

QUARTZ LOCK DIRECT-DRIVE TURNTABLE WITH FULL AUTOMATIC FUNCTIONS



LAB-500

OWNER'S MANUAL

PLEASE READ BEFORE
USING THIS EQUIPMENT

REALISTIC[®]

CAT. NO.
42-2970

CUSTOM MANUFACTURED FOR

RADIO SHACK  A DIVISION OF TANDY CORPORATION

Your **REALISTIC LAB-500 Precision Quartz Lock Direct Drive Turntable** is designed to meet the high standards of performance that audiophiles expect for superior sound reproduction of their disc recordings. The turntable is driven by a special motor and circuit which maintain constant speed regardless of supply voltage variations or changes in load caused by cartridge/tone arm drag. The motor is a DC type, with special permanent magnet pole pieces which self-generate a signal used to compare with an internal quartz crystal frequency standard. This comparison function is accomplished by a Phase Locked Loop (PLL) circuit. The resulting turntable speed is continuously sampled and corrected to assure precisely accurate speed. Two special Hall Effect semiconductor devices are built into the Motor to allow speed control of this powerful, brushless DC Motor.

The automatic return function is tripped by a special optoelectronic semiconductor device — assuring no change in turntable speed, even at the end of the record.

Most of the **LAB-500's** functions are electronically controlled — fewer mechanical parts to break down or wear out. The S-shaped tone arm keeps the stylus of the cartridge perpendicular to the radius of the groove over the full surface of the record—which means low distortion and excellent tracking at less than 1-1/2 grams. The turntable comes complete with a R-9000ELWS Moving Magnet type cartridge with a nude bi-radial 5 x 18 micron elliptical diamond stylus that faithfully produces frequencies between 20-20,000Hz while maintaining good channel separation. Thus providing extremely linear frequency response.

UNPACKING AND PREPARING FOR USE

Carefully remove the turntable assembly (with its styrofoam protectors) from the carton. Take care that you don't drop the platter — it is held separately in the styrofoam protectors. We recommend that you keep all packing materials, so you can carefully pack up components for safe transit or future shipping.

INSTALLATION

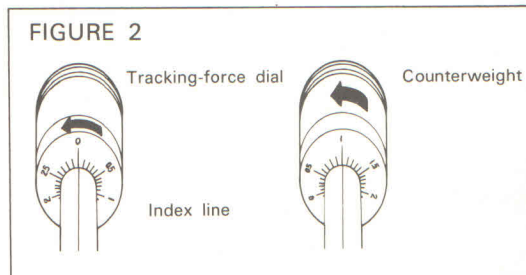
1. Carefully lower the Turntable Platter onto the Motor Spindle. Set the Rubber Mat on the Platter.
2. Mount the Counterweight by firmly sliding it onto the rear of the Tone Arm (Figure 1) and by turning it counter-clockwise (viewed from the front).

FIGURE 1

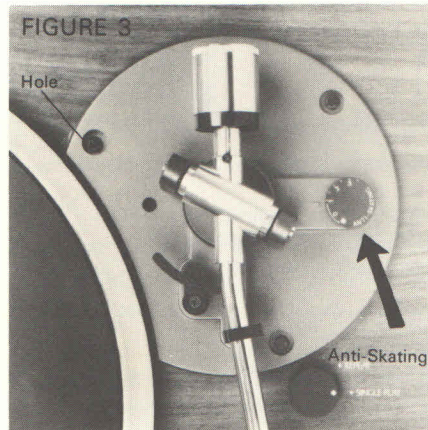


3. Adjust the Counterweight as follows : With the power cord not plugged in, lift the Tone Arm up off the Tone Arm Support and place it between the edge of the Platter and the Tone Arm Support while holding the Head Shell with your left hand. Set the **CUE** Lever to the **DOWN** position. Turn the Counterweight until the Tone Arm is balanced freely in the horizontal plane. Return the Arm to its Support and clamp it. Turn the Tracking Force Dial on the Counterweight so that the "0" is opposite the line on top of the Tone Arm. Grasping the metal Counterweight, turn it (and the Tracking Force Dial) until the desired stylus force is indicated on the black ring opposite the line on the Tone Arm. The optimum stylus pressure for the Cartridge supplied is 1 gram. (Figure 2)

FIGURE 2



4. Skating force is the natural force, caused by rotation of a record and platter, which pulls the Tone Arm toward the center spindle. The anti-skating device is a mechanism which cancels this force and thus prevents uneven wear and unbalanced left/right stereo sound. Adjust the **ANTI-SKATING** Knob so that the antiskate force corresponds to the stylus force selected in the previous step (Figure 3).



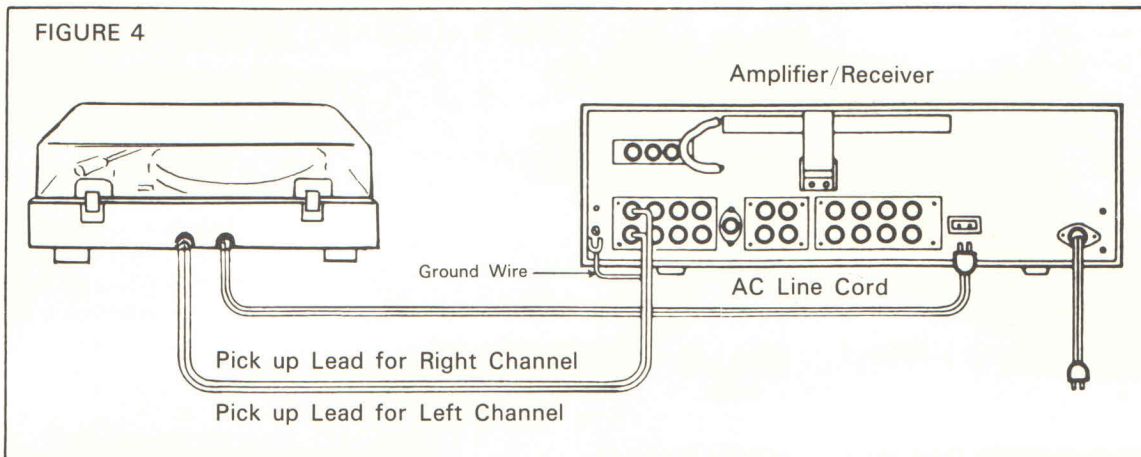
NOTE : The Antiskate device can be set for conical, elliptical or Shibata type cartridges. Each dial setting corresponds to the following chart.

| Dial Setting | Conical | Elliptical | Shibata |
|--------------|---------|------------|---------|
| 1 | 1.0g | 0.8g | 0.6g |
| 2 | 2.0g | 1.5g | 0.9g |
| 3 | 3.0g | 2.5g | 1.8g |

The cartridge supplied is the elliptical type.

To insure top performance, install only on a solid surface, free from vibration. Avoid areas of high humidity and direct sunlight or other sources of heat (heaters, hot air vents, etc.). Good air circulation would be helpful.

ELECTRICAL CONNECTION



1. Pickup leads with RCA type plugs :

Connect the pickup leads (L and R) coming from the rear of the Turntable to the PHONO input jacks of your Amplifier/Receiver—red for right channel and white for left channel.

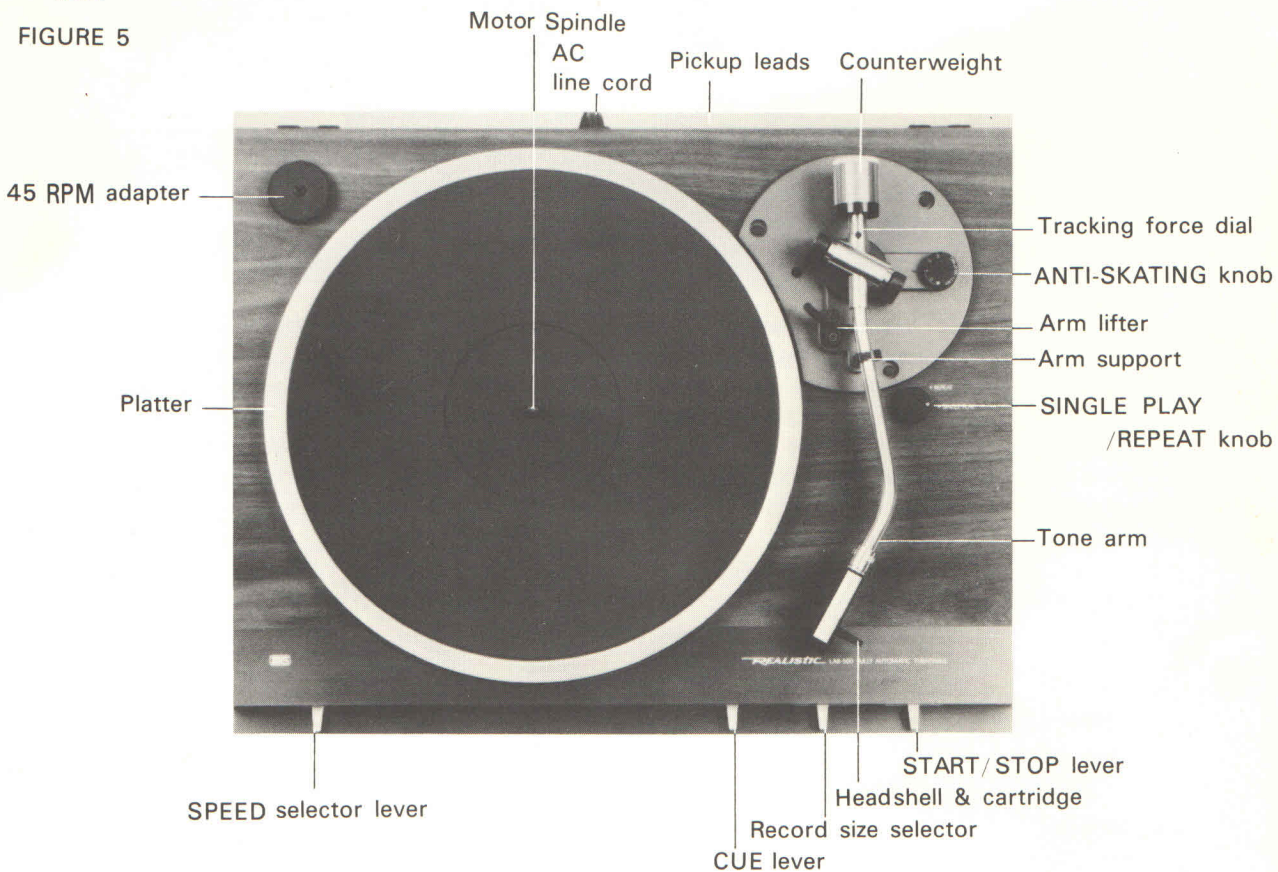
2. AC line cord :

Plug the AC line cord coming from the rear of the Turntable into a convenient source of 120 volts, 60Hz AC power (a wall outlet or an unswitched AC receptacle on your Amplifier/Receiver).

3. Ground wire :

Connect the ground wire (black) to the GND terminal on your Amplifier/Receiver. This will reduce or eliminate hum.

FIGURE 5



OPERATION

1. Plug the AC line cord into a source of AC power. Set the **SPEED** Selector Lever to 33 or 45 depending on the type of record to be played.
2. Set the **START/STOP** Lever to the START position, with **CUE** Lever in UP position. The Platter will start rotating.
3. Set the **START/STOP** Lever to the STOP position to stop Platter rotation.
4. Place a record on the Platter.
5. Set the 7"12"10" Record Size Selector to 12" (30cm), 10"(25cm) or 7"(17cm) depending on the size of the record being played.
Note :The mechanism is adjusted for these standard sizes. If you want to play other sizes of records, you will have to operate manually.
6. Set the **CUE** Lever to DOWN position.
7. Set the **START/STOP** Lever to the START position and hold it there for a moment. If you want to hear the record over and over again, set the **SINGLE PLAY/REPEAT** Knob to REPEAT position.
8. The Tone Arm will automatically move to set the stylus at the beginning of the record.
9. At any time during the play cycle, you can gently lift the Tone Arm from the record by moving the **CUE** Lever to the UP position.
10. At the end of the record, the Tone Arm will automatically return to the Arm Support and the Platter will stop rotating ; or if you've set the **SINGLE PLAY/REPEAT** Knob to the REPEAT position, the Tone Arm will return to the first groove and repeat the play.
11. To stop playing before a record has finished its playing cycle, set the **START/STOP** Lever to the STOP position. The Tone Arm will lift and return to its Support and the Turntable will automatically shut off.
12. To stop repeat play, set the **SINGLE PLAY/REPEAT** Knob to the SINGLE PLAY position. When the Tone Arm reaches the end of the record, it will automatically return to its Support and the Turntable will automatically shut off.
13. When you want to play manually, set the **CUE** Lever to UP position, move the Tone Arm to the groove you want to start and set the **CUE** Lever to the DOWN position.

- NOTE** :
- (1) When the Tone Arm is returning automatically, do not touch it.
 - (2) Low capacitance pickup leads are provided, so CD-4 records can be played if you use a CD-4 cartridge.
 - (3) Be sure to lock the Tone Arm into the Arm Support when not in use.
 - (4) The **LAB-500** comes with a R-9000ELWS cartridge and headshell assembly. Do not attempt to replace or change the cartridge only. If replacement is required replace the entire headshell assembly.

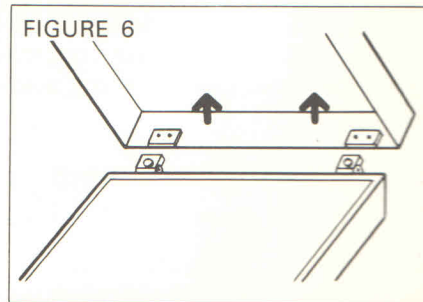
45 RPM Spindle Adapter

When playing a 45 RPM record, place the Adapter over the Motor Spindle.

Removal of Dust Cover

The Dust Cover is designed for easy removal. When the Turntable is to be used without the Dust Cover, remove it as follows:

Open the Dust Cover. Grasp the Dust Cover at the rear and lift up and out. (Figure 6)



HINTS FOR BETTER SOUND

Howling :

Cartridges are very sensitive and may pick up slight sound pressure or vibrations of the speaker coming along the floor or through the air, resulting in howls. Therefore, location of your Turntable is very important. Find a location where it will be very stable and free from vibration. To insure complete isolation from vibration, use Realistic's Audio Insulator, catalog Number 42-2753.

Induction Hum :

Your Turntable utilizes a brushless DC Quartz Lock Servo Motor to reduce inductive hum. If you notice annoying hum, it may be caused by an electromagnetic field produced by motors or transformers used in other products. Do not place the Turntable near a product in which a motor or transformer is being used. To prevent the Turntable from being affected by the power transformer of your Amplifier, Receiver or Tape Deck, position the Turntable on the side opposite the power transformer.

Dust and Dirt :

Records often carry dust-attracting static charges and should be cleaned before use. Playing a dirty record grinds dust against the record walls until it wears away the high frequencies and increases background noise. The more effective cleaners use an ionizing formula to remove the static charge and a cut velvet pad to lift particles from the groove

Occasionally you will need to remove dust and dirt from the needle. For best results trim the bristles of a #2 or smaller camel's hair brush and then dip in rubbing alcohol and touch the needle lightly. Brush forward very gently to remove the dust. Brushing from front-to-back or side-to-side may cause permanent damage. Also avoid touching stylus tip when cleaning.

Record Care :

When handling a record, always hold it by its edge and center label part. Never touch the groove surface.

Make it habit to return records to their jackets immediately after use.

Store the records in a vertical position and avoid storing where subject to temperature extremes (whether high or low) or excessive humidity or in direct sunlight.

Cue Lever :

After a long period of non-use, the Cue Lever may tend to lower the Tone Arm more slowly than usual. After further use, cuing will function normally.

Lubrication :

Your LAB-500 requires no lubrication whatsoever. If you should attempt to lubricate the LAB-500, you may damage it. If you have some difficulty with your unit, do not try to lubricate it but just bring to your local Radio Shack store for our Service Personnel to check it over.

Full Automatic Mechanism :

Normally the Full Automatic Mechanism needs no adjustment. However, if you should find that the starting trip-point is not correct, adjust as follows. You will see a screw through the hole in the base of the Tone Arm Support. (Figure 3) Turn the screw clockwise or counter-clockwise and adjust it so that the stylus tip is set down closer to the edge of the record. One turn of the screw moves the set-down position by about 5mm.

MAINTENANCE

1. Dust

As mentioned earlier, playing a dirty record grinds dust against the record walls and wears the record (and stylus) out quickly. Records often carry dust-attracting charges and should be cleaned before use. Occasionally you will need to remove dust and dirt from the stylus to reduce record wear and maintain top performance. Your local Radio Shack store has a complete line of quality record care accessories.

2. Cabinet and Dust Cover

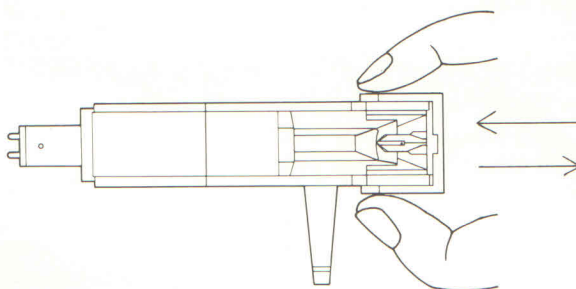
If the cabinet or dust cover requires cleaning, use a soft, damp cloth (do not use solvents). Don't use insecticide, benzine or thinner near the cabinet.

3. Stylus Replacement

The diamond stylus of the turntable can normally play 800 to 1500 LP records(one side). However, when sound becomes distorted or noisy, check the stylus for wear. If worn out, replace it (Figure 7). Be careful not to touch the stylus tip when replacing the stylus.

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FIGURE 7



SPECIFICATIONS

| | |
|--------------------------------|---|
| Type | : 2-speed, QUARTZ LOCK, DIRECT DRIVE, full automatic system |
| Platter | : Aluminium alloy die-cast, 12-5/8" (320mm) outer diameter, 3.1 lbs (1.4kg) |
| Motor | : 12 pole brushless DC QUARTZ lock servo-type |
| Speed | : 33-1/3 and 45 RPM |
| Speed Accuracy | : 0.0005% after 1.5 second |
| Signal-to-Noise Ratio | : Better than 55dB |
| Rumble(DIN-B) | : 70dB |
| Wow & Flutter | : Less than 0.04%WRMS |
| Tone arm | : Static balance type, tubular |
| Head shell & Cartridge | : Plug-in type |
| Overall length | : 12-3/8" (315mm) |
| Effective length | : 8-15/16" (227mm) |
| Overhang | : 9/16" (14mm) |
| Adjustable force range (scale) | : 0 to 3g/1 turn of the scale ring (directly readable in 0.1g steps) |
| Effective arm mass | : 19.8g |
| Resonance of arm and Cartridge | : 7.5Hz |
| Tracking error | : +2° 54" -1° 30" |
| Cartridge | : Realistic/Shure Model R-9000E LWS |
| Frequency response | : 20 - 20,000Hz |
| Output voltage | : 3.5mV at 1kHz, 50mm/sec. |
| Channel difference | : 2dB at 1kHz |
| Channel separation | : 25dB at 1kHz |
| Tracking force | : 3/4- 1-1/2 grams |
| Stylus tip | : 0.2 × 0.7mil diamond stylus |
| Measured compliance | : 30×10^{-6} cm/dyne |
| Nominal DC resistance | : 1550ohms typical |
| Nominal inductance | : 650mili henries |
| Recommended termination | : 47Kohms. 450pF |
| Stylus pullout force | : 6-25oz(170-700g) |
| Cartridge weight | : 10.7grams |
| Power source | : 120 volts, 60Hz AC |
| Power consumption | : 8 watts |
| Dimensions | : 6-1/8"(H) × 18-7/8"(W) × 15-3/16" (D) 156(H) × 480(W) × 386(D)mm |
| Weight | : 22 lbs(10kg) |
| ACCESSORIES | : Counterweight 45 RPM adapter |

RADIO SHACK LIMITED WARRANTY

This equipment is warranted against defects for 1 year from date of purchase. Within this period, we will repair it without charge for parts and labor. Simply **bring your sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover equipment subjected to misuse or accidental damage.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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