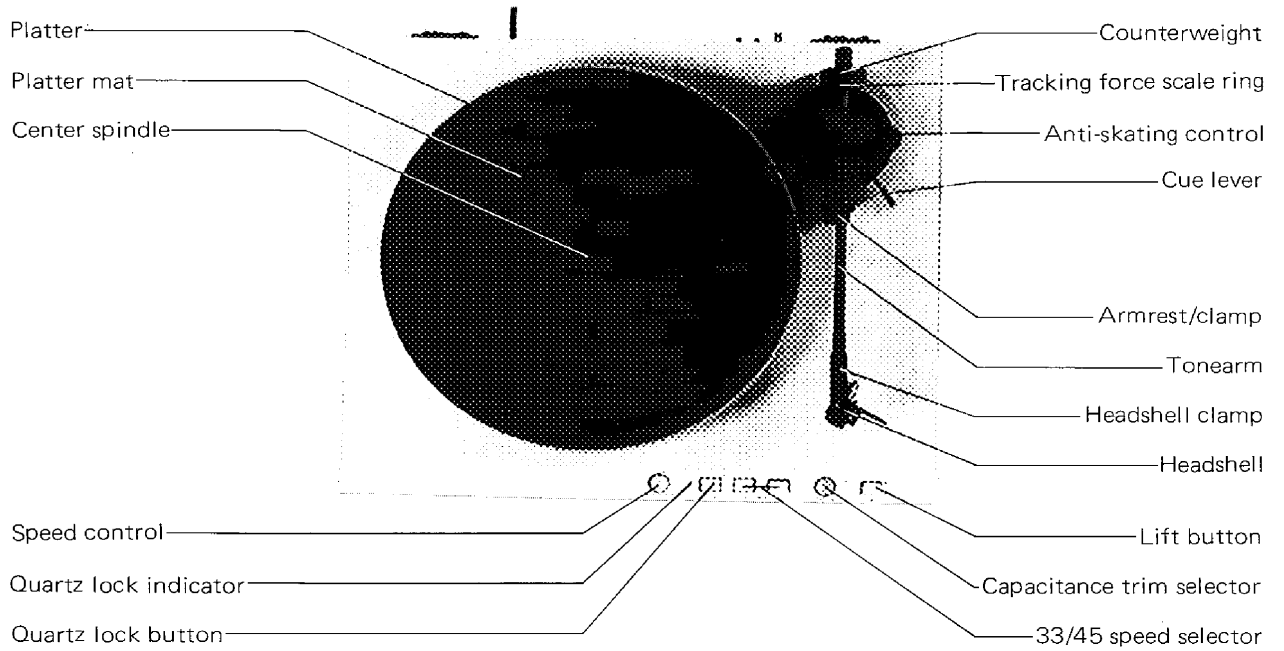
- **Platter Mat and Disc Stabilizer**

The use of a special grade of rubber, featuring several thousandths of rebound coefficient of usual rubber, absorbs vibrations from the platter that would otherwise be transmitted to the stylus tip. Used in conjunction with a stabilizer, the disc is firmly gripped, the howling margin is increased, and the evenness of the speed of rotation is improved. This also enables the stylus tip to trace accurately the groove on the disc.

- **High Absorptive Floating Suspension and Cabinet Against Howling**

Our new turntable T60 adopts the floating suspension mechanism consisting of the platter base of aluminum diecast and the tonearm mechanism are constructed in one unit; the balance-point of the floating suspension mechanism is located at the center of the platter. In addition, high density chipboard with outstanding acoustic properties is used for the cabinet. These features demonstrate excellent characteristics for howling prevention as well as they assure stable platter speed.

Components



General Instructions

Use 120V AC

This turntable is designed for operation with 120V AC. Use only domestic AC outlets or the AC convenience outlet of your amplifier or receiver. Do not connect the turntable to an outlet supplying a higher voltage, it can create a fire hazard.

Handle the Power Line 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 connection.
- If you do not intend to use your turntable 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 try to avoid dropping heavy objects upon it. Not only may the cord be damaged, it can also cause short circuits with a consequent fire hazard.

Place of Installation

- Place the turntable on a firm and level surface.
- Avoid installing your turntable under the following conditions:
 - ▶ Moist or humid places (bathroom or kitchen).
 - ▶ Places exposed to direct sunlight or close to heating equipment.
 - ▶ Extremely cold locations such as those in the direct draught from an air conditioner.
 - ▶ Places subject to vibrations from your speakers, the opening and closing of doors, or the passage of people walking by.

Cleaning

Any accumulated dirt on your turntable should be wiped off with a clean, soft dry cloth. Stubborn dirt can be wiped away with a cloth dampened with a mild soap or detergent. Afterwards, wipe with a clean dry cloth. Do not use alcohol, thinners, benzene, insecticides, etc. or other volatile agents as these may cause the paint finish to peel.

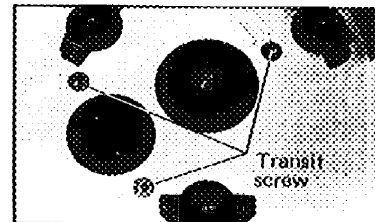
*While you are connecting your turntable to the rest of your high fidelity system, please disconnect the power line cord from the AC outlet.

Assembling the Turntable

Remove the turntable and the dust cover from their packing. The headshell, counterweight, disc stabilizer, and other small items will be found within the polystyrene foam cushion packing.

Removing the Transit Screws

Remove three transit screws securing the platter base and the tonearm base as shown.

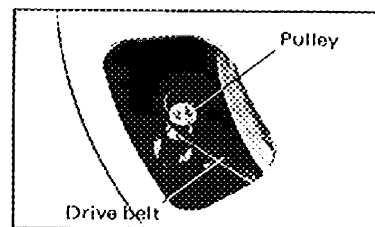


Mounting the Platter

Place the platter gently and carefully over the center spindle. Push down gently and vertically. If you try to mount the platter at an angle or use undue force, this can damage the center spindle or the hole in the platter.

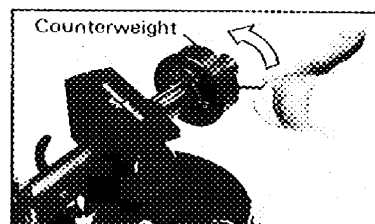
Threading the Belt

Rotate the platter so that the hole is over the pulley. Extend the drive belt which is in position around the platter, and place it in the groove on the pulley. Rotate the platter clockwise two to three turns slowly to check to be sure that the drive belt positively engages in the groove on the pulley. Then, place the platter mat on the platter.



Counterweight

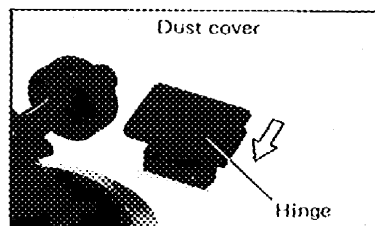
First clamp the tonearm on the armrest and move the cue lever forward. Thread the counterweight onto the rear of the tonearm by turning it in the direction of arrow as shown. If you find it will not go onto the arm, use a small allen wrench to loosen the screw in the counterweight.



Dust Cover

Attach the two dust cover hinges into the sockets at the rear of the turntable. Then, insert the dust cover into them.

Note: Close the dust cover while reproduction to prevent howling.



Note:

- Do not apply undue force to rotate the platter. This can damage the drive belt. Also, if you do not intend to use the turntable for some time, particularly in winter, remove the drive belt from the pulley.
- If you are moving house, etc., remove the headshell and counterweight and secure the tonearm with the tonearm clamp so that it does not move. Also remove the platter. After that fix the floating unit with the three transit screws. Again, even if you are only moving the turntable from place to place within your home, do be sure to clamp the tonearm.

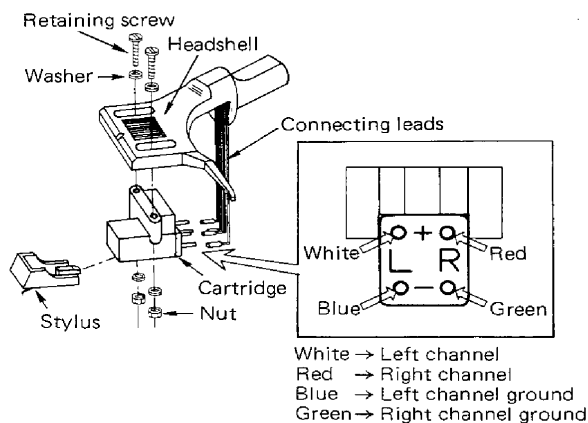
Connecting the Headshell and Cartridge

Attaching the Cartridge

Since this turntable is not equipped with a cartridge, use a cartridge which has a weight between 2.5 and 8 g. Only use cartridges in the headshell provided.

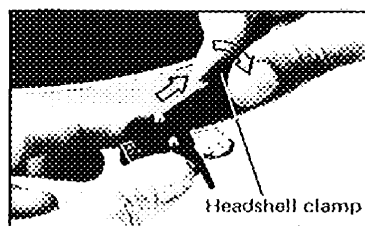
Slightly secure the retaining screws to hold the cartridge and then connect the leads to the cartridge pins.

Figure shows an example of connection of the leads to the cartridge. Please read the owner's manual of the cartridge and connect the leads accordingly.



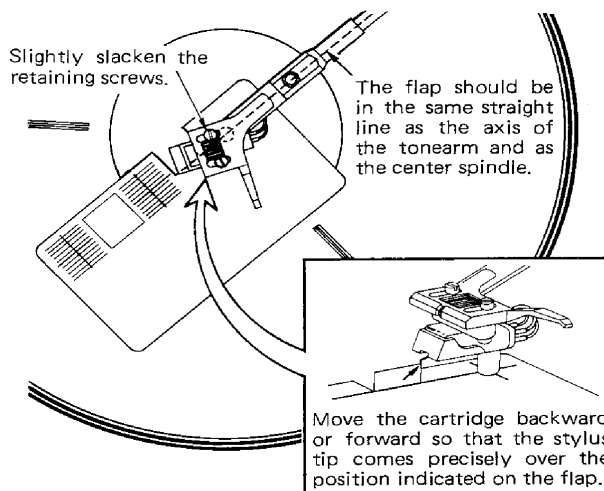
Attaching the Headshell with Cartridge

The headshell with cartridge is attached to the tonearm by first pushing it fully in and then tightening the headshell clamp. Do not remove the stylus guard before you have secured the headshell in position.



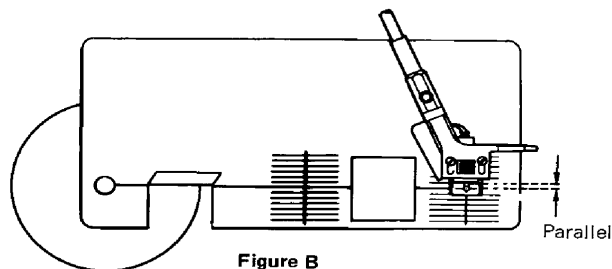
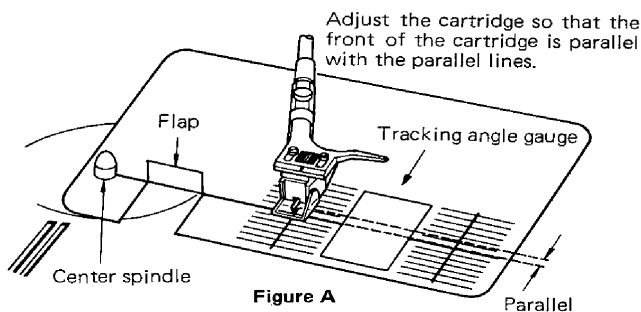
Overhang Adjustment

1. Place the accessory tracking angle gauge on the center spindle and raise the flap.
2. Be sure to remove the stylus guard when adjusting the overhang.
3. Move the tonearm directly over the center spindle. Line up the raised flap on the gauge with the center spindle and the tonearm base. Gently move the cartridge backward or forward in the headshell so that the stylus tip lines up with the corner of the flap.



Tracking Angle Adjustment

1. Check to be sure that the overhang adjustment has been completed.
2. Now move the tracking angle gauge until it is in the same position with respect to the tonearm as that shown in Figure A. Place the stylus over the tracking angle setting point with keeping stylus guard attached.
3. Without changing the stylus position, turn the cartridge so that its front edge is parallel with the lines on the gauge.
4. Now move it so that it is in the position shown in Figure B and check that the cartridge is still parallel with the parallel lines as it was in step 3 above. If it is not parallel, then repeat step 3 and 4 alternately until the cartridge is parallel in both cases.
5. When the above adjustment is completed, then tighten the screws that attach the cartridge to the headshell fully.

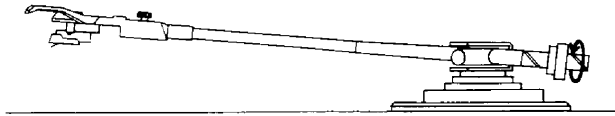


Adjusting the Tonearm

Adjusting the Tracking Force and the Anti-skating Device

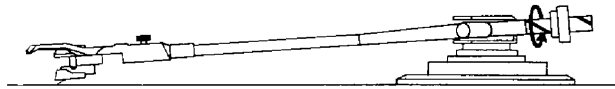
1. Move the tonearm away from the armrest.
2. Adjust the counterweight until the tonearm is horizontal. Be sure to remove the stylus guard when adjusting the counterweight.

• Rear of Tonearm too Heavy



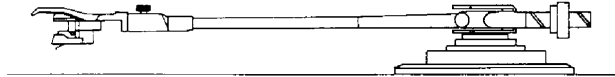
Turn the counterweight in the direction of the arrow, moving it forward.

• Headshell too Heavy



Turn the counterweight in the direction shown, moving it toward the rear.

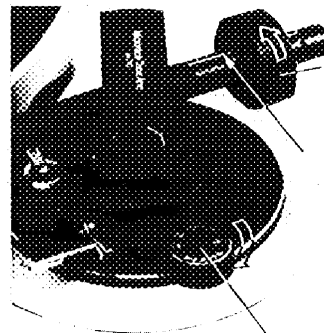
• In Balance



Caution

While you are adjusting the zero balance, hold the tonearm gently to prevent the stylus from coming into contact with anything.

3. Turn the stylus tracking force scale ring until the "0" mark is opposite the indication mark. Be careful not to disturb the zero balance of the counterweight when making this adjustment.
4. Now set the recommended cartridge stylus tracking force by turning the counterweight to the required figure on the scale ring.
5. Finally, set the anti-skating control so that it indicates the same tracking force as selected for the cartridge stylus.



When you turn the counterweight, the tracking force scale ring will turn with it.

Set the tracking force to the indication mark.

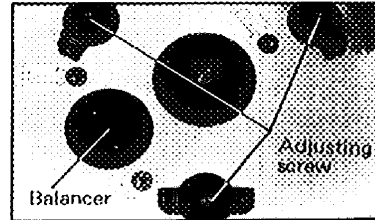
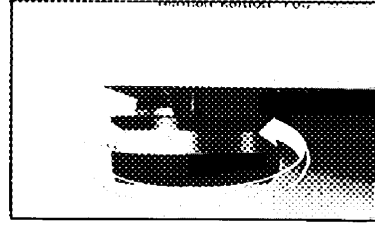
Set the anti-skating control normally to the same as the tracking force setting.

Adjusting the Level

With the dust cover closed, adjust the level of the turntable by turning the four feet clockwise or counterclockwise.

The turntable employs the floating suspension mechanism in which the platter and the tonearm are constructed as one unit, and the level of the floating suspension is assured with a balancer and three level adjusting screws. The level is factory-set and you are not required to adjust the level. When you set up the turntable, adjust the level of the turntable itself with the feet as indicated.

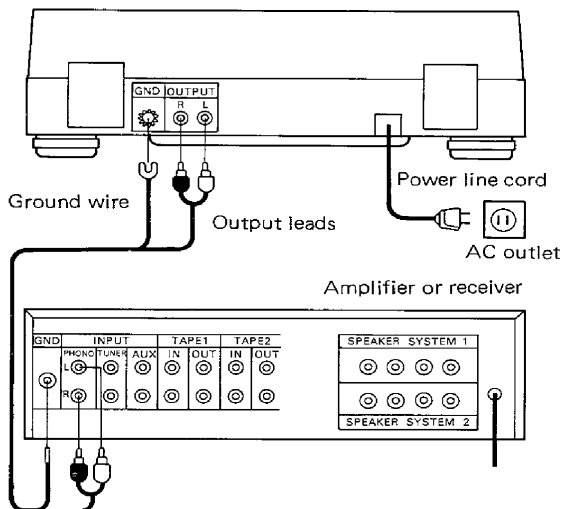
If floating suspension level must be readjusted, adjust it with the disc stabilizer and the platter mat placed on the platter: turn the level adjusting screws so that the distance between the turntable surface and the platter lower surface will be 4 mm.



Connections

Only make the connections with your amplifier or receiver unplugged and/or switched off.

1. This turntable is equipped with terminals for connecting it with your amplifier or receiver. Connection cord including the ground wire is supplied with the turntable. The cord has the plugs on both ends; insert those on one end to the OUTPUT terminal on the back of the turntable and those on the other end to the PHONO INPUT terminal on your amplifier or receiver. The red plug is for the right channel and the white plug is for the left channel. Connect the ground wire to the GROUND terminals on the turntable and your amplifier or receiver without fail.
2. When connection is made with a cord other than the one supplied with the turntable, be sure to connect the ground terminal on the turntable to the ground terminal on your amplifier or receiver with an independent lead wire.
3. Connect the power line cord to an AC convenience outlet of your amplifier or receiver or into an AC outlet in the wall.



Note: • Make sure that the output leads are not trapped underneath the turntable, the amplifier or receiver. This can damage the leads and cause open circuits.

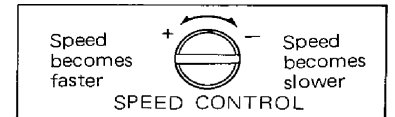
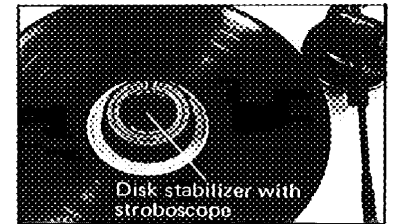
- Be sure to attach the leads to the MM or MC phono input terminals of your amplifier or receiver in accordance with the type of the cartridge (MM or MC).

Quartz Lock and Speed Control

To turn ON the quartz lock button, push it once while the indicator is OFF; the indicator will go on telling you that the quartz lock is active. Pushing it again turns OFF the indicator and quartz lock is released.

- After placing the speed selector in the 33 or 45 position in accordance with disc speed, set the quartz lock button to ON position. This locks the disc speed at the correct reference speed and no further fine adjustment using the stroboscope is required.
- To adjust disc speed as desired when reproducing an old disc on which recording is not performed at an accurate constant speed, when precisely matching reproduced sound with the sound of instrument to play, or when changing the disc speed preferably, turn the speed control knob to adjust the disc speed after pushing the quartz lock button to the OFF position to release the quartz lock. (With the quartz lock button in ON position, the speed control knob is inoperative.) Disc speed, whether increasing or decreasing, can be examined by using the disc stabilizer with stroboscope provided with the turntable.
- When the quartz lock button is turned OFF, the quartz lock circuit is de-energized stopping generation of oscillation frequency as well as the quartz lock is released.
- Disc stabilizer with stroboscope
Disc stabilizer is used to grip the disc firmly on the platter mat; use of it enables the stylus tip to trace accurately the groove on the disc as well as it corrects distortion of a disc. The stabilizer is also marked with striped stroboscope so that the disc speed can be easily examined.

1. Place a disc on the platter mat and then the disc stabilizer with stroboscope on the disc.
2. Set the speed selector to 33 or 45 position in accordance with the required disc speed.
3. Turn the quartz lock button OFF to release the quartz lock, then adjust the disc speed by turning the speed control knob, with observing the striped markings on the disc stabilizer with stroboscope under fluorescent light.

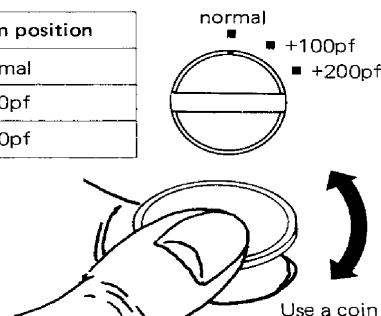


Capacitance Trim

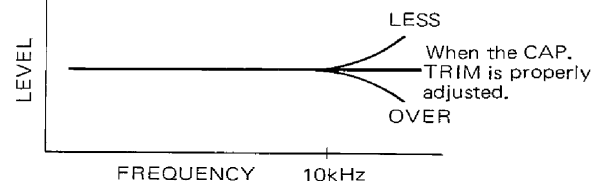
The capacitance trim is a capacitance selector switch that enables your cartridge to deliver its optimum performance. Each cartridge had its own characteristic capacitance, and the output leads used to connect the cartridge to the amplifier or receiver also have their own capacitance. Only when these two capacitances are at their optimum values can the cartridge transfer its output and retain its optimum frequency response to the amplifier.

Cartridge capacity	Trim position
Less than 300pF	normal
300 to 400pF	+100pf
Over 400pF	+200pf

- Please read the owner's manual of the cartridge and adjust the trim position accordingly.



Use a coin to change the setting.



Operating

1. Turn down the volume of your amplifier to the minimum position.
2. Turn on your amplifier or receiver and select the phono function according to the owner's manual of the amplifier or receiver.
3. Place the disc on the platter mat. If this is an extended play disc, you will need to use the center hole adaptor provided with the turntable.
4. Set the speed selector to 33 or 45.
5. Turn the quartz lock button ON to maintain the accurate disc speed.
6. Push the lift button to set to the auto position. (With auto position selected, the tonearm automatically lifts and the platter stops as power supply is cut off when the disc ends.)
7. Flip the cue lever forward to lift the tonearm up, then bring the tonearm over the disc and the platter will begin to rotate. Now flip the cue lever down and the tonearm will be lowered and reproduction starts.
8. Slowly raise the volume of amplifier up to your desired listening point.
9. If you wish to terminate audition before the end of the disc, raise the tonearm by flipping the cue lever forward and bring it to the armrest after turning down the volume of your amplifier to the minimum position. At the end of the disc, the tonearm will automatically lift up and the platter stops. Bring the tonearm to the armrest, then.
10. Since the tonearm will not stop at the end of the disc with the lift button set to the manual position, it is necessary to manually raise the tonearm at the disc end and bring it to the armrest. Select the manual position to reproduce a disc which has groove cut exceeding the normal disc end position by preventing automatic stop at the normal disc end position.

