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DIRECT-DRIVE TURNTABLE WITH AUTOMATIC RETURN



LAB-420

**OWNER'S
MANUAL**

REALISTIC[®]

CUSTOM MANUFACTURED FOR.

RADIO SHACK  A DIVISION OF TANDY CORPORATION

Your REALISTIC LAB-420 Precision 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 employs a powerful brushless DC servo motor for unwavering, near-perfect speed. The stroboscope with bright neon lamp makes speed adjustment precise and very easy.

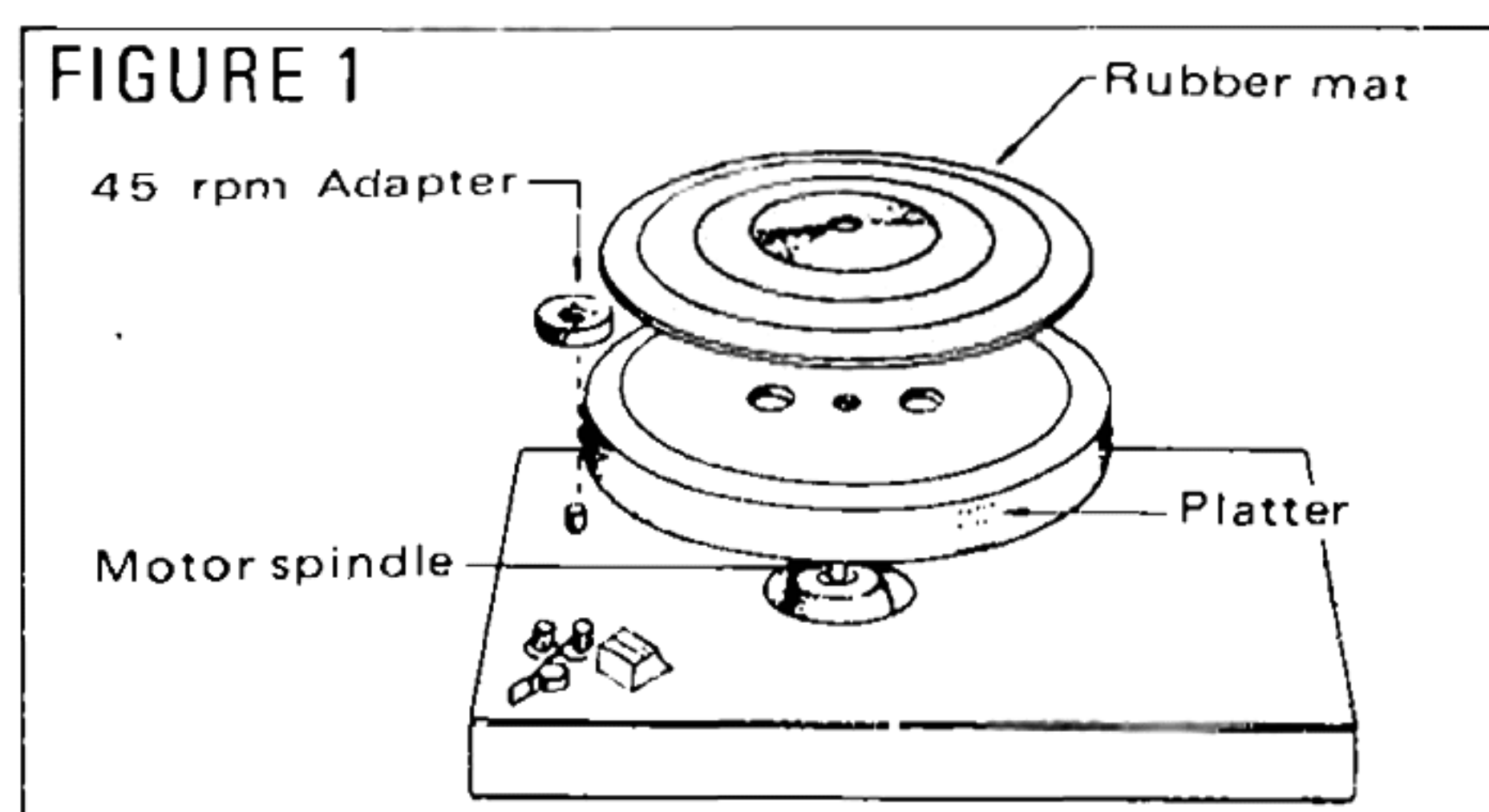
The S-shaped tone arm keeps the stylus of the cartridge perpendicular to the radius of the groove over the full surface of the record — which means low distortion and excellent tracking at less than 1½ grams. The turntable comes complete with Moving Magnet type cartridge with 0.7 mil diamond stylus that reproduces frequencies between 20-20,000 Hz while maintaining superior channel separation.

UNPACKING AND PREPARING FOR USE

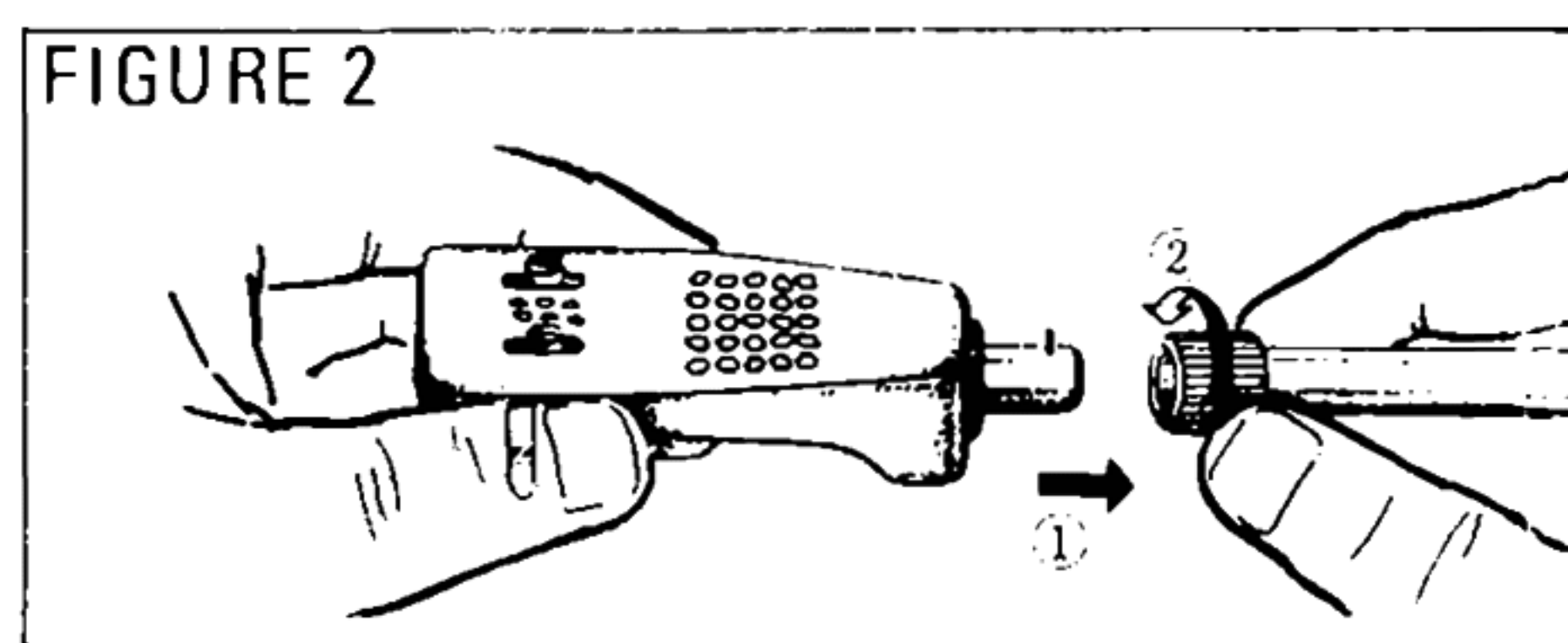
Carefully remove the turntable assembly (with its styrofoam protectors) from the carton. Remove the bag with accessory parts. **Take care that you don't drop the Platter — it is held separately in the styrofoam protectors.** Remove all protective packaging from parts. We recommend that you keep all packing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

INSTALLATION

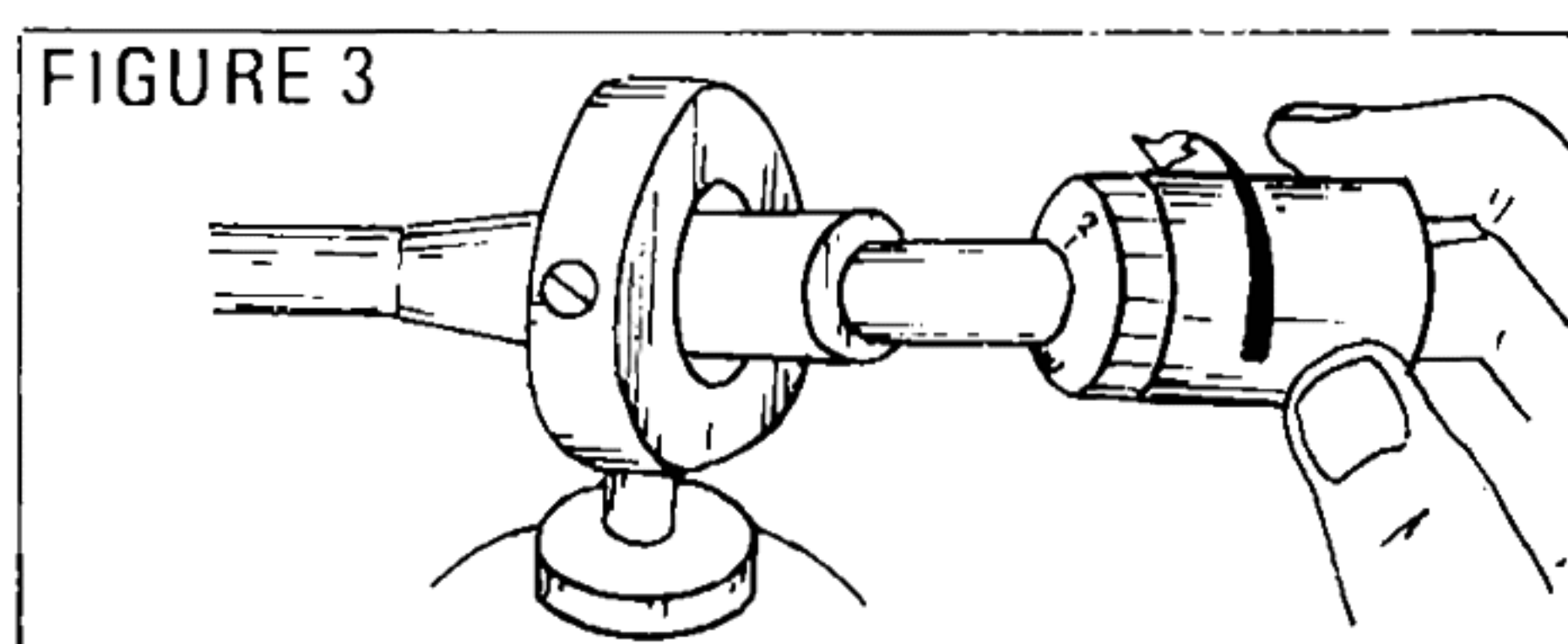
1. Carefully lower the turntable Platter onto the Motor Spindle. Set the Rubber Mat on the Platter.



2. Install the Head Shell with the mounted cartridge by inserting it into the end of Tone Arm as far as it will go. Turn the knurled ring counter-clockwise to draw the shell up snugly.



3. Mount the Counterweight by firmly sliding it onto the rear of the Tone Arm (see Figure 3) and by turning it counter-clockwise (viewed from the front).



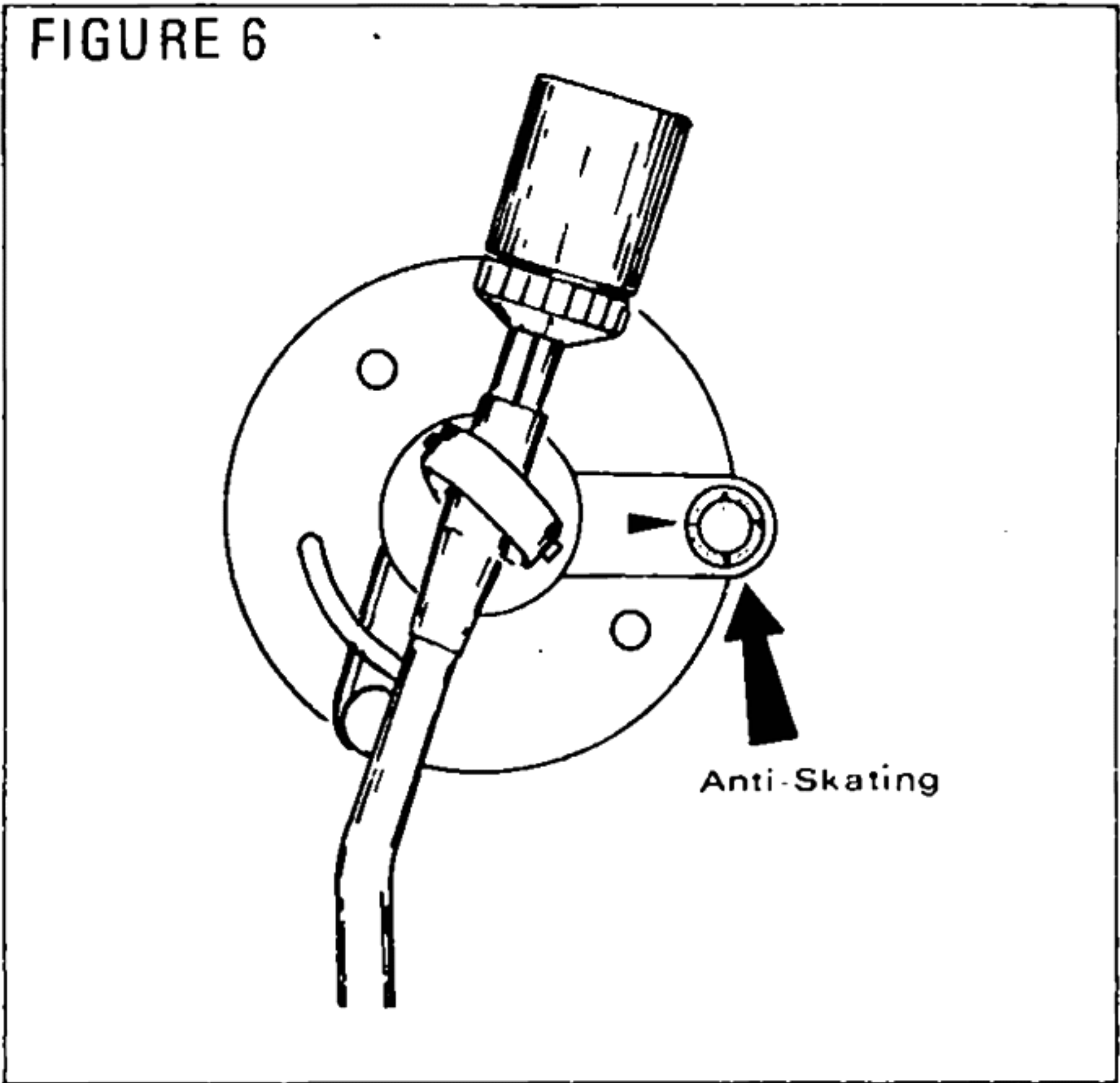
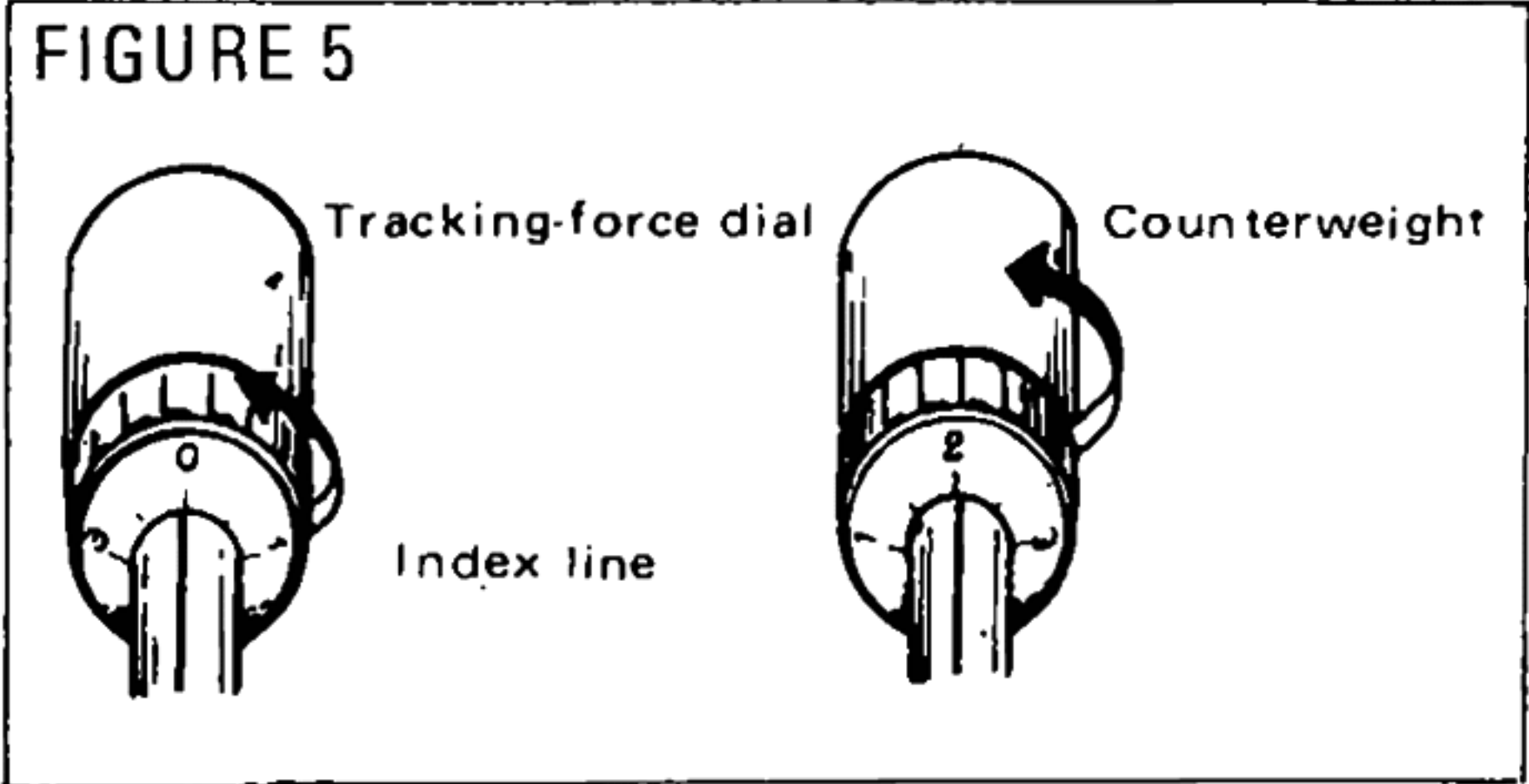
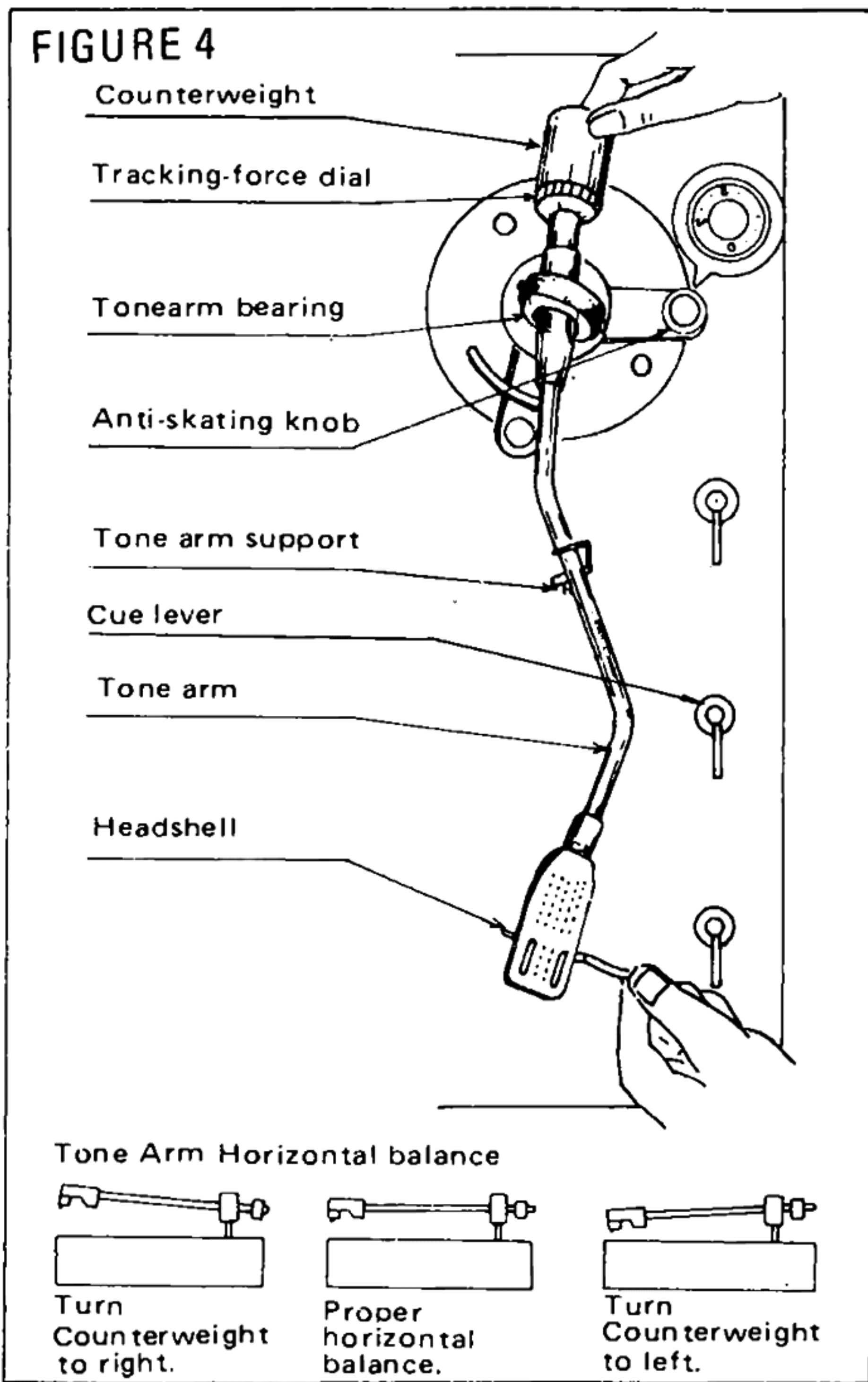
To insure top performance, install only on a solid surface, free from vibration. Avoid areas of high humidity and direct sunlight or other sources of heat (heaters, hot air vents, etc.). Good air circulation would be helpful.

4. 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 to the left of the support. 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 cartridge supplied with this unit, the R 1000ED (Cat. No. 42-2769), can track at 3/4~1-1/4 grams. The heavier the tracking force, the more wear on the stylus and record – however, the bass response is improved.. Therefore we recommend a tracking force of approximately 1 gram.
5. 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 cancels this force and thus prevents uneven wear and unbalanced left/right stereo sound. Adjust the Antiskate Knob so that the anti-skate force corresponds to the stylus force selected in previous step.

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	1.0 gr.	0.8 gr.	0.6 gr.
2	2.0 gr.	1.5 gr.	0.9 gr.
3	3.0 gr.	2.5 gr.	1.8 gr.

Example: at 1 gram tracking force set dial to 0.8 for cartridge (Elliptical) supplied.



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 (220/240 volts, 50Hz for European/Australian models) AC power (a wall outlet or an unswitched AC receptacle on your Amplifier/Receiver).
- 3. **Ground wire:**
Connect the ground wire (thin center wire) to the GND terminal on your Amplifier/Receiver. This will reduce or eliminate hum.

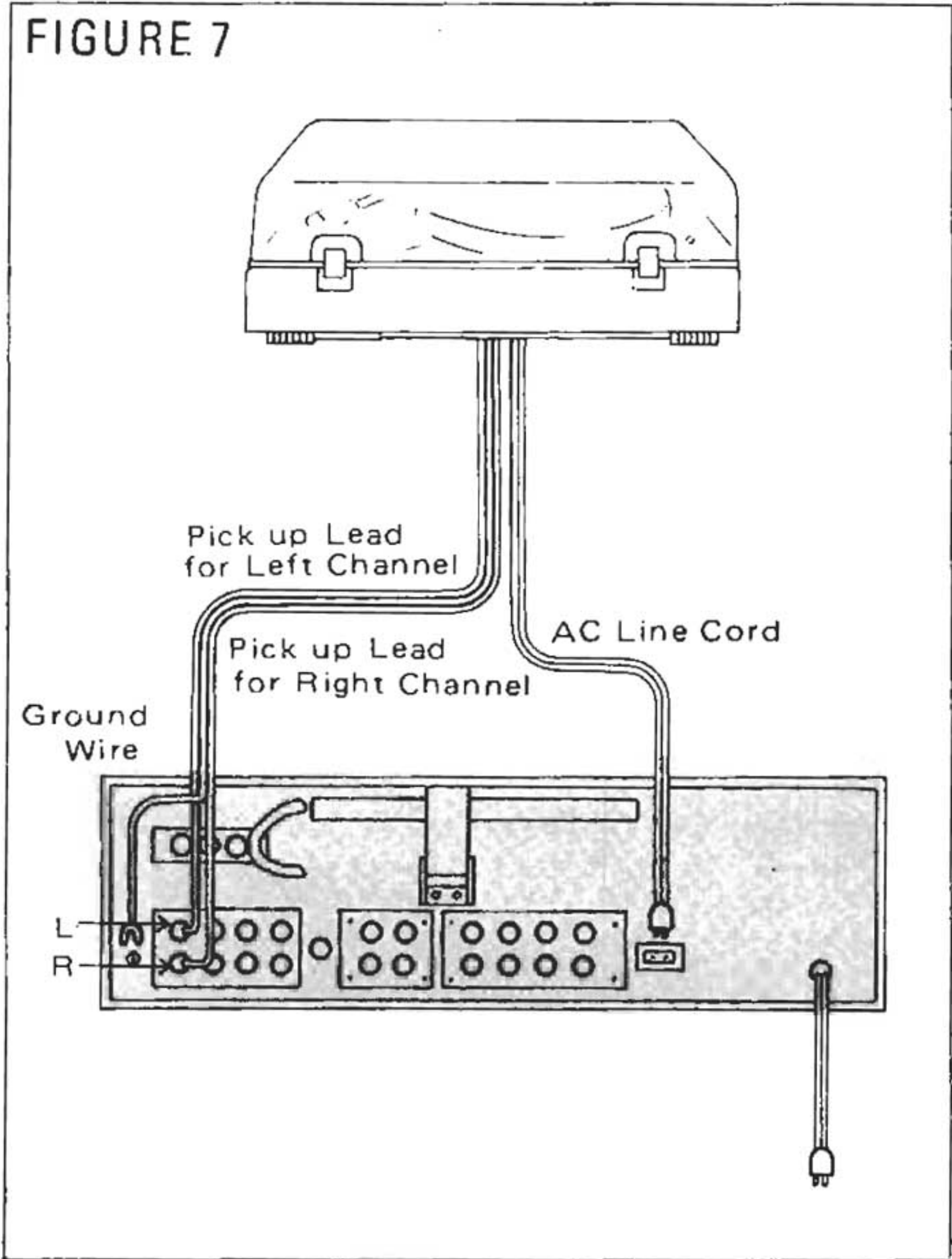
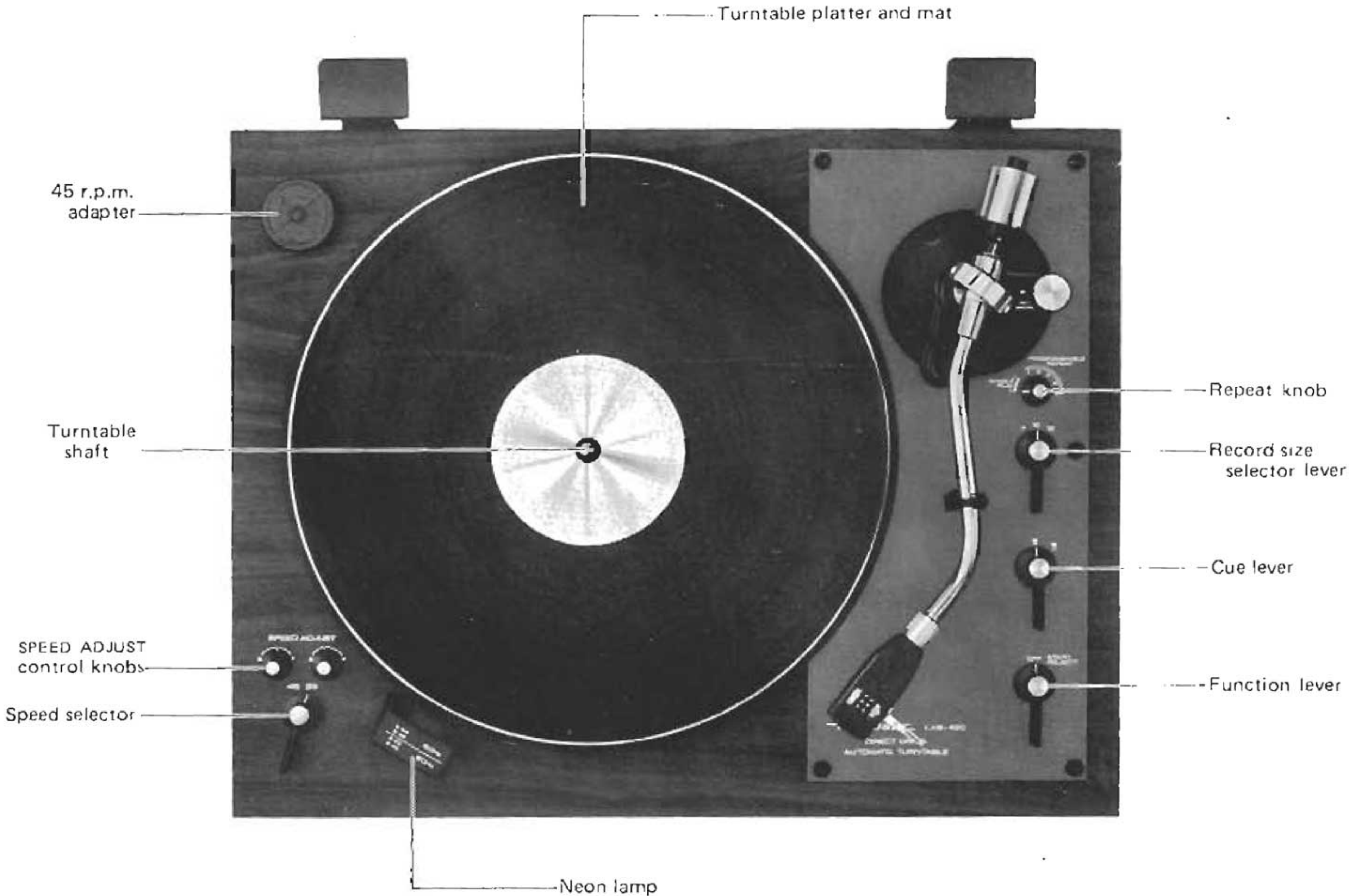


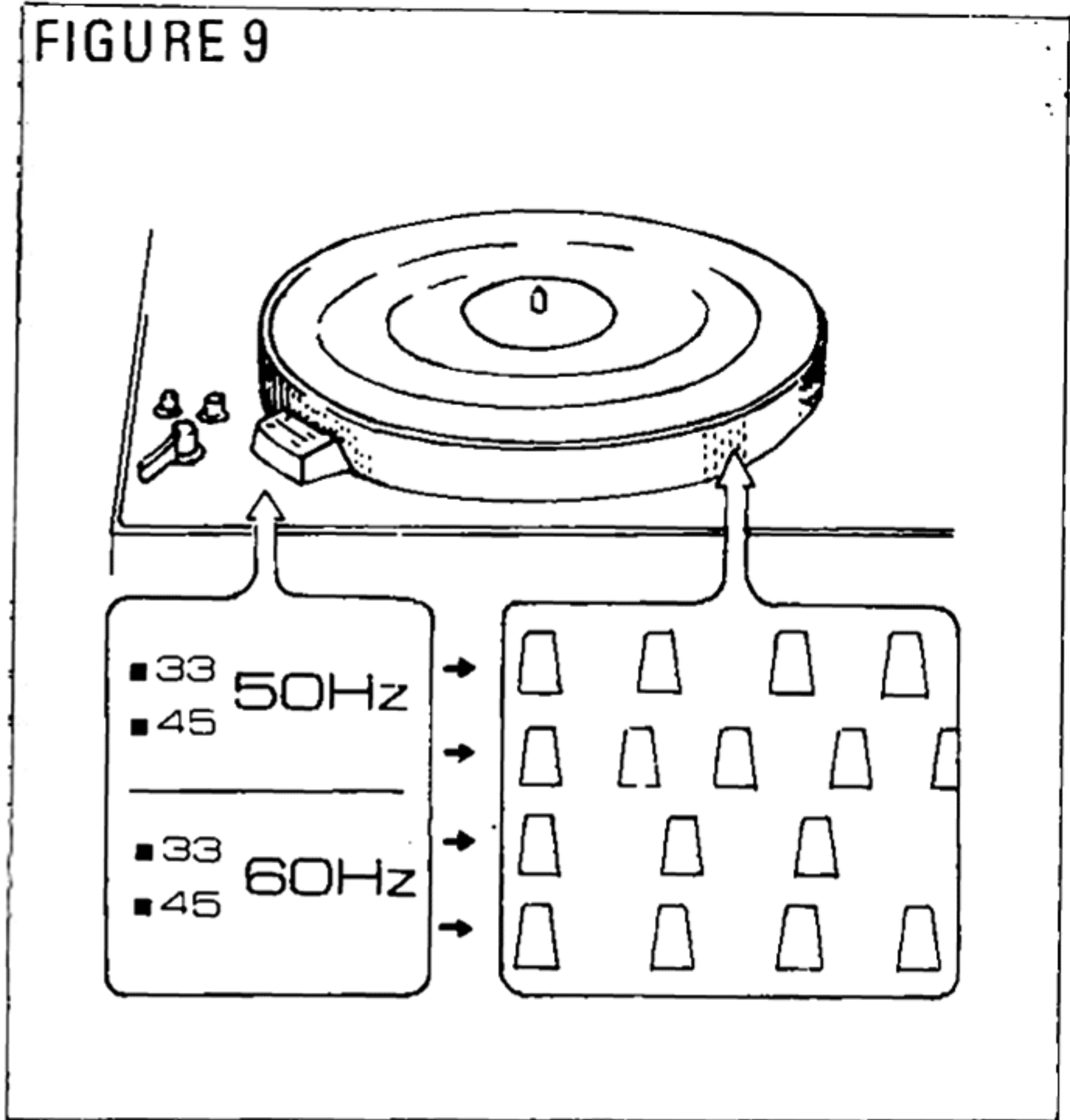
FIGURE 8



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. Press Function Lever to START/REJECT position, with Cueing Lever in Up position. The Platter will start rotating and the Neon Lamp will shine on the row of Metal Dots around the edge of the Platter.
The Neon Lamp Cover indicates which row of dots is used for adjustment at various speeds and power line frequencies (see Figure 9). The left Speed Adjust is for 45 RPM and the right Speed Adjust is for 33 RPM. Rotate appropriate control until the correct Dots appear motionless. If Dots move toward the left, rotate Speed Adjust to "S." If Dots move to the right, rotate Speed Adjust toward "F."
3. Press Function Lever to START/REJECT position again to stop platter rotation.
4. Place a record on the Platter.
5. Set the Record Size Selector to 12, 10 or 7 depending on the size of the record being played.
Note: The mechanism is adjusted for these three standard sizes. If you want to play other sizes of records, you will have to operate manually.
6. Set the Cueing Lever to Down position.
7. Press the Function Lever to the START/REJECT position and hold it there for a moment, setting the Repeat Knob to SINGLE PLAY position. If you want to hear the record over and over again, set the Repeat Knob to "1" to "5" position. The numbers next to the Repeat Knob show repeat times. Set the repeat time before starting.
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 setting the Cueing Lever to Up position.
10. At the end of the record, the Tone Arm will automatically return to the Arm Rest and the Turntable Platter will stop. If you have set the Repeat Knob "1" to "5" position, the Tone Arm will return to the first groove and repeat playing. Set the repeat time before starting play.
11. To stop playing before a record finishes its playing cycle, move the Function Lever to the START/REJECT position. The Tone Arm lift and return to its rest and the Turntable Platter will shut off.
12. To stop the repeat play, set the Repeat Knob to SINGLE PLAY position with the record playing. When the Tone Arm reaches the end of the record, it will automatically return to its rest and Turntable will shut off.
13. When you want to play manually, move the Tone Arm to the groove you want to start and press the Function Lever to START/REJECT position.

FIGURE 9



NOTE: (1) When the Tone Arm is moving automatically, do not touch the Arm or the Repeat Knob.
(2) Low capacitance pickup leads are provided, so CD-4 records can be played if a CD-4 cartridge is used.
(3) Be sure to lock the Tone Arm into the arm rest when not in use.

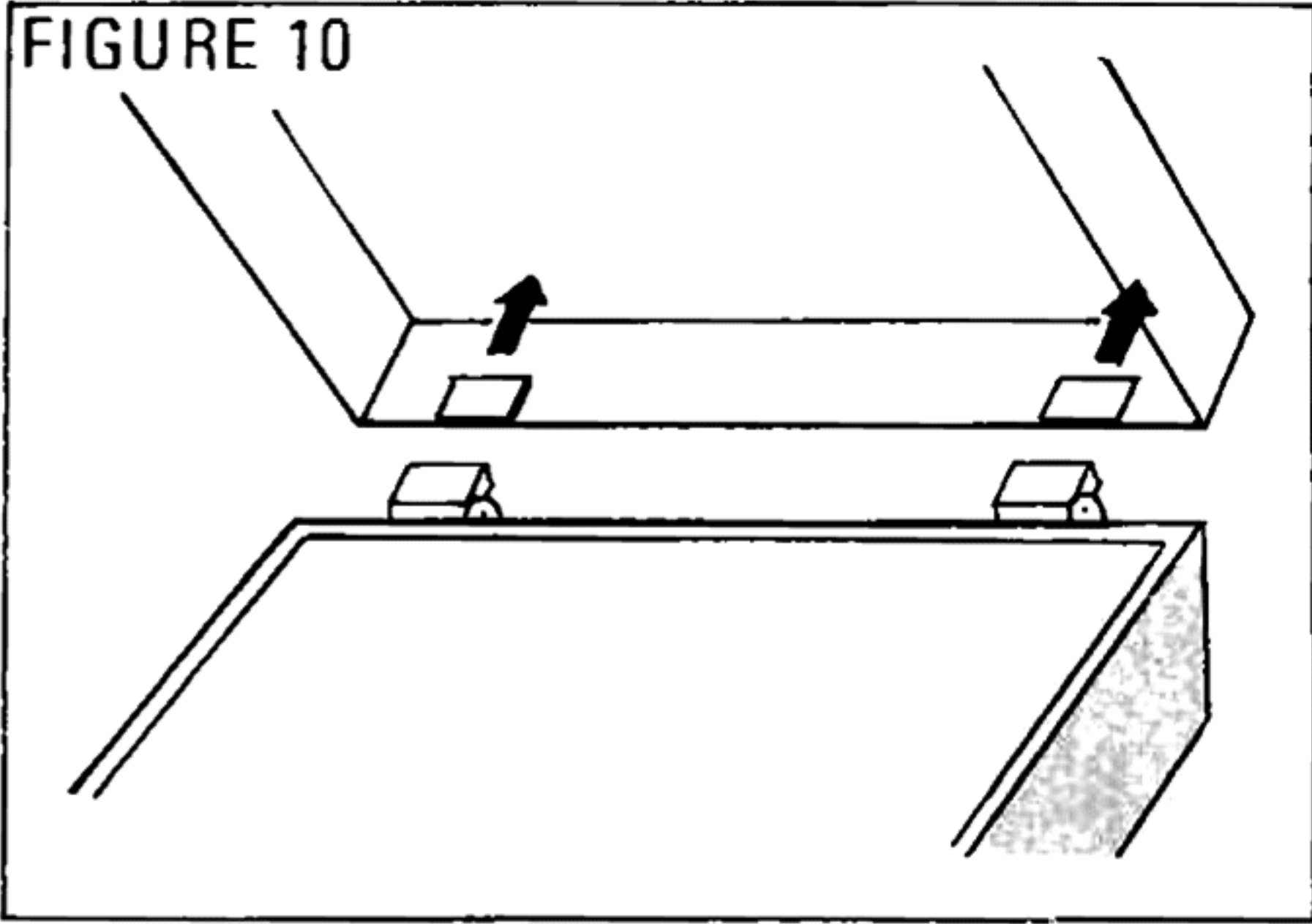
45 RPM Spindle Adapter

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

Removal of Dust Cover

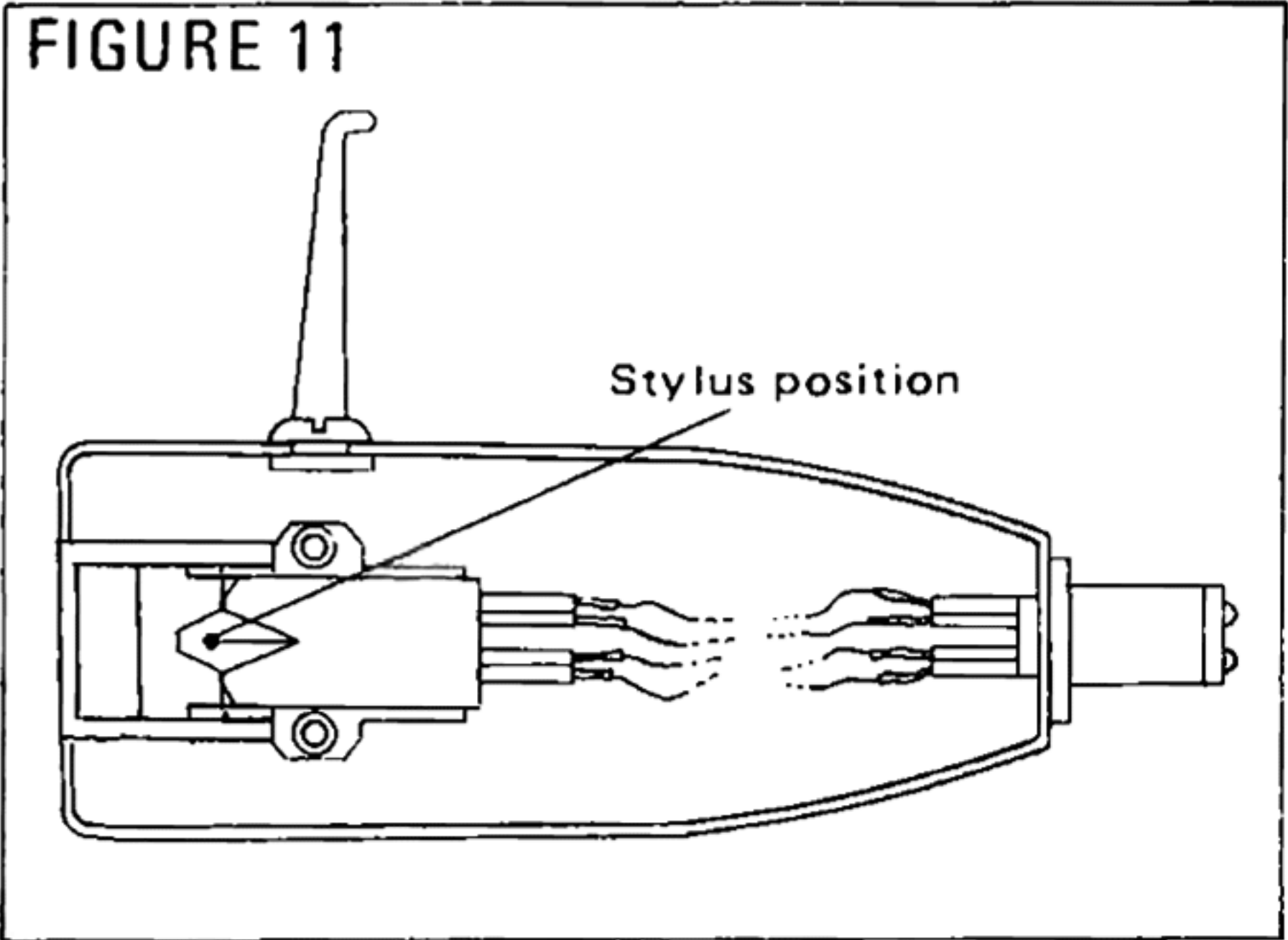
The dust cover is designed for easy removal. When the Turntable is to be used without the dust cover, remove it as follows:

Open the dust cover. Grasp the Dust Cover at the rear and lift up and out. (Figure 10)

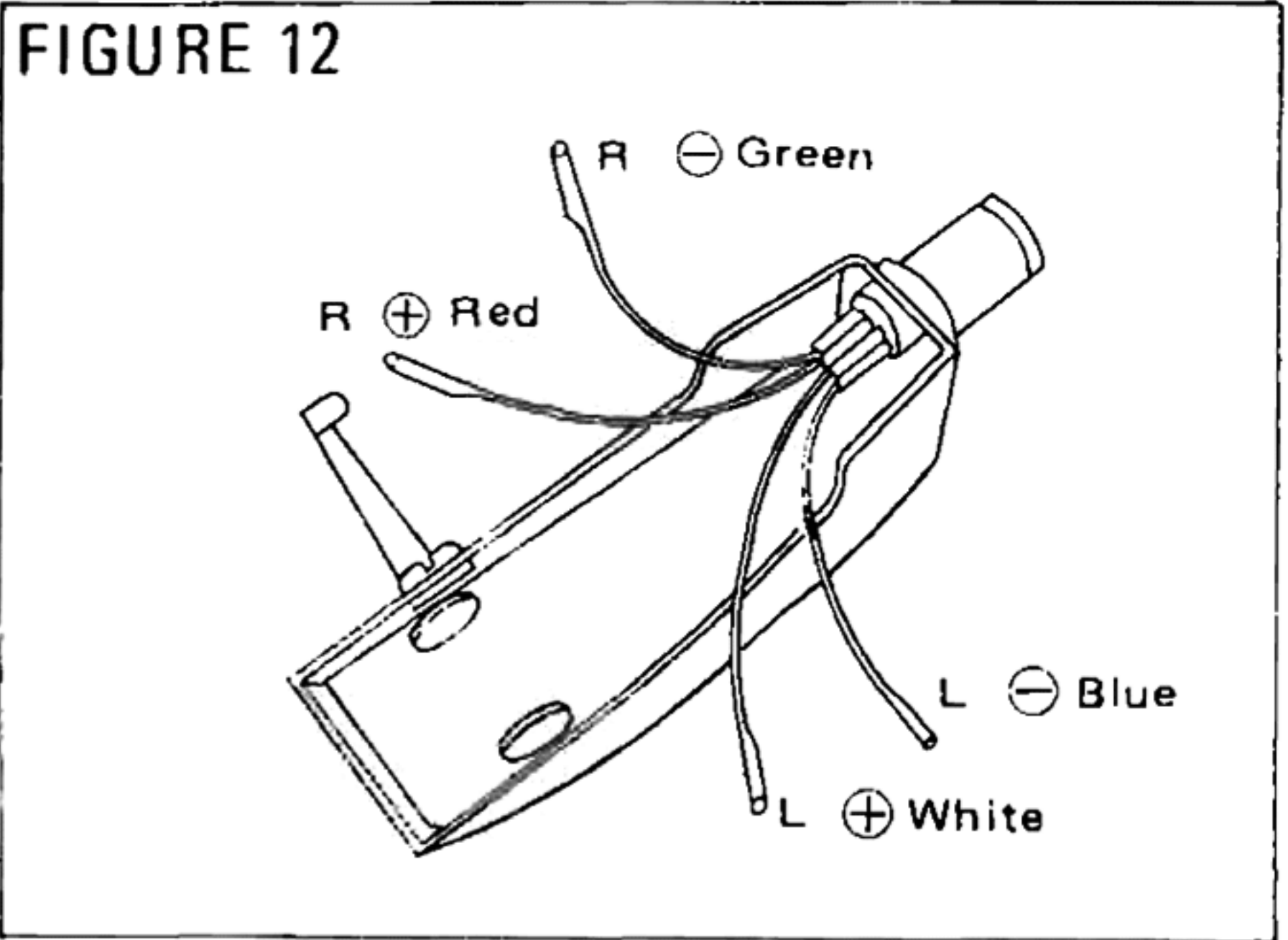


REPLACEMENT OF CARTRIDGE

1. In most cases, the mounting screws supplied by the cartridge manufacturer will be adequate. Fasten the cartridge into the shell as shown in Figure 11. Be sure that the axis of the cartridge lines up with the axis of the head shell.

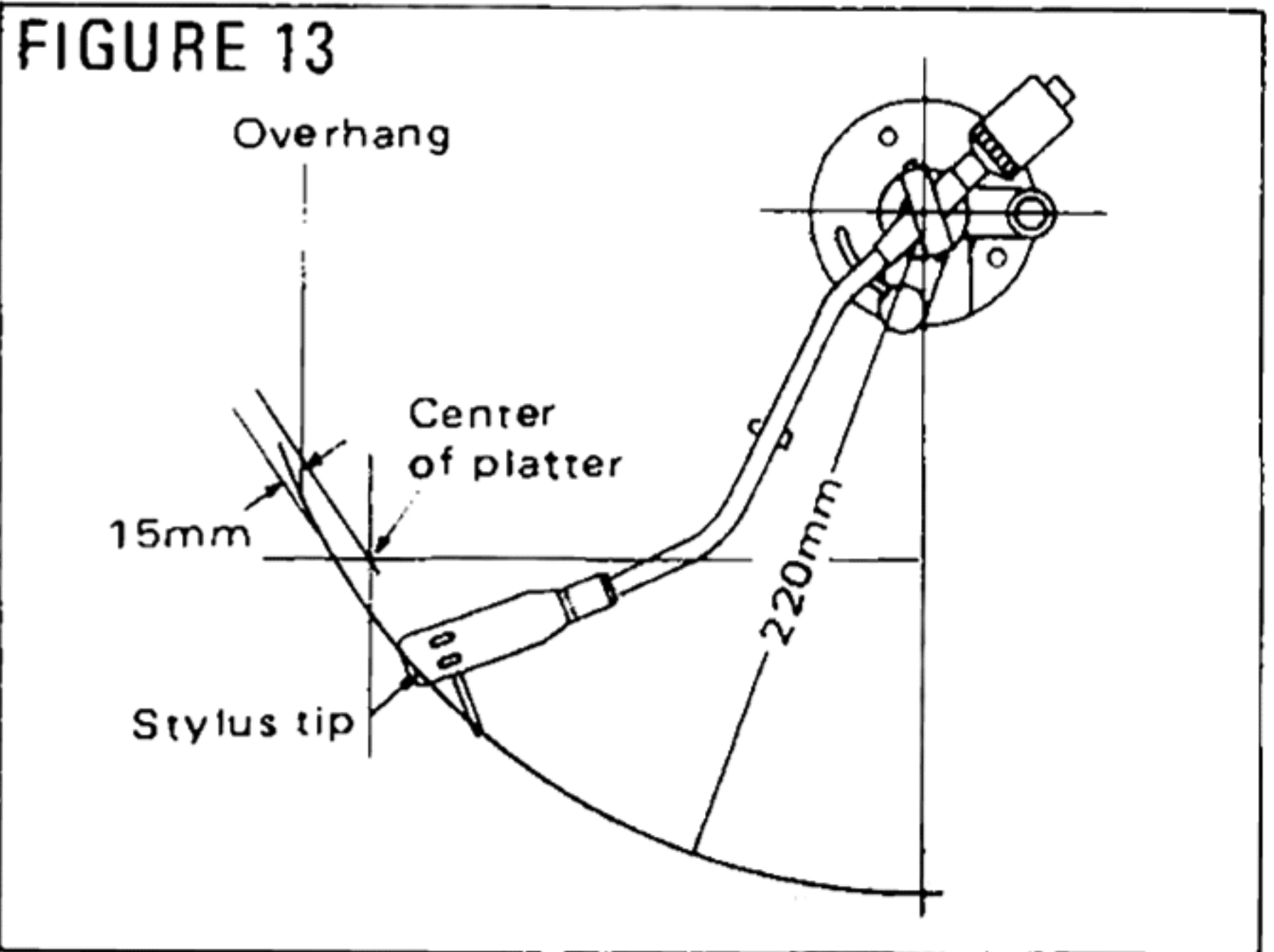


2. To wire the cartridge, grasp each of the push-on connectors by the lug end with a pair of long-nose pliers and push on to the appropriate pin at the rear of the cartridge. The wires in the head shell are color coded as follows: (Figure 12)



- | | |
|-------|--------------------------|
| RED | Right Channel Hot (+) |
| GREEN | Right Channel Ground (—) |
| WHITE | Left Channel Hot (+) |
| BLUE | Left Channel Ground (—) |

3. Fasten the cartridge as described and adjust the stylus position before tightening the mounting screws. Position the stylus tip so that the distance between stylus tip and center of Motor Spindle is 15 mm (Figure 13).



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.

Induction Hum:

Your turntable utilizes a brushless DC 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 the 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 most 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 a 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), excessive humidity or in direct sunlight.

TIPS

Speed Adjustment

Turntable speed may not stabilize within 30 seconds after switching on, or after fine speed adjustment. Wait for a couple of minutes till speed stabilizes and then readjust if necessary. A slight fluctuation in power frequency may result in strobo move or "creep" in either way. This is harmless.

Cueing Lever

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

Lubrication

Your LAB-420 requires no lubrication whatsoever. If you should attempt to lubricate the LAB-420 you may damage it. If you have some difficulty with your unit, do not lubricate it but bring to your local Radio Shack store for our Service Personnel to check over.

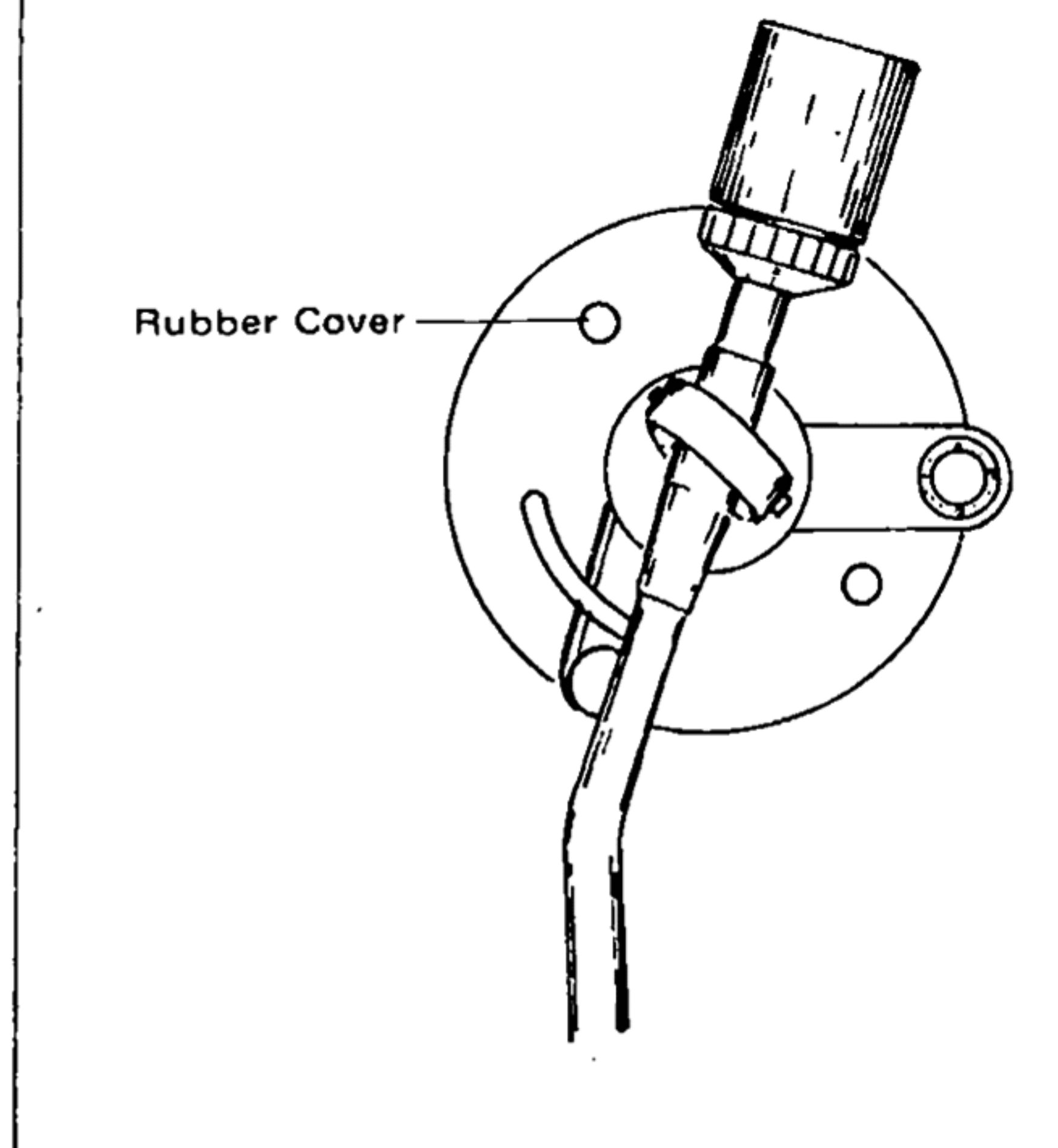
Automatic Return Mechanism

Normally the Automatic Return Mechanism needs no adjustment. However, if you should find starting or stopping trip-point is not correct, adjust as follows.

There's small rubber cover in the base of the arm support. Remove this cover and move the Tone Arm so that the cartridge is near the center spindle. You will see a screw through the hole. To make the stylus set down closer to the center, turn the screw clockwise; to make the stylus set down closer to the edge of the disc, turn counter-clockwise. One turn of screw moves the set down position by about 2mm.

To adjust the lift off position, return the Tone Arm to the rest. You will see another screw through the hole. To make the stylus lift off later, turn counter-clockwise; to lift off sooner, turn clockwise. After adjustment, replace the rubber cover.

FIGURE 14



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.

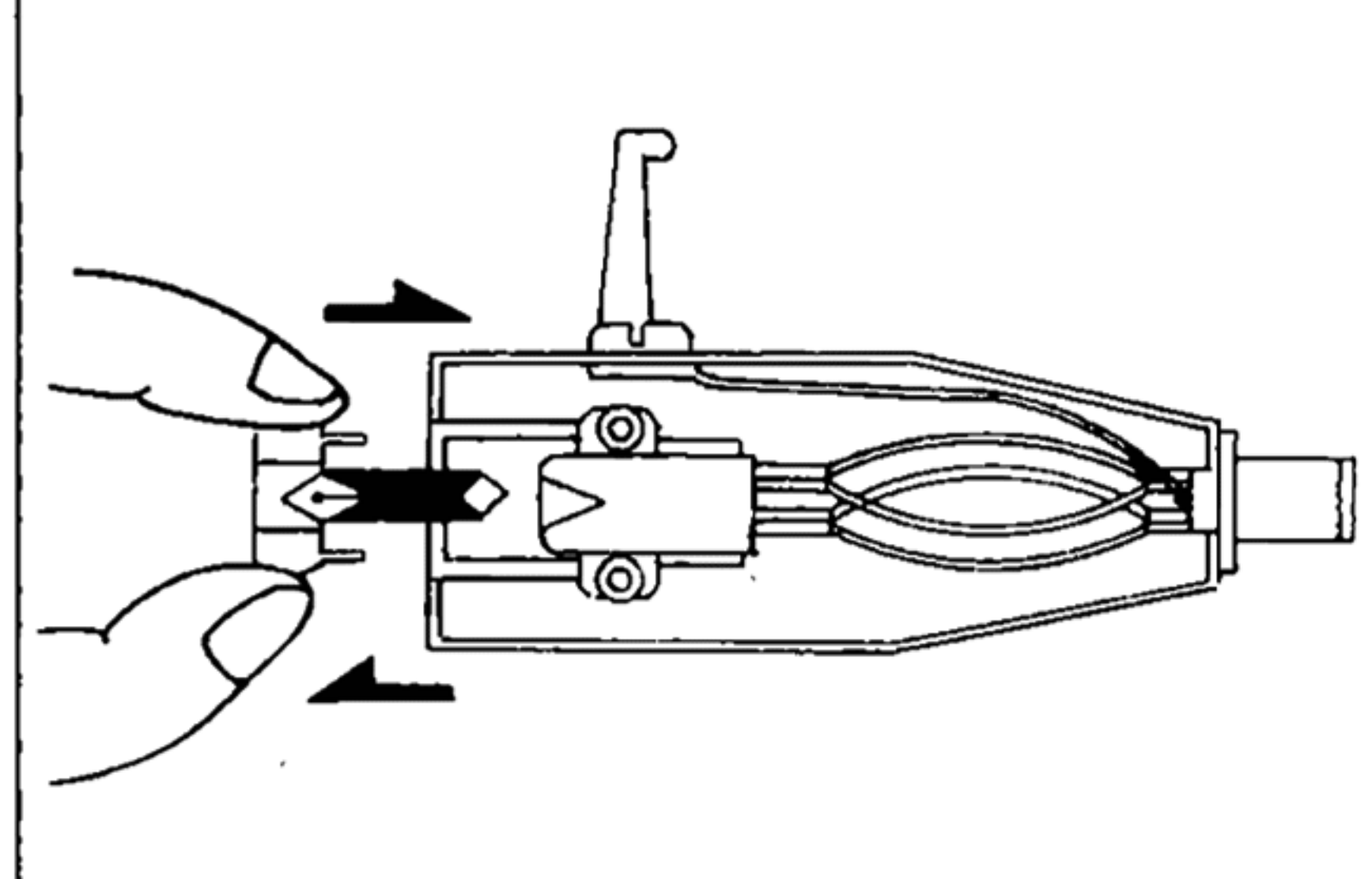
2. Cabinet and Dust Cover

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 noisy, check the stylus (Cat. No. 42-2770) for wear. If worn out replace it (refer to Figure 15). Be careful not to touch the stylus tip when replacing.

FIGURE 15



SPECIFICATIONS

Type	2-speed, direct drive, auto-return system
Platter	Aluminum alloy die-cast, 12-1/4" (310mm) outer diameter, 3.1 lbs (1.4kg)
Motor	20 pole brushless DC servo-type
Speed	2 speeds; 33-1/3 and 45 rpm
Pitch control range	±4%
Rumble	65dB (DIN B)
Signal-to-Noise Ratio	Better than 53 dB
Hum	65 dB
Wow & Flutter	Less than 0.03% WRMS
Tone arm	Static balance type, tubular
Head shell	Plug-in type
Overall length	11-7/8" (302mm)
Effective length	8-11/16" (220mm)
Overhang	9/16" (15mm)
Stiffness	Vertical 0.005 oz (0.15g) or less Horizontal 0.007 oz (0.20g) or less
Adjustable force range (scale)	0 to 4 g/1 turn of the scale ring (directly readable in 0.5g steps)
Acceptable cartridge weight	3.2 to 8.5g
Cartridge	Realistic/Shure Model R-1000ED
Frequency response	20 – 20,000Hz
Output voltage	2.5 – 4.5 mV at 1kHz 50 mm/sec.
Channel difference	2 dB at 1kHz
Channel separation	23 dB at 1kHz
Tracking force	1~1-1/4 grams
Stylus tip	0.7 mil diamond stylus
Power source	120 Volts, 60 Hz AC (220/240V, 50Hz for European/Australian models)
Power consumption	8 watts
Dimensions	5-5/8"(H) x 17-11/16"(W) x 13-31/32"(D) 143(H) x 450(W) x 355(D) mm
Weight	17.6 lbs (8kg)

ACCESSORIES


Head Shell with Cartridge
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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