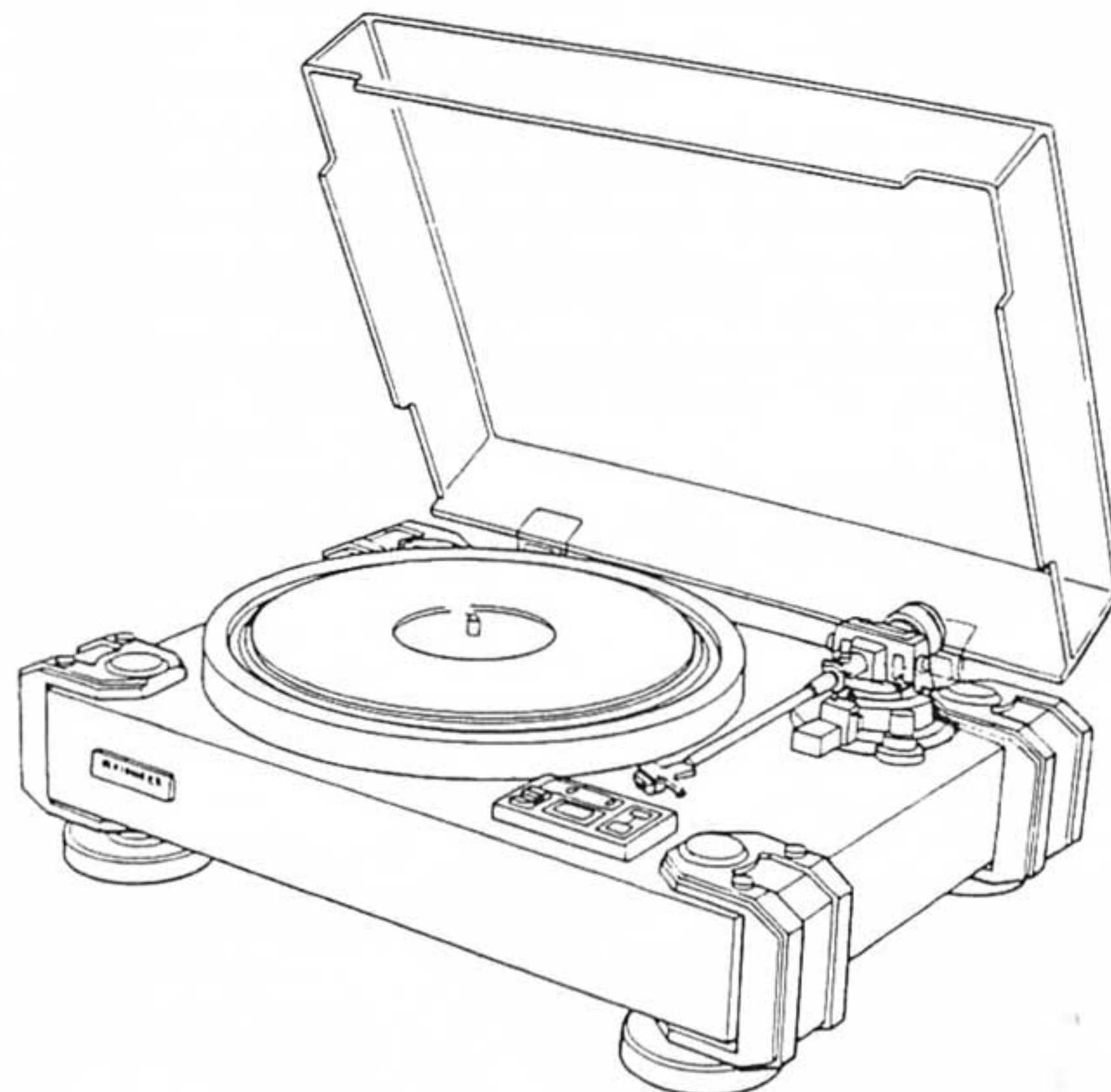


**Operating Instructions**  
*Mode d'emploi*

**STEREO TURNTABLE  
 PLATINE TOURNE-DISQUE STÉREO  
 PL-90**



•Walnut grained vinyl cabinet.

Thank you for buying this Pioneer product. Please read the operating instructions so that you will operate your turntable properly. After reading them, we recommend that you save them for future reference.

Nous vous remercions d'avoir porté votre choix sur cet appareil Pioneer. Veuillez attentivement ce mode d'emploi afin de vous familiariser avec les différentes démarches d'exploitation. Après avoir pris connaissance de ces instructions, placer ce manuel dans un endroit sûr afin de pouvoir l'utiliser comme référence ultérieure.

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

**IMPORTANT NOTICE**  
 [For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

[For Canadian model]

**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.

**ATTENTION:** POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

**CONTENTS**

Names of parts and their use .....	3	Maintenance .....	10
Operations before use .....	4	Specifications .....	11
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# SAFETY INSTRUCTIONS

**READ INSTRUCTIONS** — All the safety and operating instructions should be read before the appliance is operated.

**RETAIN INSTRUCTIONS** — The operating instructions should be retained for future reference.

**HEED WARNING** — All warnings on the appliance and in the operating instructions should be adhered to.

**FOLLOW INSTRUCTIONS** — All operating and use instructions should be followed.

**WATER AND MOISTURE** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

**LOCATION** — The appliance should be installed in a stable location.

**WALL OR CEILING MOUNTING** — The appliance should not be mounted to a wall or ceiling.

**VENTILATION** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

**HEAT** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

**POWER SOURCES** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**POWER-CORD PROTECTION** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**POLARIZATION** — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

**CLEANING** — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzene, insecticides or other volatile liquids since they may corrode the cabinet.

**POWER LINES** — An outdoor antenna should be located away from power lines.

**NONUSE PERIODS** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

**OBJECT AND LIQUID ENTRY** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

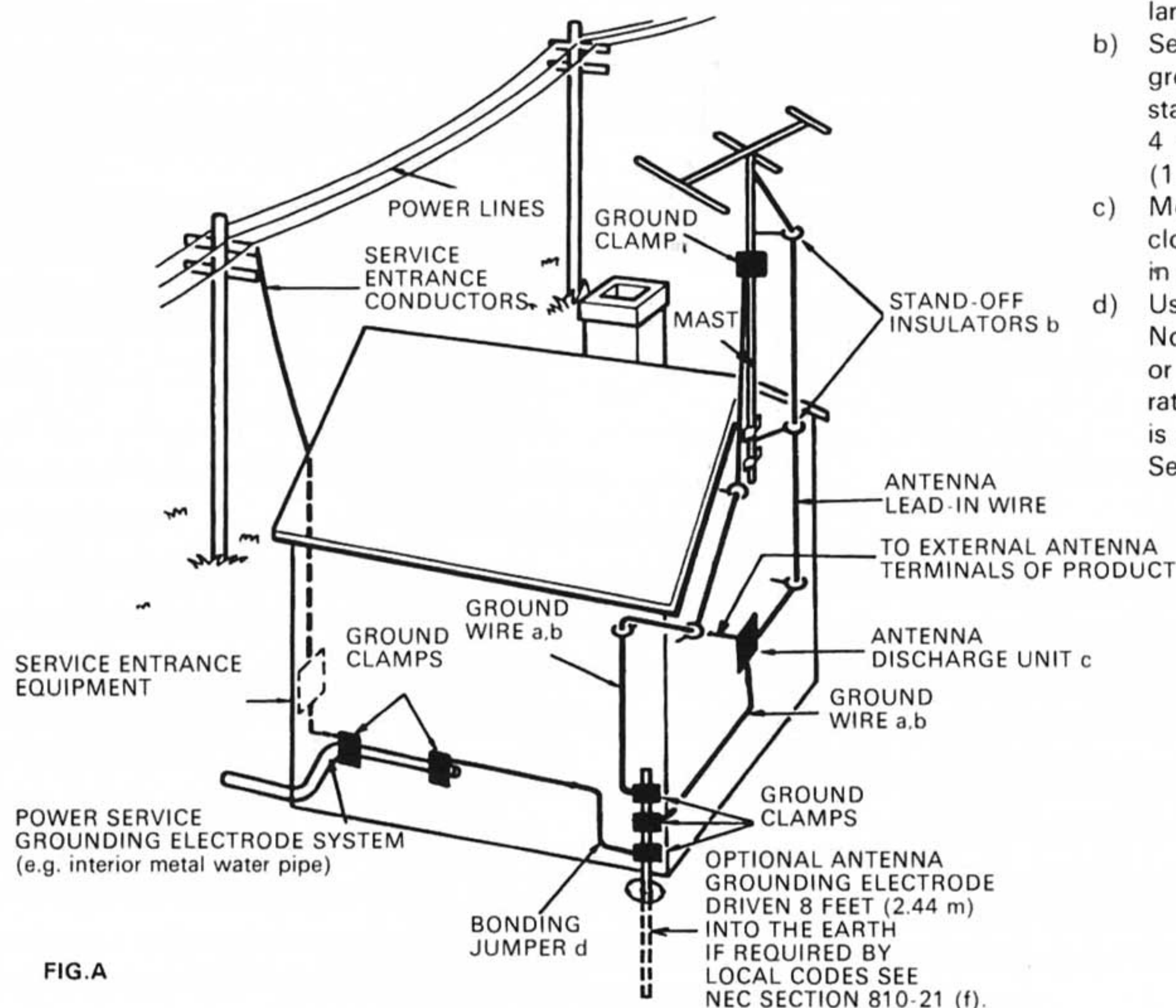
**DAMAGE REQUIRING SERVICE** — The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

**SERVICING** — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

**OUTDOOR ANTENNA GROUNDING** — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.



- a) Use No. 10 AWG (5.3 mm<sup>2</sup>) copper, No. 8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copperclad steel, bronze wire, or larger as ground wire.
- b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- c) Mount antenna discharge unit as closely as possible to where lead-in enters house.
- d) Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

## IMPORTANT



The lightning flash with arrowhead, 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.



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



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.

## INFORMATION TO USER [FOR U.S. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

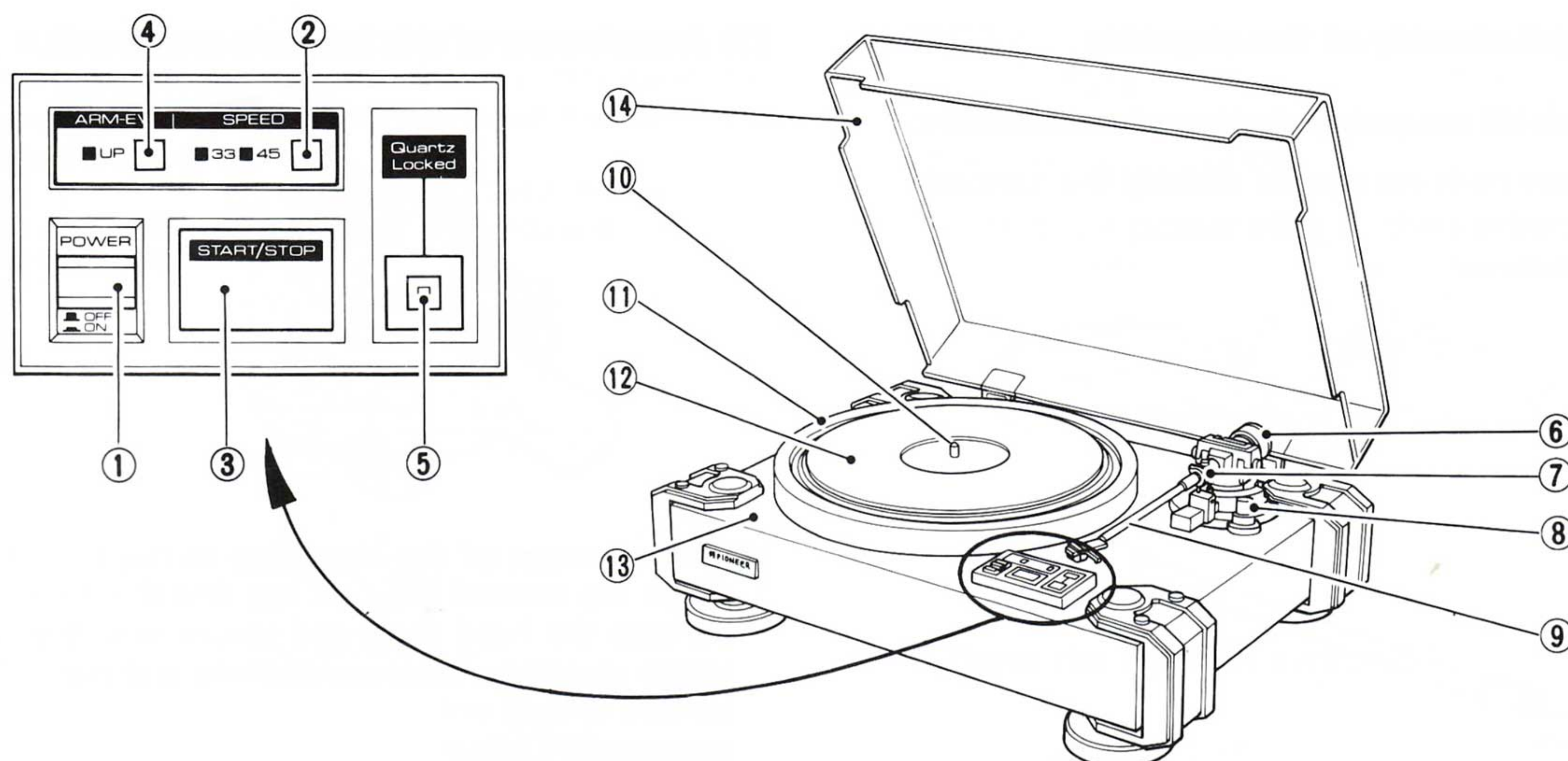
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

*The above instructions apply only to units which will be operated in the United States.*

# NAMES OF PARTS AND THEIR USE



## ① POWER switch

Press this switch to turn the power on and off.  
[ON] (depressed position) : Power is switched ON.

[OFF] (raised position) : Power is switched OFF.

## ② SPEED switch

Set this switch in accordance with the speed of the record to be played. The indicator lamp for the selected speed will light up.

The [33] indicator lamp is lit for records to be played at a speed of 33-1/3 rpm.

The [45] indicator lamp is lit for records to be played at 45 rpm.

## ③ START/STOP switch

Press this switch to turn ON/OFF the motor power.

When the switch is pressed, motor power is ON and the platter begins to rotate (START).

If the switch is pressed while the platter is revolving, the brake is operated and the platter stops (STOP).

## ④ ARM ELEVATION switch (ARM EV)

- Use this switch to raise the arm when the platter is revolving.

- Use the switch to stop record play.

- Use the switch when changing a record track during play.

[UP] indicator lamp ON : Tonearm is raised.  
(stylus is removed from record)

[UP] indicator lamp OFF : Tonearm is lowered.  
(stylus contacts the record)

## ⑤ QUARTZ LOCKED indicator

This indicator lamp is lit when the record is revolving exactly at either 33-1/3 rpm or 45 rpm.

## ⑥ Balance Weight

This is used when making stylus tracking force adjustments.

## ⑦ Arm rest

Use the arm rest to support or secure the tonearm.

## ⑧ Anti-skating adjuster knob

Turn this knob to adjust the amount of anti-skating.

## ⑨ Tonearm

## ⑩ Platter shaft

## ⑪ Platter

## ⑫ Rubber mat

## ⑬ Cabinet

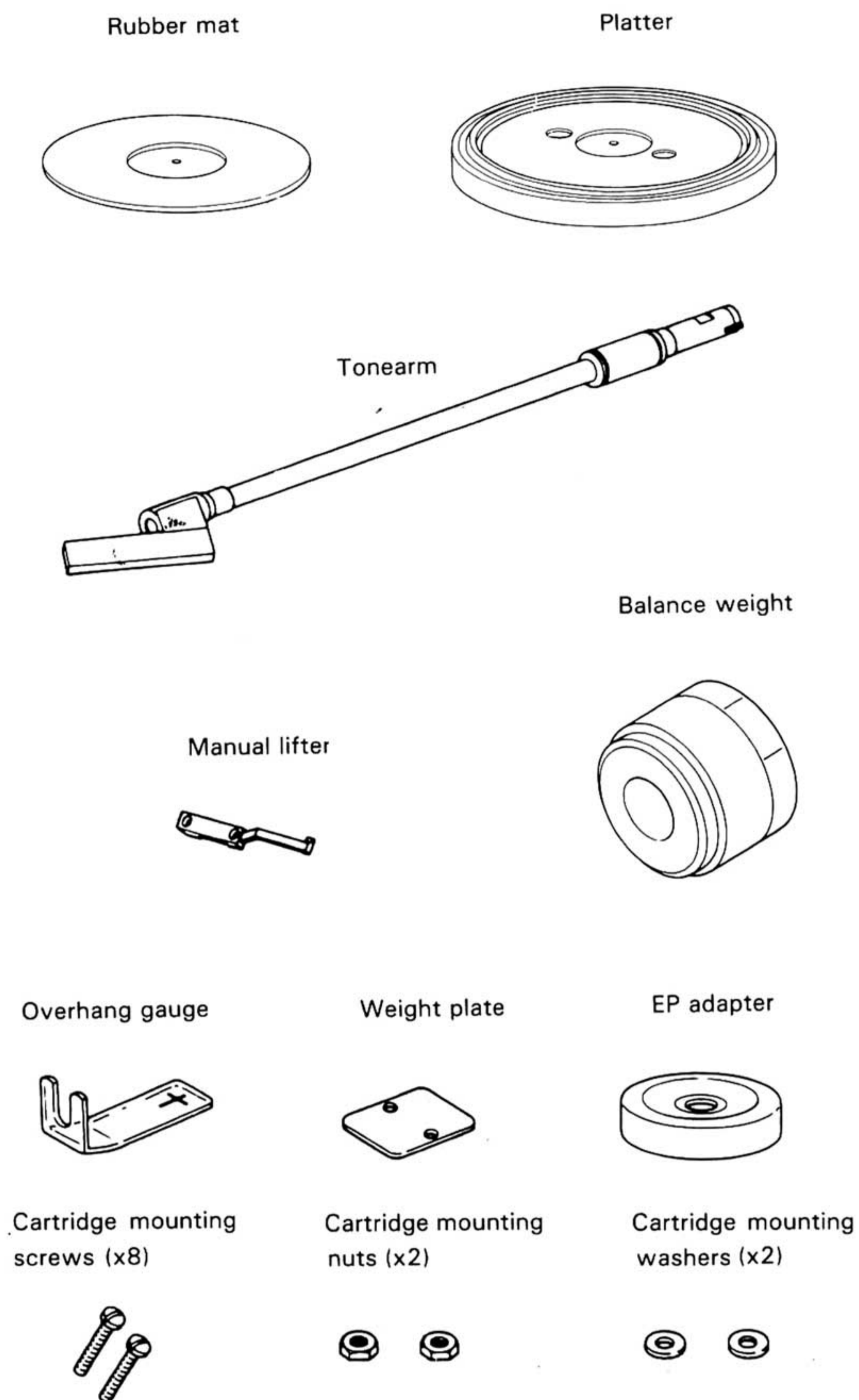
## ⑭ Dust cover

# OPERATIONS BEFORE USE [Be sure to carry out the following procedures (STEPS (1) - (6) below) before using the record turntable].

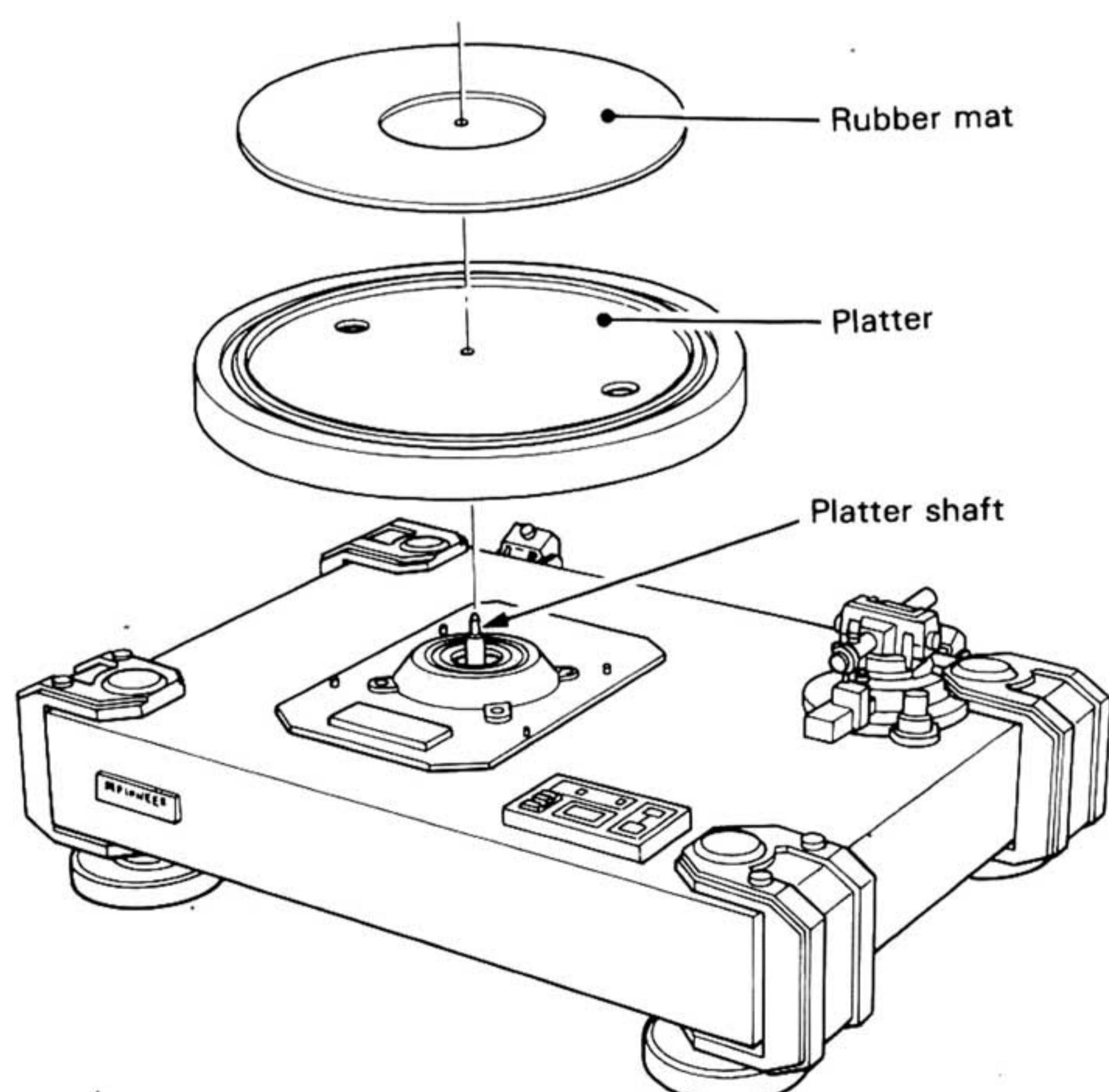
## [STEP 1] Assembly of the turntable

### (1) Check all assembly parts and accessories

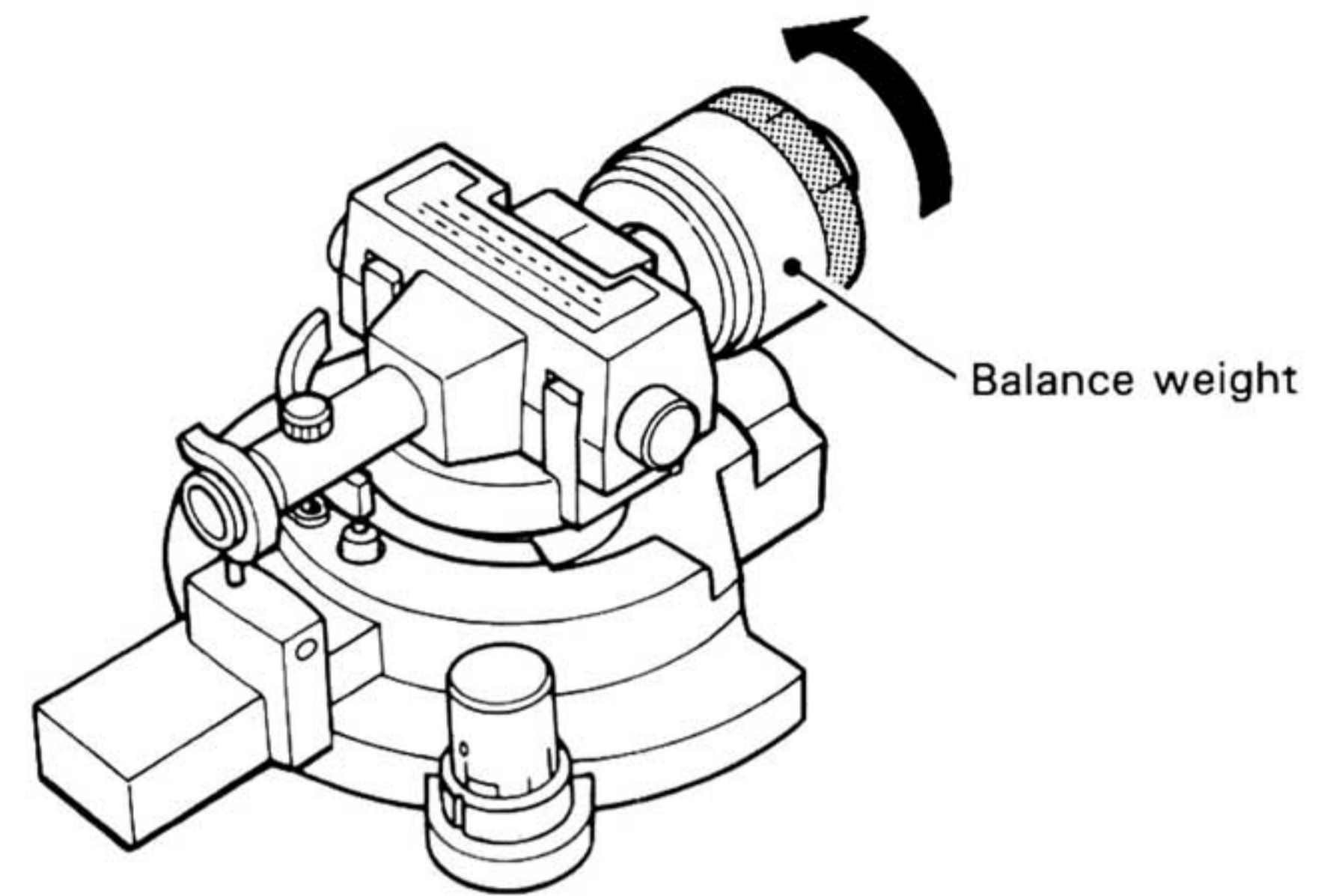
Polystyrene pads are used in packing the turntable.



### (2) Attachment of the platter and rubber mat.

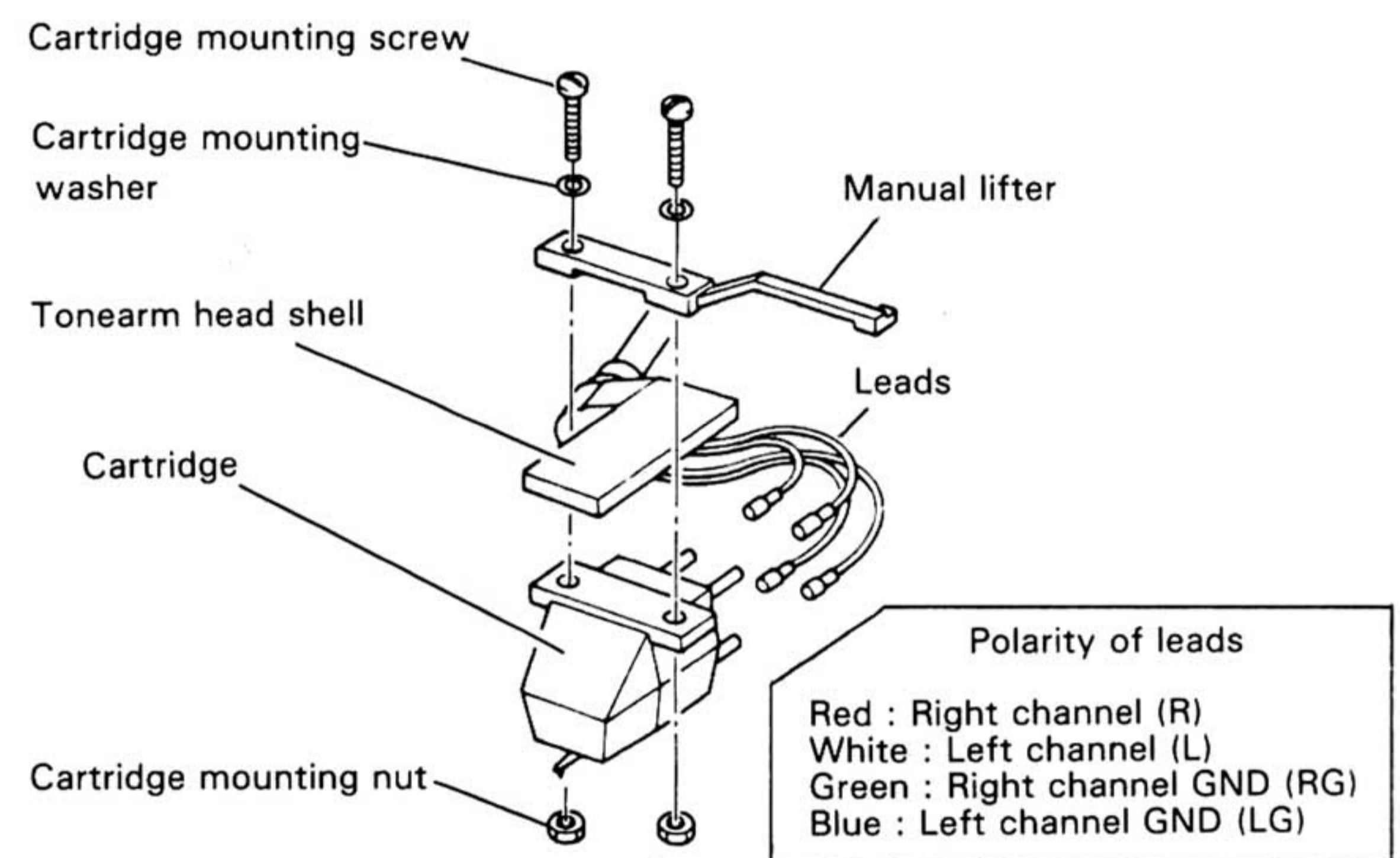


### (3) Attachment of the balance weight.



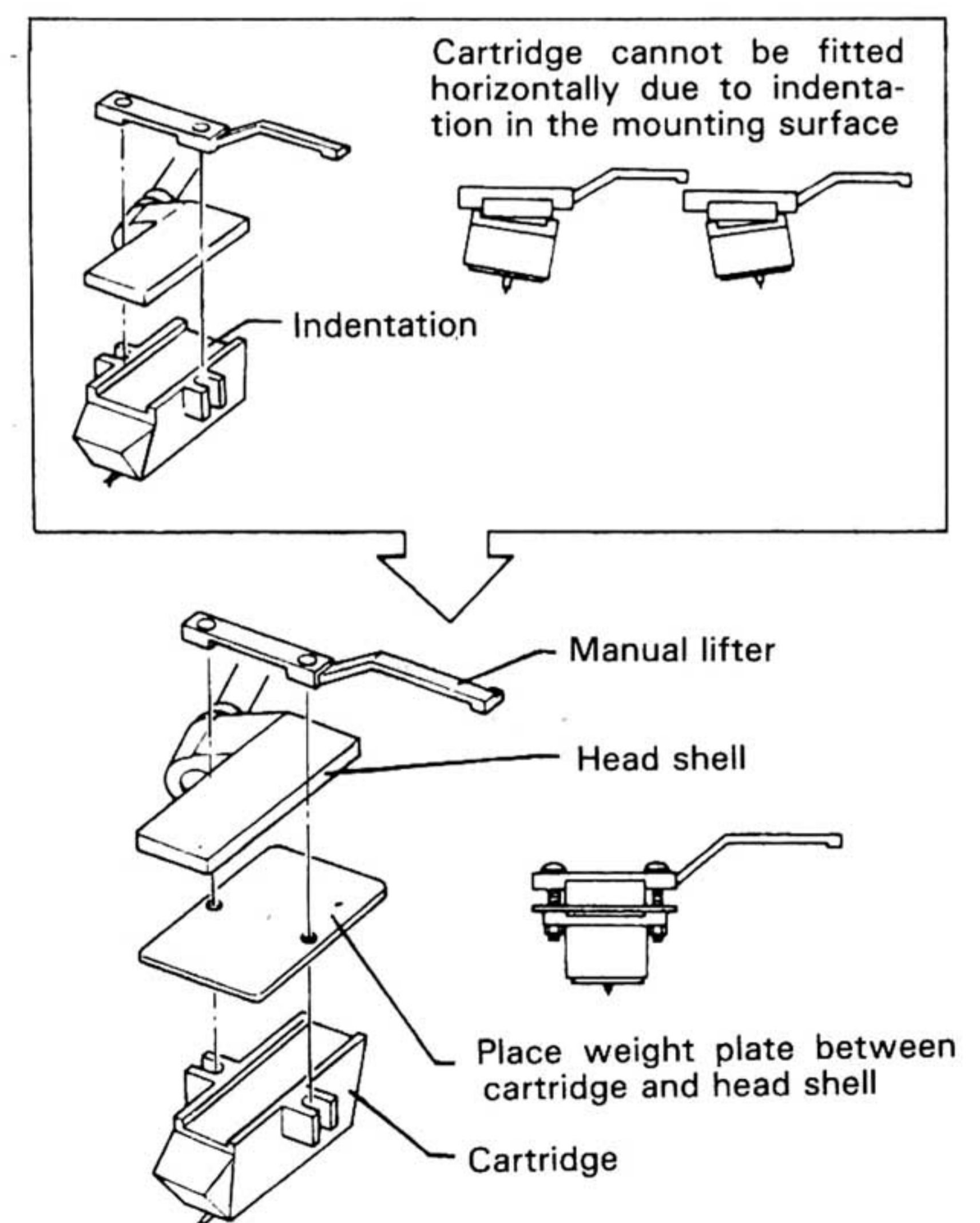
### (4) Attachment of the cartridge to the arm pipe.

1. Place the manual lifter on top and the cartridge beneath the head shell, and secure with the cartridge mounting screws, washers and nuts. The screws should only be lightly tightened so as to accommodate adjustment of the stylus position.
2. Be sure to connect up the leads correctly according to polarity.



#### NOTE:

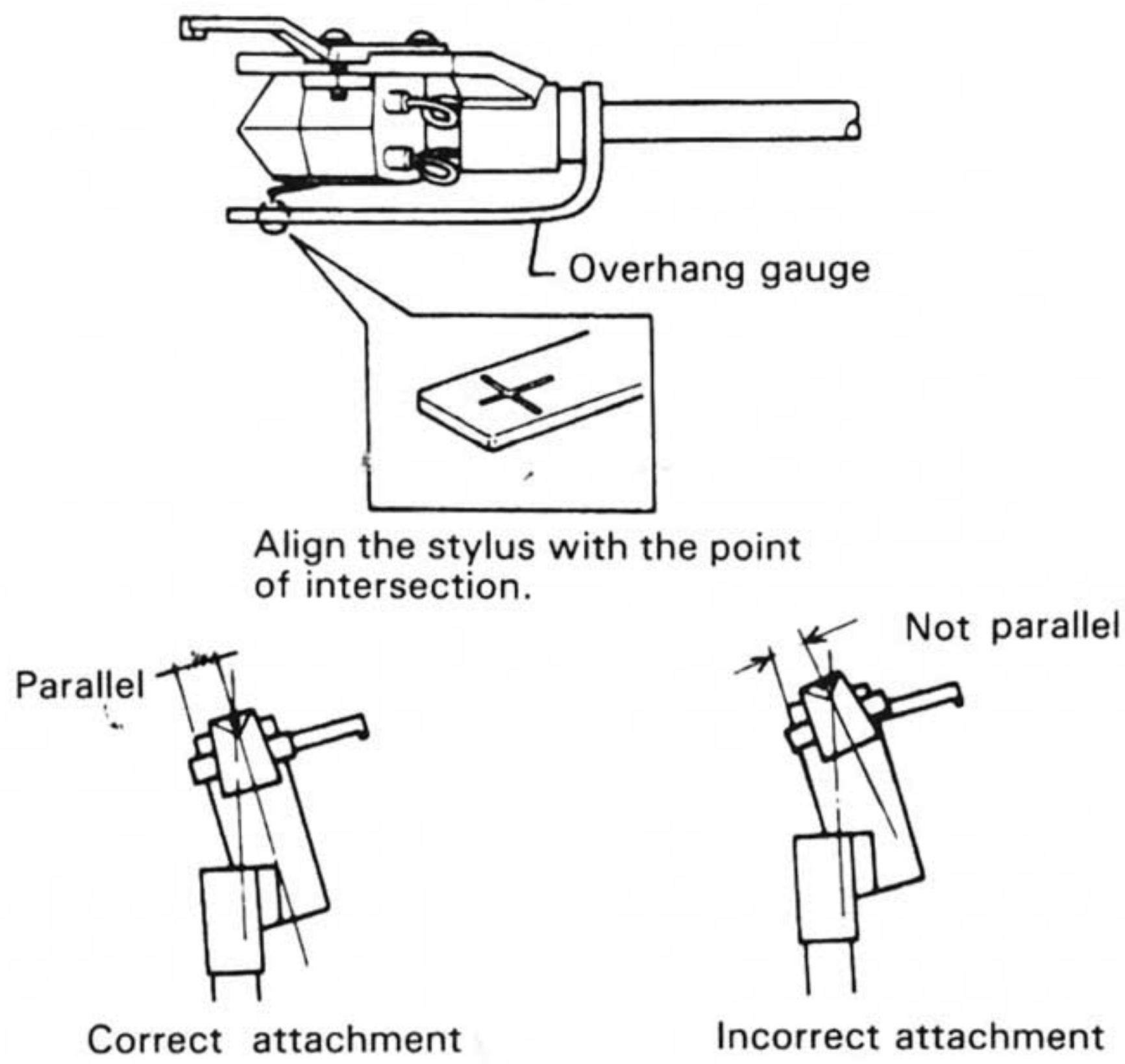
If there is an indentation in the mounting surface, (top) the cartridge may become tilted on attachment. In this case, fit the accessory weight plate between the cartridge and head shell.



**(5) Adjustment of the stylus position.**

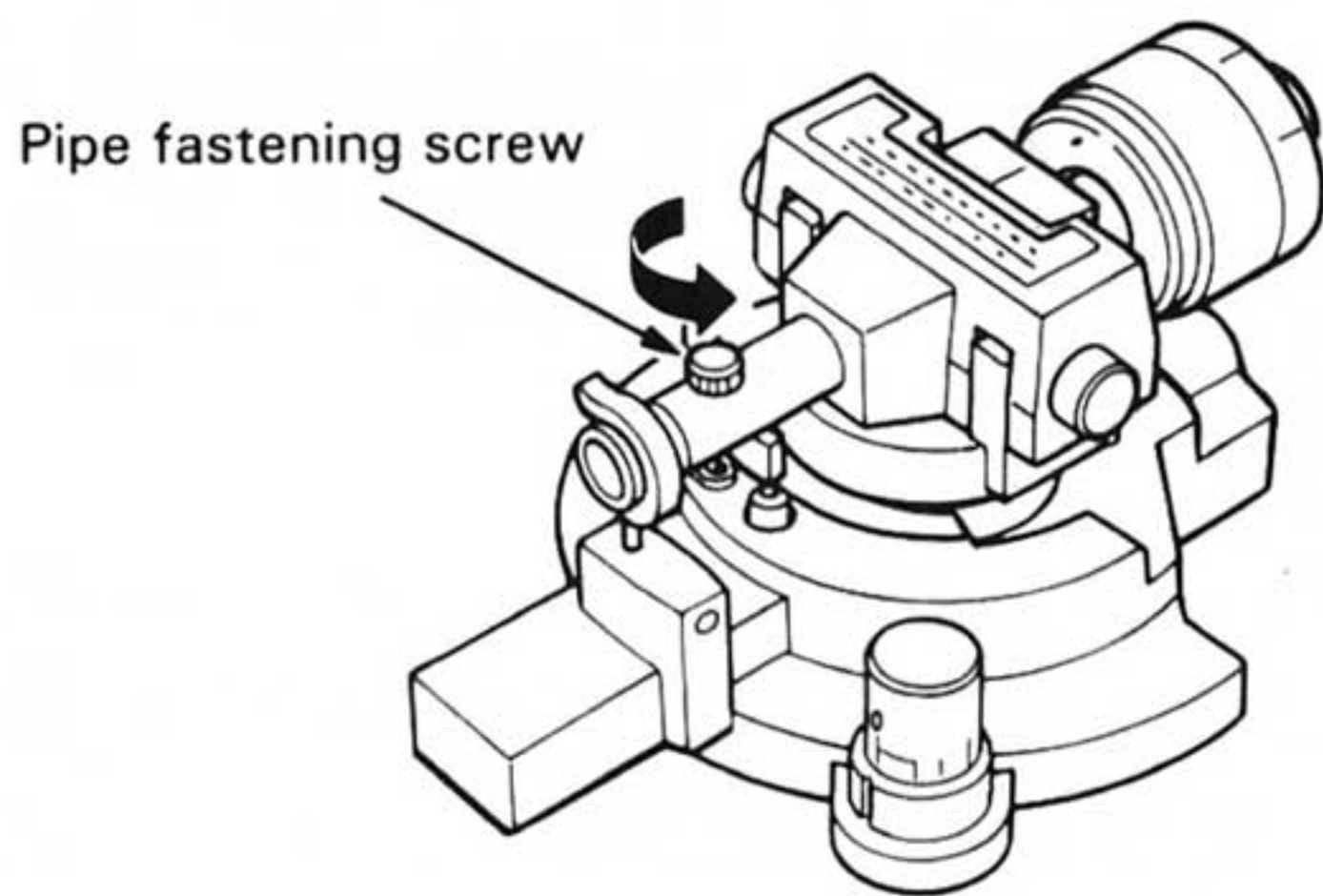
Move the cartridge back and forth so that the stylus aligns with the intersecting marks on the overhang gauge (accessory).

Make sure that the stylus is not bent in relation to the head shell, and tighten the mounting screws with a small screwdriver.

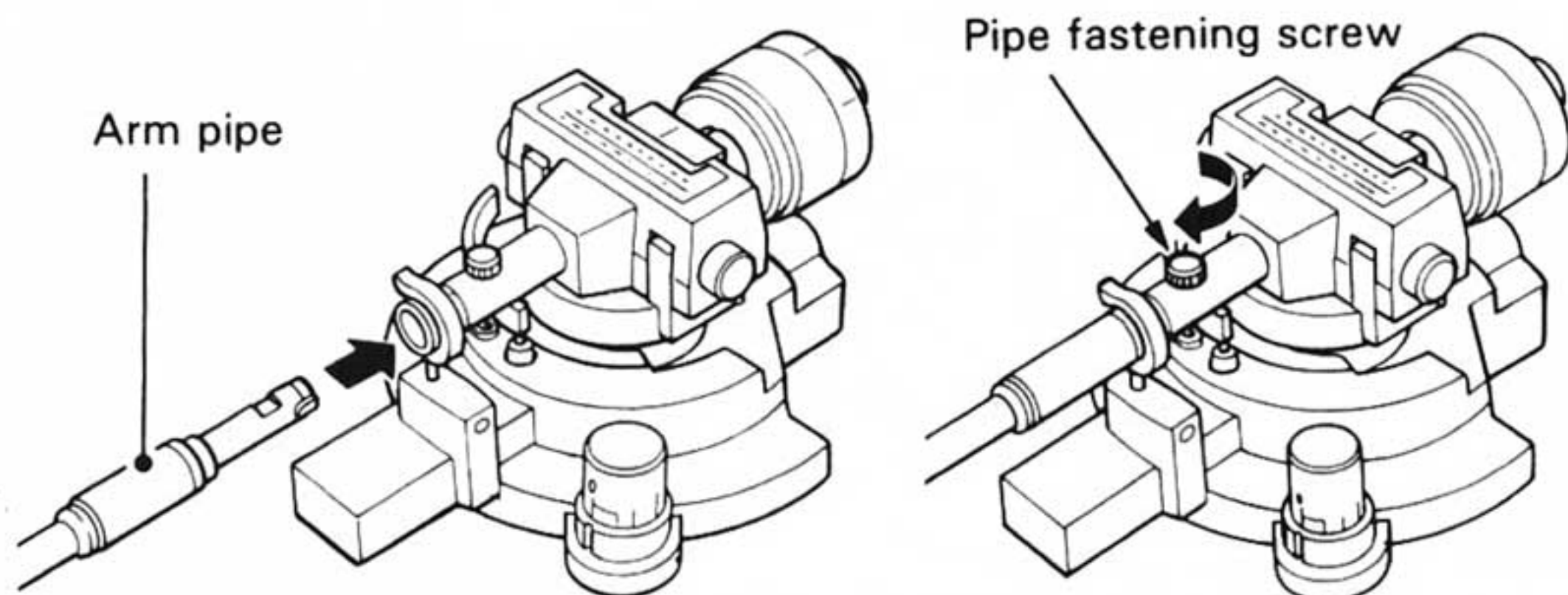


**(6) Attachment of the arm pipe.**

1. Loosen the arm's pipe fastening screw in the direction indicated.



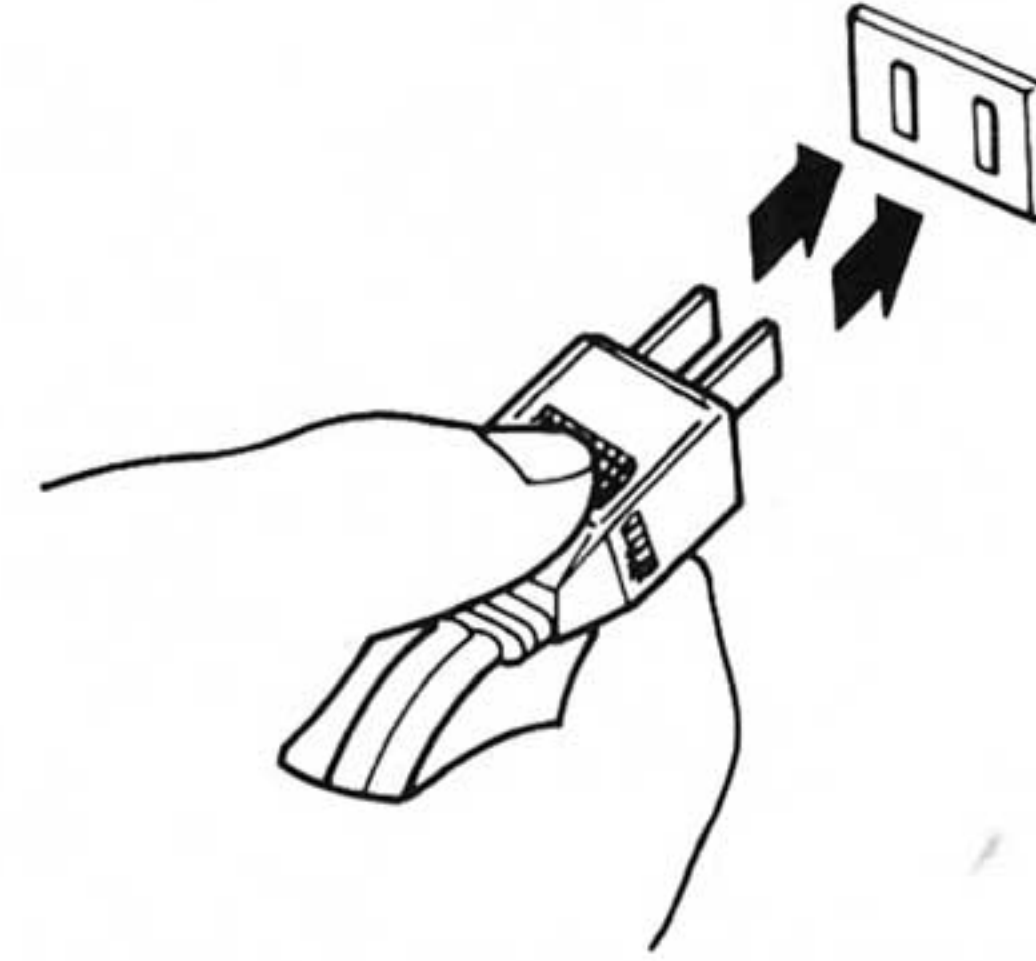
2. Insert the arm pipe as far as it will go and secure with the fastening screw.



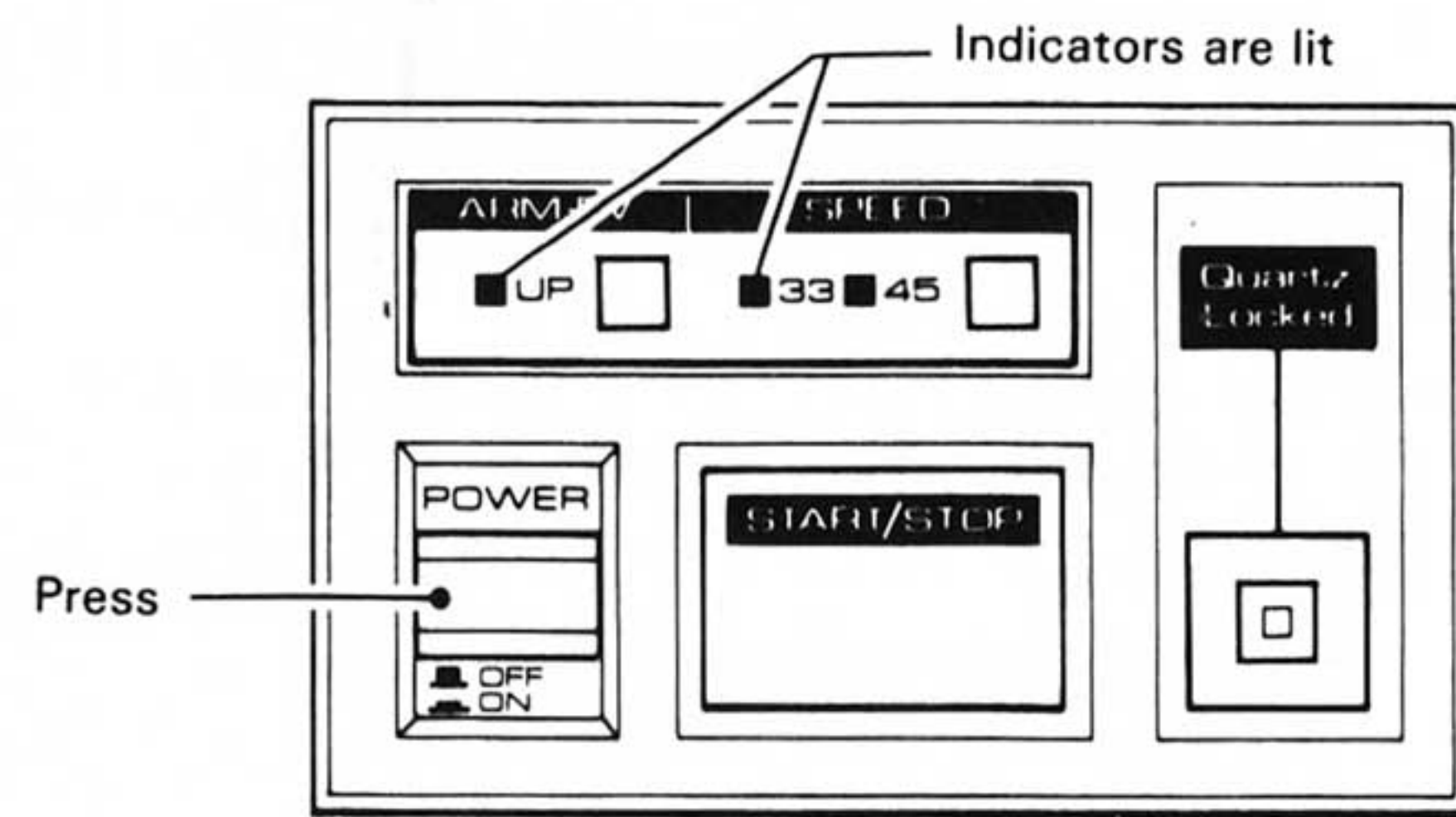
**[STEP 2] Tracking force and anti-skating adjustment**

Be sure to carry out the following with the turntable in the horizontal position.

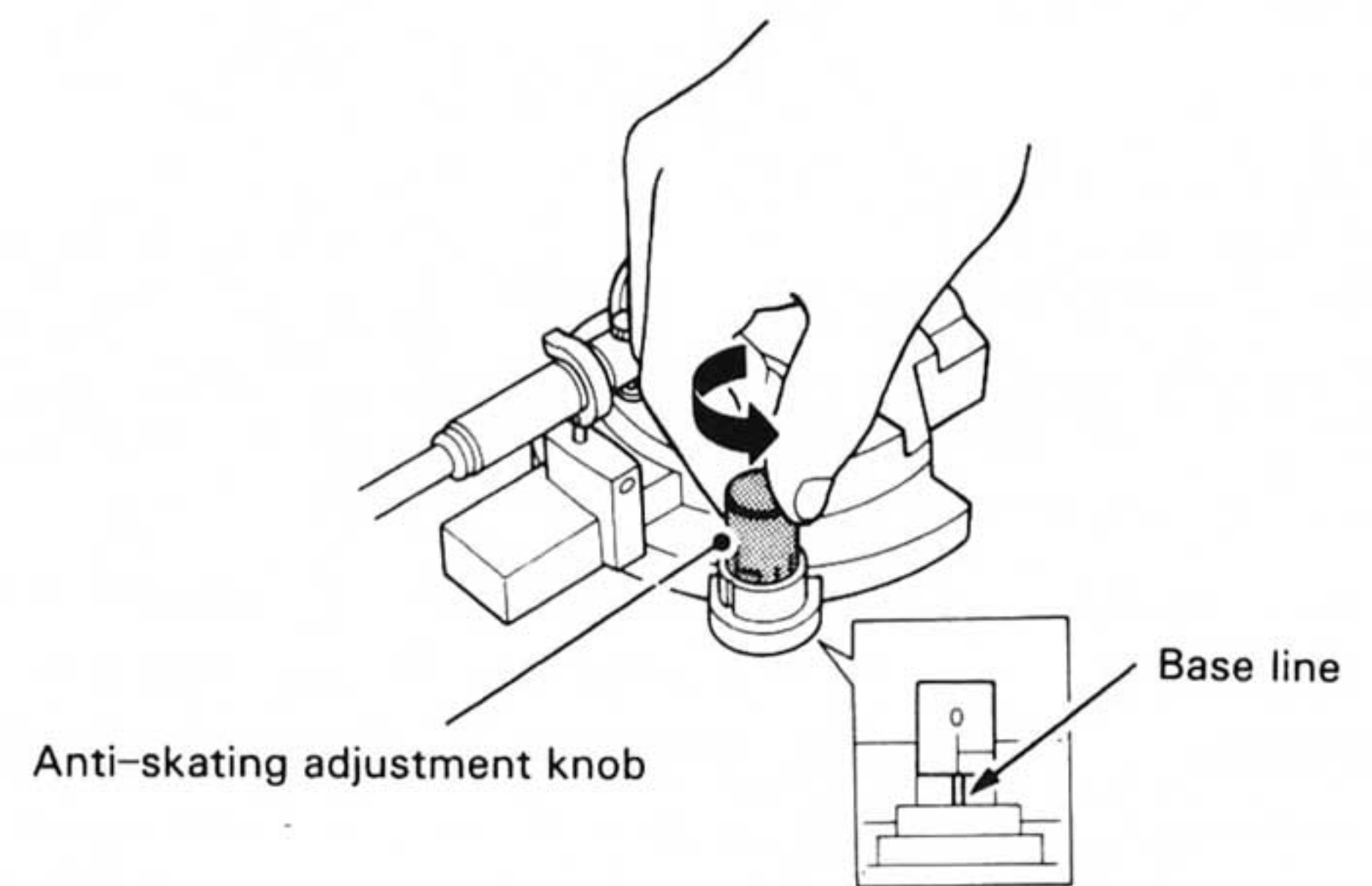
**(1) Insert the power plug in the socket.**



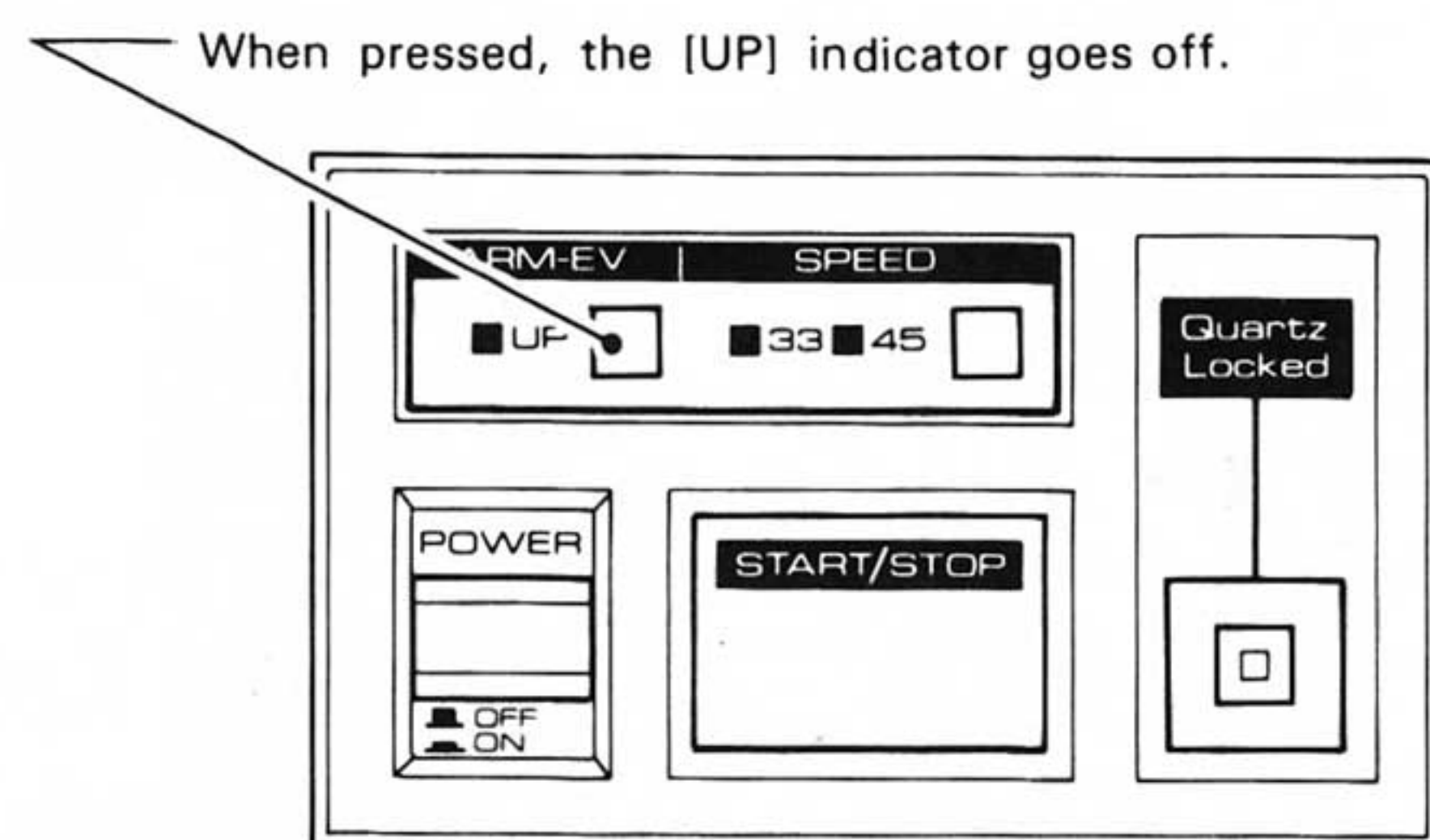
**(2) Press the POWER switch (ON).**



**(3) Set the anti-skating adjustment knob to [0].**



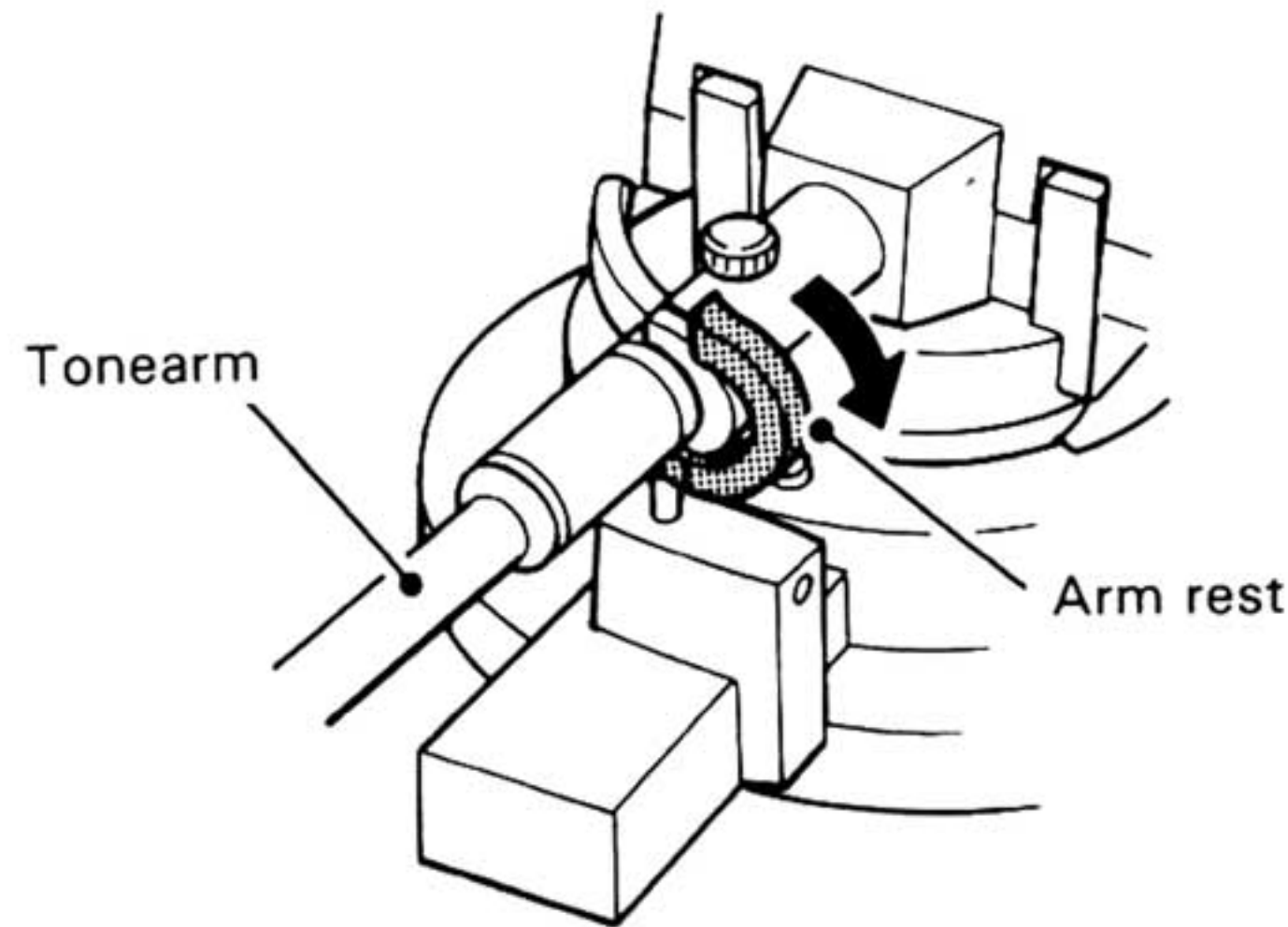
**(4) Press the ARM ELEVATION switch.**



**(5) Move the cartridge's stylus cover a way from the stylus.**

**(6) Release the tonearm fastener.**

Move the arm rest in the direction indicated.

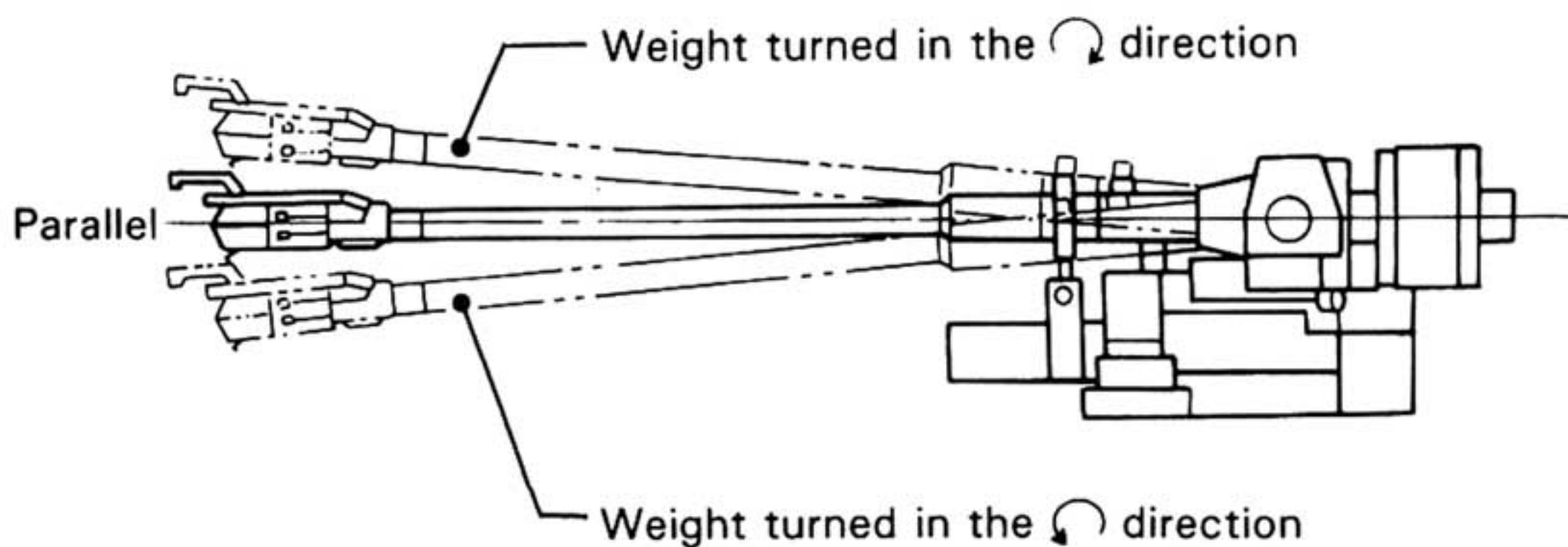
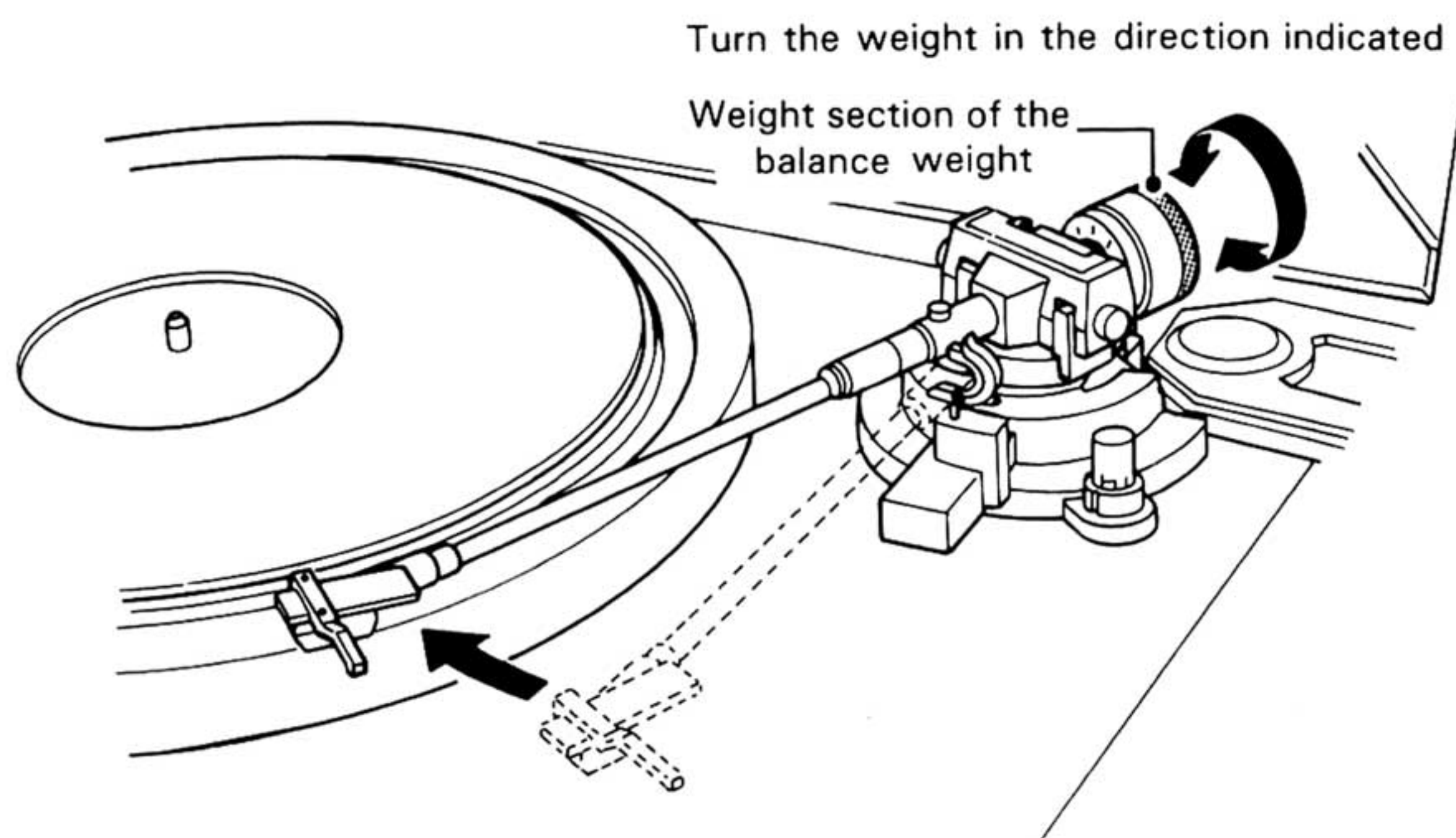


**NOTE:**

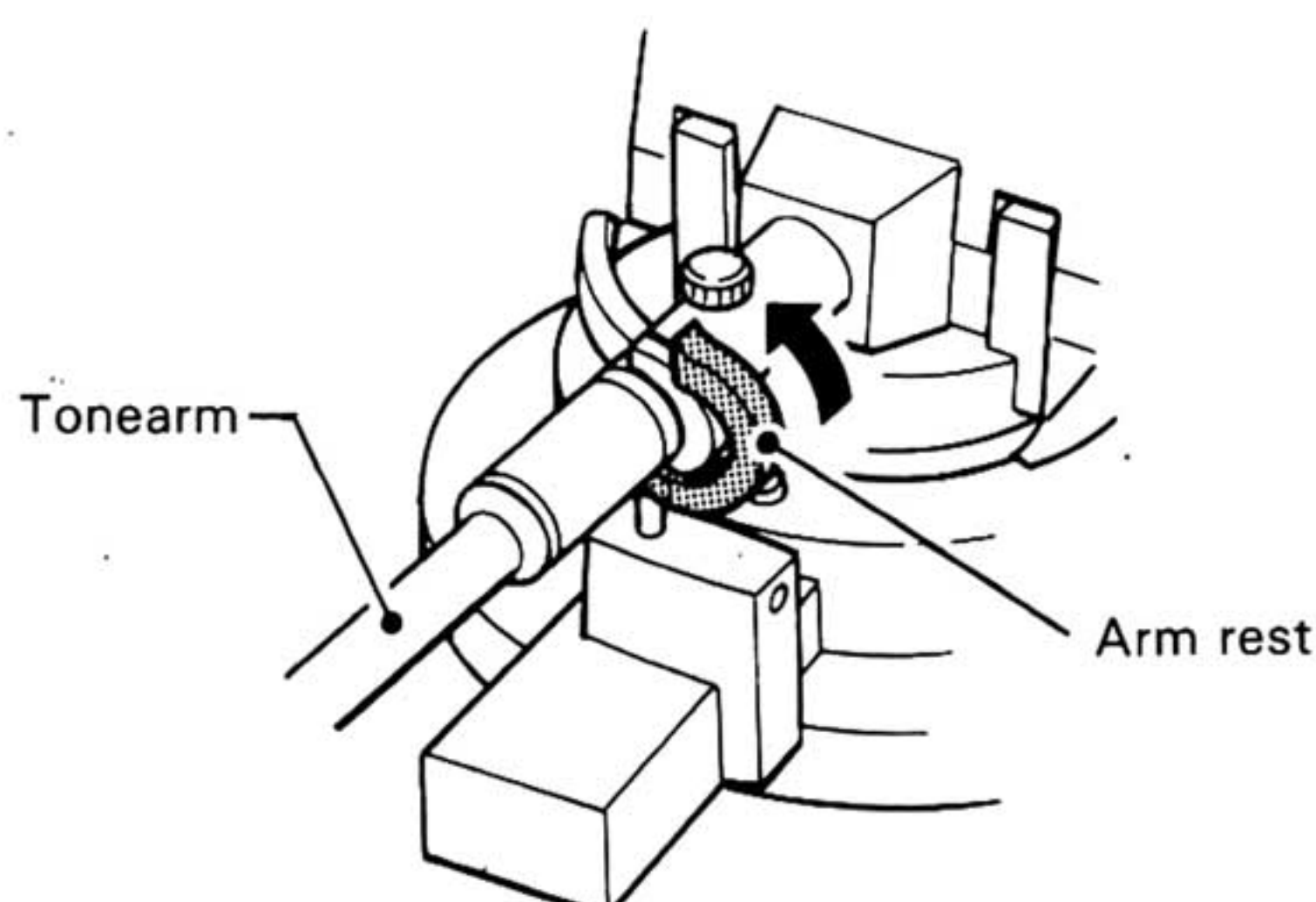
To prevent the tonearm from shifting, support with your free hand.

**(7) Set the horizontal balance. (make the tonearm parallel.)**

1. Move the tonearm so that it is between the arm rest and platter.
2. Turn the weight section of the balance weight in the direction indicated so that when your hand is released, the tonearm is balanced parallel to the cabinet.

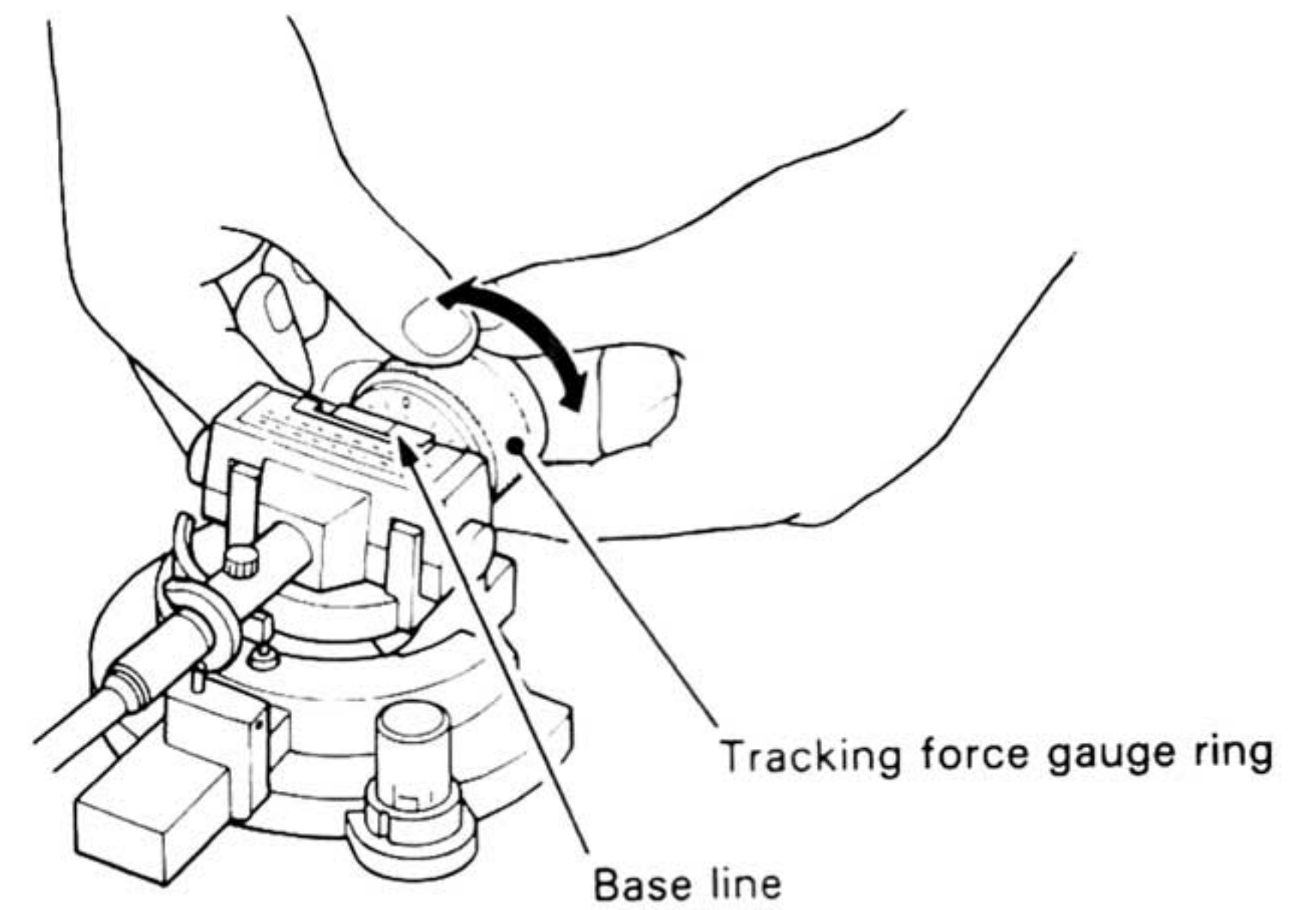


**(8) Fasten the tonearm to the arm rest.**



**(9) Set the stylus tracking force gauge ring to [0].**

Turn only the tracking force gauge ring in either direction so that the gauge reads [0].

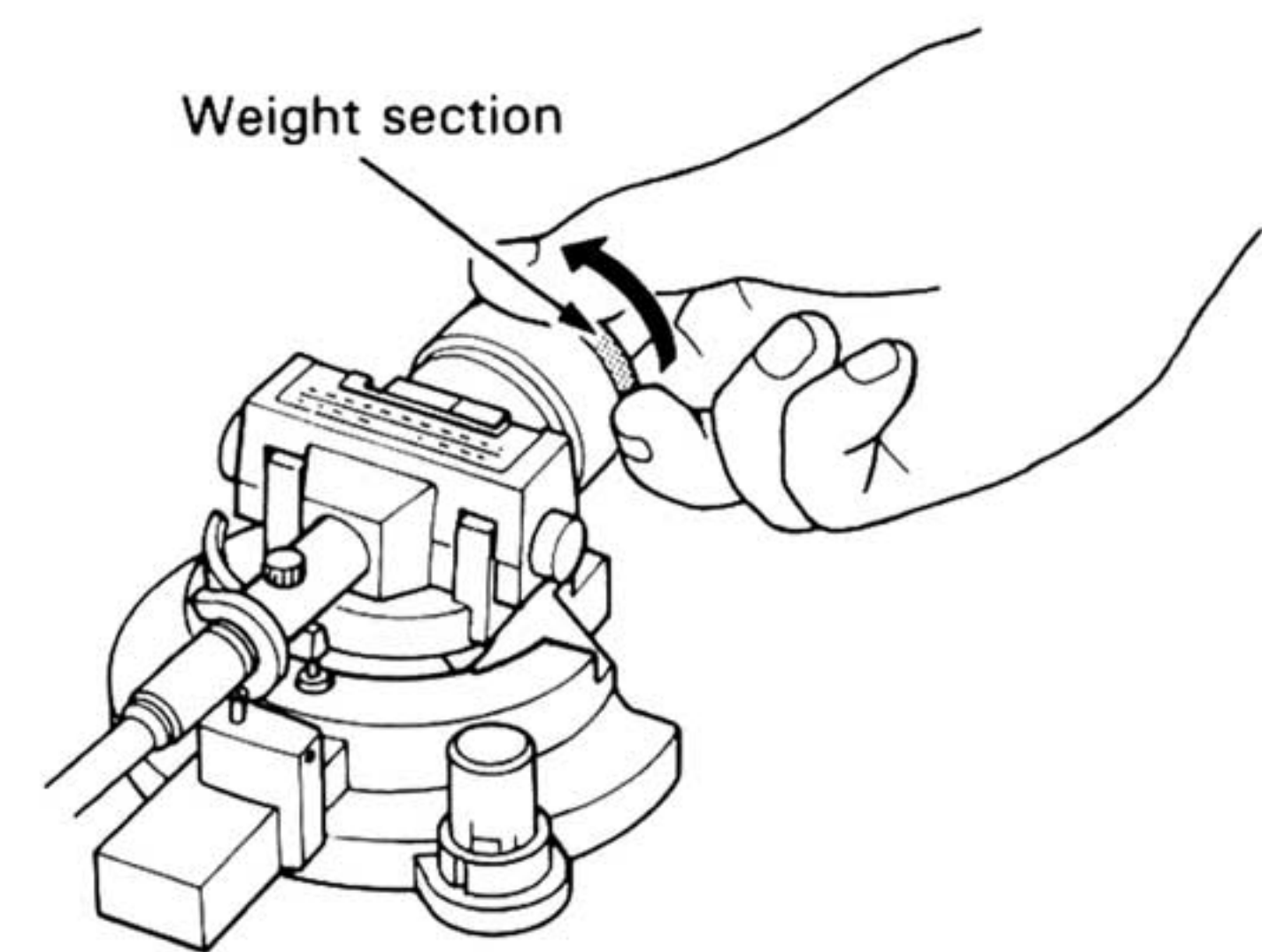


**NOTE:**

Hold the weight section with your free hand so that it does not turn together with the gauge ring. If the weight section is turned repeat item (7) to regain horizontal balance.

**(10) Apply stylus tracking force.**

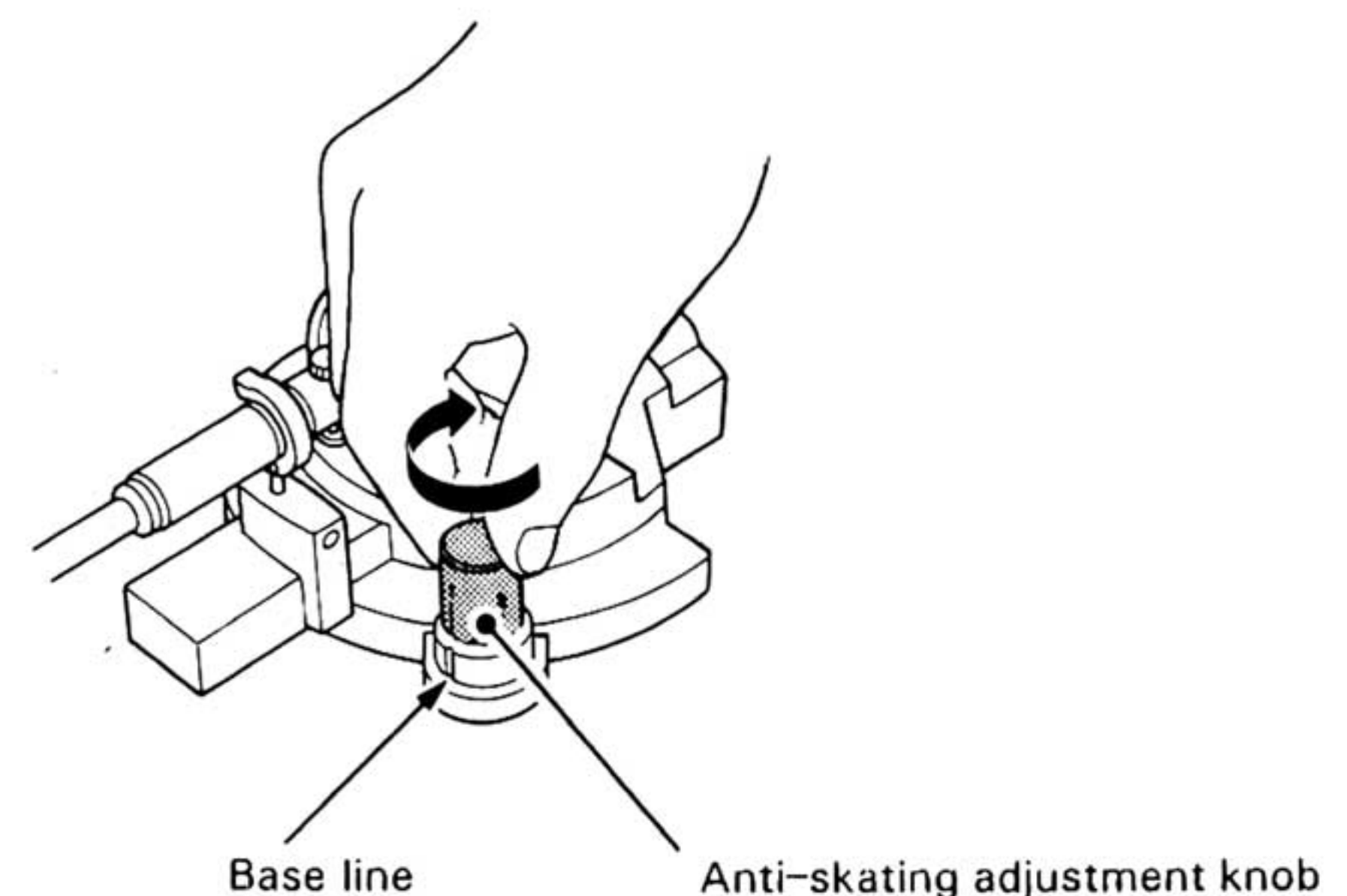
Turn the weight section in the direction indicated (in this case the gauge turns together with the weight section) and align the correct tracking force value for the cartridge with the base line.



One scale mark on the gauge is equivalent to 0.25 g (one revolution of the gauge is equivalent to 3 g of tracking force).

**(11) Turn the anti-skating adjustment knob.**

Turn the anti-skating adjustment knob in the direction indicated and align the mark with the same value as the tracking force with the base line (eg. if the tracking force is 1 g, align the [1] on the anti-skating adjustment knob).



### [STEP 3] Check and adjustment of the tonearm height

- (1) Place a record on the platter.
- (2) Release the tonearm fastener.
- (3) Move the tonearm and place the stylus on the record.

Place the stylus over the label area so as to avoid damage to the record, or use a record which you no longer need.

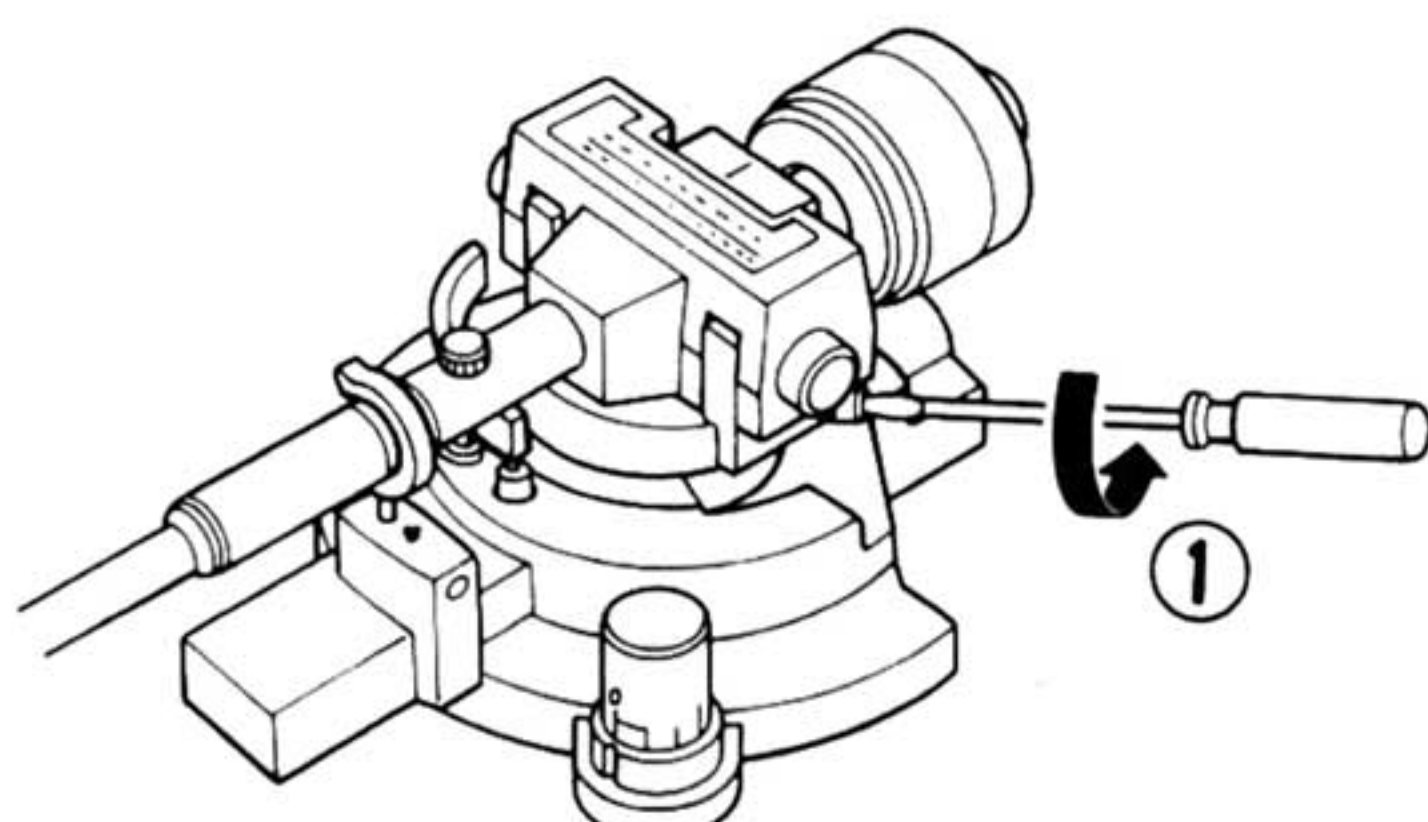
#### (4) Check the tonearm height.

If the tonearm is parallel to the record (or cabinet) then the height is optimum and adjustment therefore unnecessary. If the tonearm and record are not parallel, carry out adjustment as in item (5).

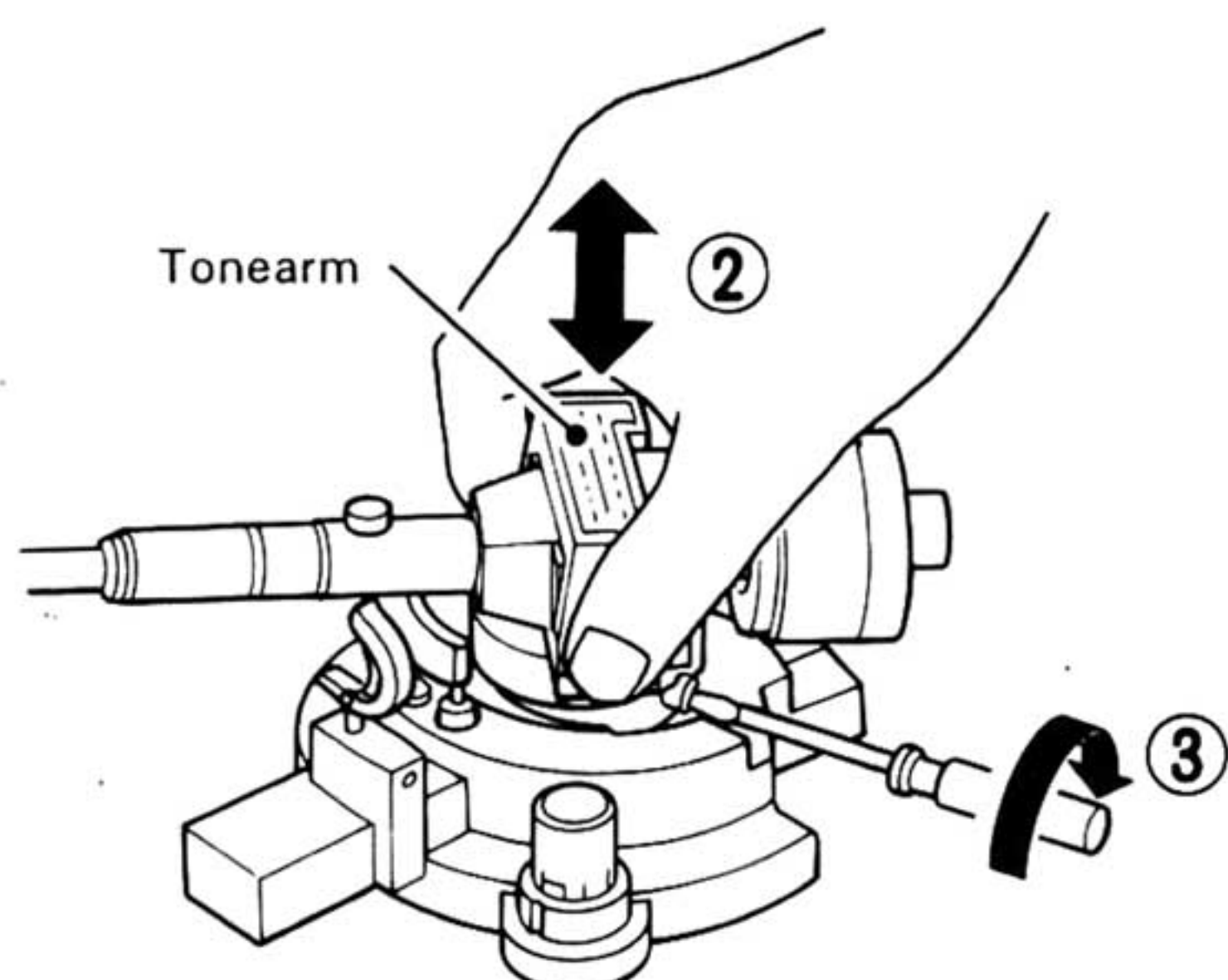


#### (5) Height adjustment (adjusting the tonearm to the parallel position).

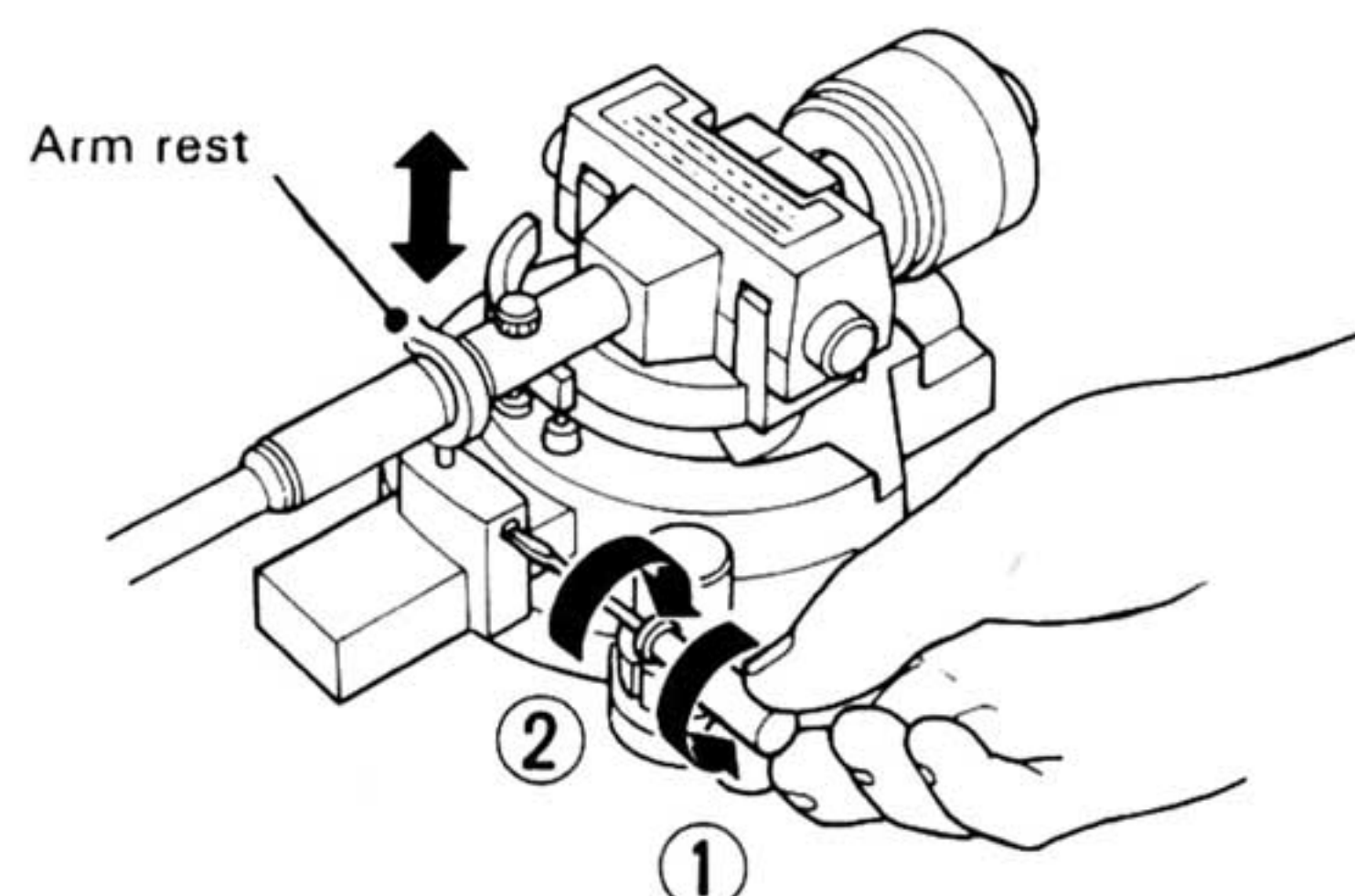
1. Loosen the arm securing screw with a screwdriver (direction (1)).



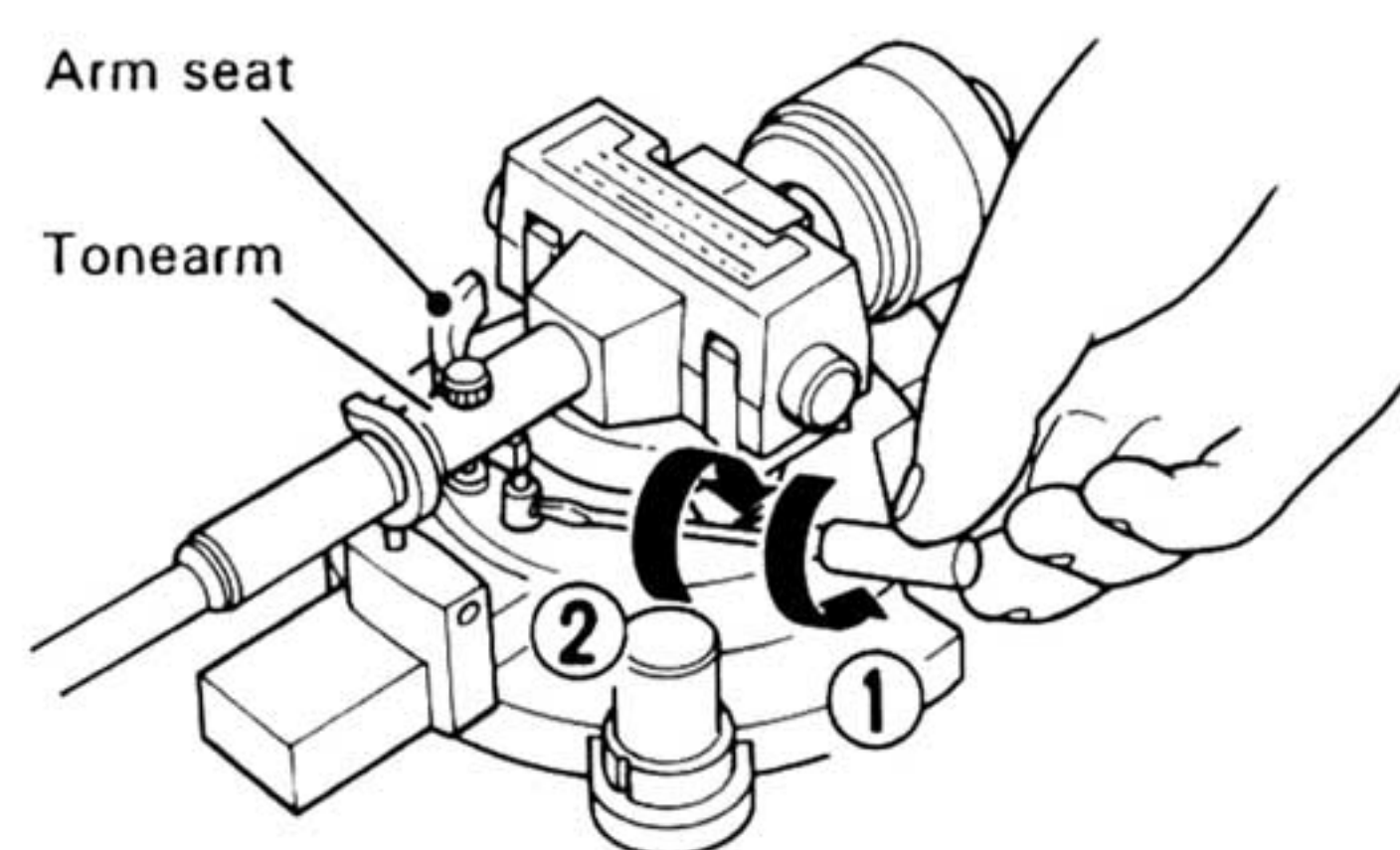
2. Hold as in the figure below and move the tonearm up or down (direction (2)) so that it becomes parallel with the top of the cabinet.
3. Tighten the arm securing screw (direction (3)).



4. Fasten the tonearm to the arm rest.
5. Loosen the arm rest securing screw with a screwdriver (direction (1)).
6. Move the arm rest up or down so that the tonearm is parallel with the top of cabinet.
7. Tighten the arm rest securing screw (direction (2)).

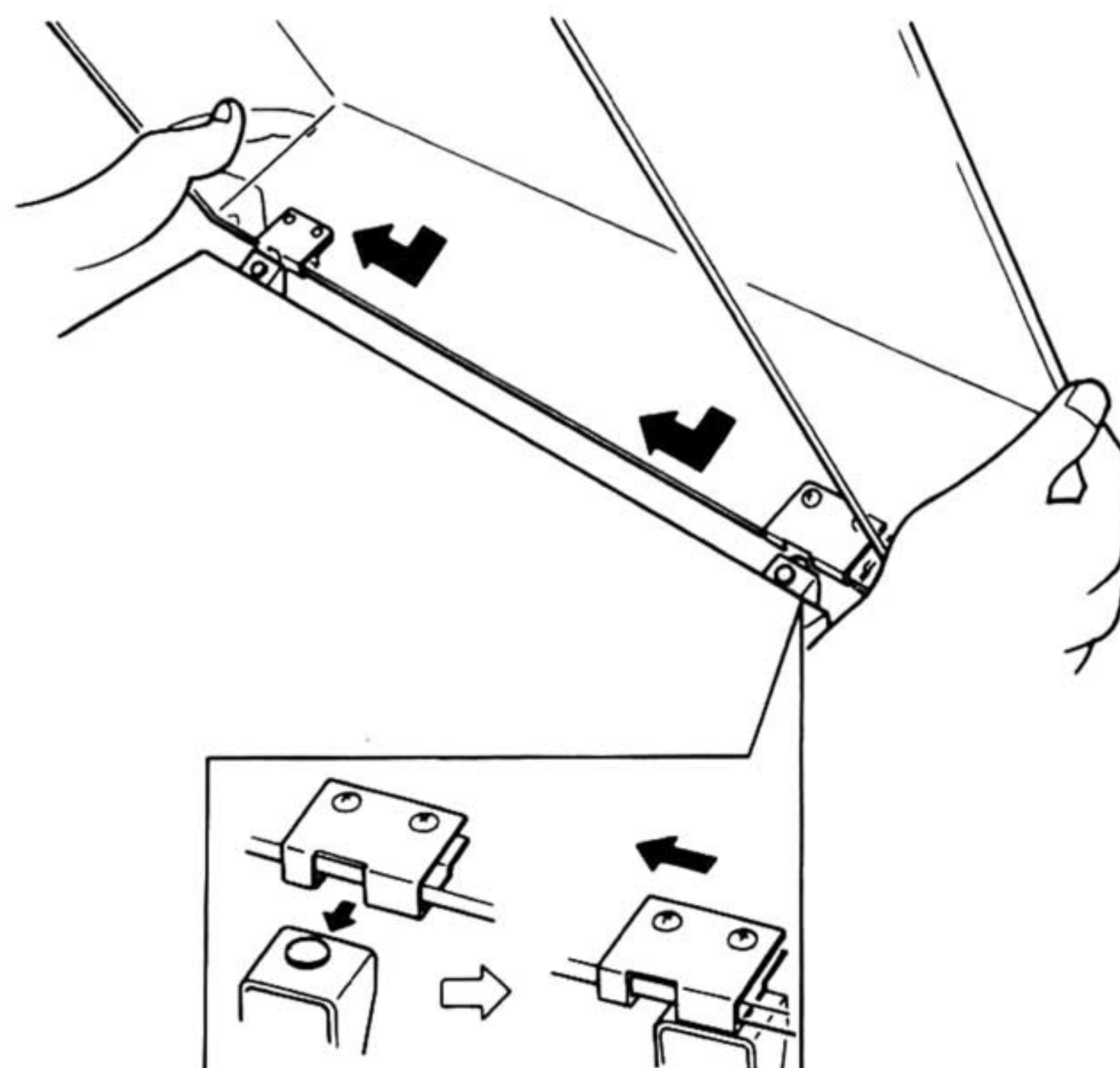


8. Loosen the arm seat securing screw with a screwdriver (direction (1)).
9. Adjust so that there is a clearance of about 1 mm between the arm seat and tonearm.
10. Tighten the arm seat securing screw (direction (2)).

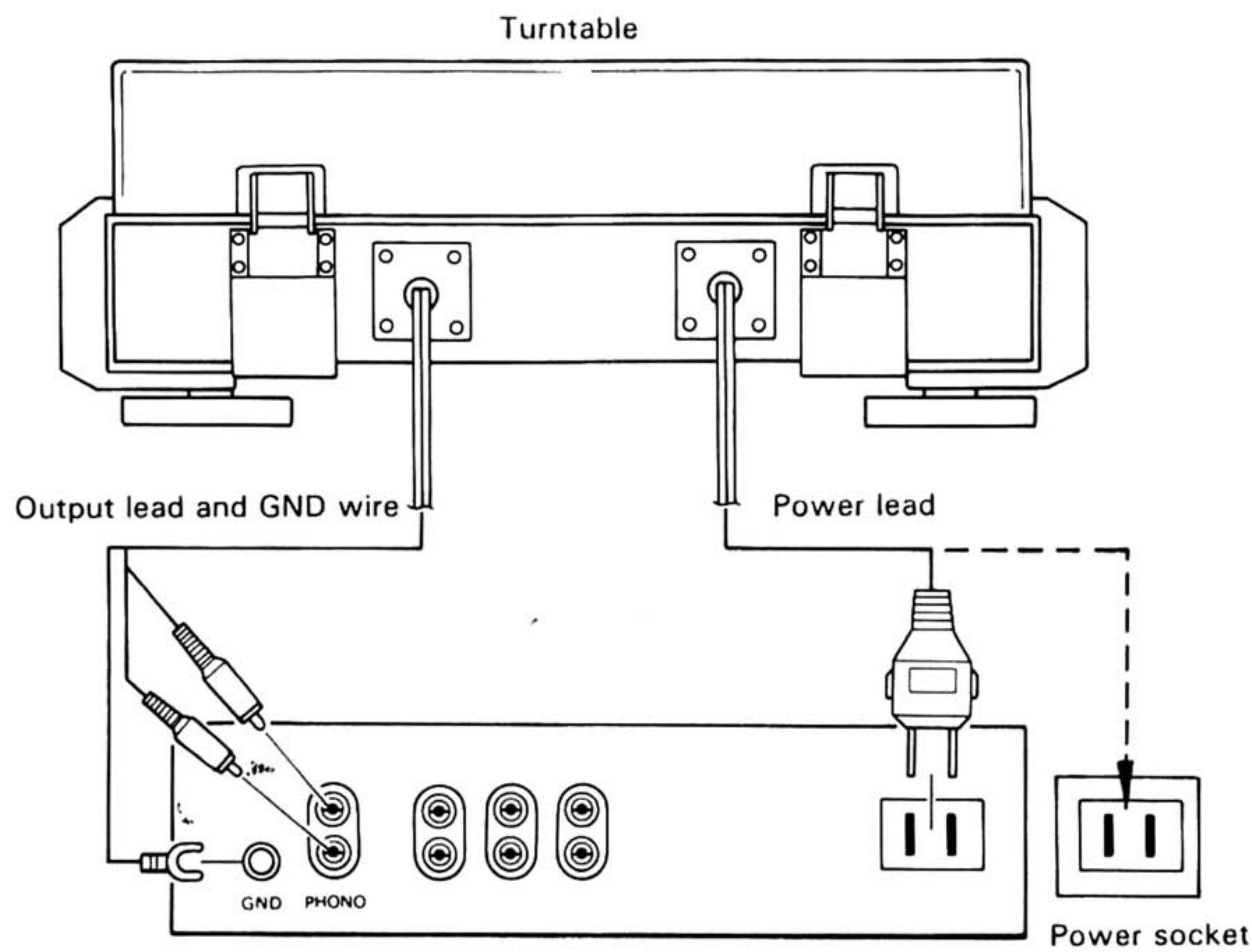


### [STEP 4] Attachment of the dust cover

Hold the dust cover in both hands and slide the hinges at the back of the cabinet into the hinge slots on the dust cover. Slide the cover as far as it will go in the direction indicated.



## [STEP 5] Connecting the turntable to the amplifier



### The ground connection

Attach the connector to the GND terminal on the amplifier.

### Connection of the output leads

Plug into the amplifier's PHONO terminals.

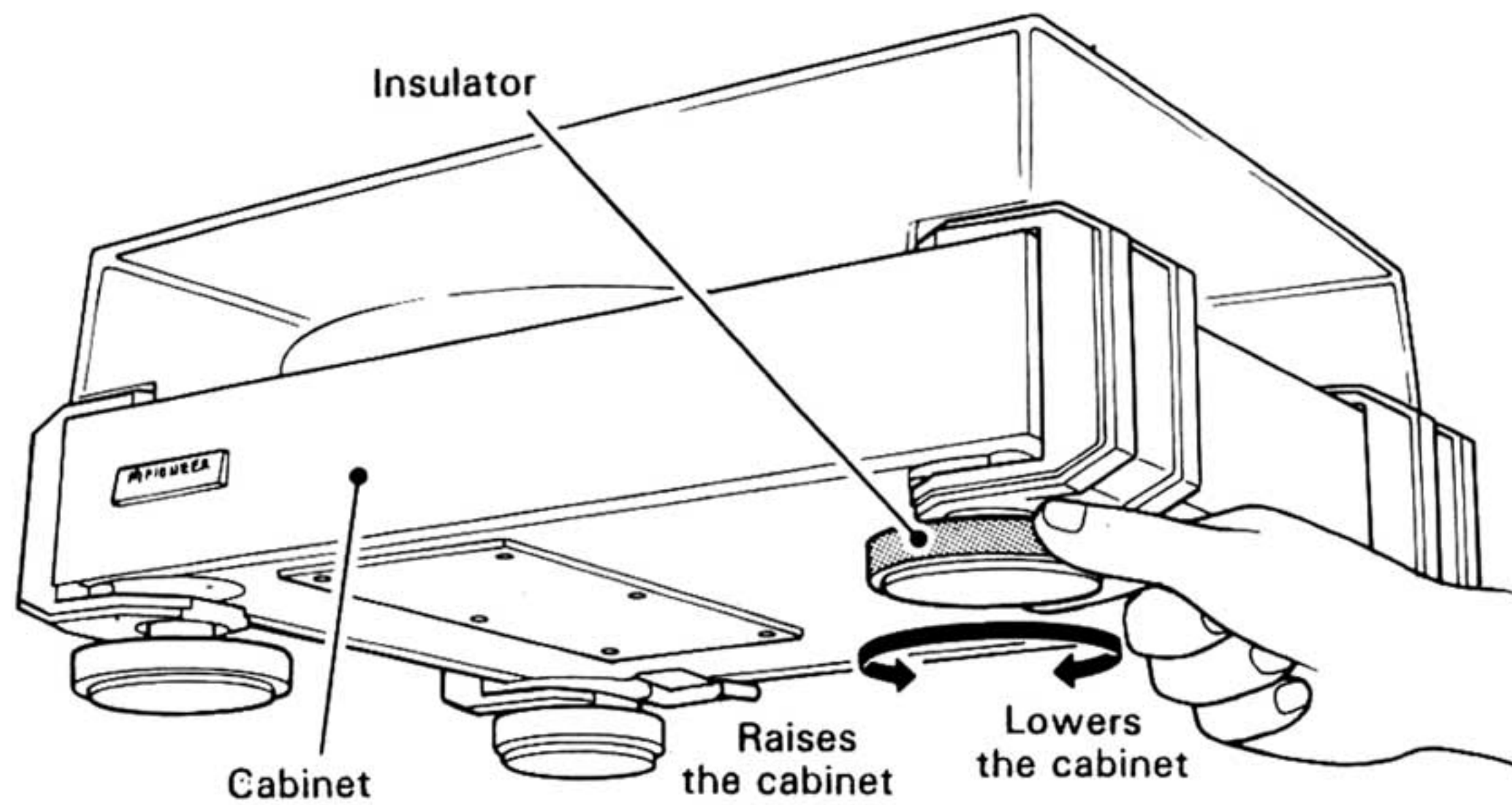
- The white plug is for the left (L) channel and the red plug is for the right (R) channel.
- Be sure that the plugs are fully inserted.

### Connection of the power lead

Insert the power plug into either the AC OUTLET socket on the amplifier or a wall socket.

## [STEP 6] Adjusting the turntable to the horizontal position

Turn the 4 insulators fitted to the bottom of the cabinet to adjust the height and ensure that the top of the cabinet is in the horizontal position. Raise the cabinet slightly when turning the insulators.



### NOTE:

The legs may be turned if the cabinet is slid. In this case it is best to raise the cabinet and readjust so that it is in the horizontal position.

## Checking the tracking force and anti-skating adjustment

■ Make sure that the tracking force is set within the designated optimum range for the cartridge.

If the tracking force is not set correctly, the following types of faults will arise.

Tracking force too heavy – Distorted sound, cartridge body may come into contact with the record.  
Tracking force too light – Skipping can occur, and also some distortion will result.

■ Carry out tracking force adjustment with the anti-skating knob set to [0].

If the knob is not set to zero, the tonearm will tend to be drawn to the right (towards the arm rest). The force exerted makes balancing difficult as the tonearm does not remain static. Even with the knob set to [0], there may be slight movement of the tonearm. However, this improves tracking of the record groove by the stylus through enhanced sensitivity of the tonearm and does not constitute a fault.

■ Set the anti-skating knob reading to the same value as that of the tracking force.

If the two values are not in agreement, the following faults may arise.

Anti-skating value too large : Distortion, tonearm tends to slide towards the outside of the disc.

Anti-skating value too small : Tonearm tends to slide towards the inside of the disc when the stylus is lowered to the groove.

## Installation and connection checks

■ Connection to the amplifier should be made in accordance with the type of cartridge being used.

- When a MM cartridge is used :  
Connect to the amplifier's PHONO MM terminal
- When a low output MC cartridge is used :  
Connect to the amplifier's PHONO MC terminal if the amplifier is so equipped.

If the amplifier does not possess such a terminal, use a MC cartridge transformer or head amplifier (for details consult the relevant literature for the cartridge and amplifier).



■ **Incorrect connections or installation can cause the following faults.**

- If the component has not been connected according to the instructions in this manual, there could be loss of sound. If the power lead plug has not been inserted fully, or the ground connection has been forgotten, hum noise (a whirring noise from the speakers) will result.
- If the turntable is tilted, the sound will be distorted and the tonearm may slide across the

disc. If the turntable is exposed to vibration the stylus will skip grooves, the sound will be intermittent and a howling noise could be emitted from the speakers.

■ **Leave enough slack in the connection leads.**

Make sure that the leads are not drawn up too tightly. Howling may result, and the leads could be severed.

## RECORD PLAY

### Procedure for playing records

**(1) Switch the stereo amplifier to the PHONO mode.**

For details consult the instructions manual for the amplifier.

**(2) Switch ON the POWER switch.**

**(3) Place a record on the platter.**

**(4) Release the tonearm fastener.**

**(5) Press the SPEED switch for the desired rpm.**

**(6) Press the START/STOP switch to set the platter in motion.**

**(7) Move the tonearm over the record by hand.**

**(8) Press the ARM ELEVATION switch and play will commence.**

**(9) Adjust the volume and sound quality with the stereo amplifier.**

**(10) Play ends.**

The tonearm is raised automatically and the platter stops revolving.

**(11) Return the tonearm to the arm rest.**

**(12) Switch OFF the POWER switch.**

*NOTE:*

*When playing an inner track on the record and moving the tonearm to the desired position, the arm elevation mechanism may operate to raise the arm. However, this does not mean that the turntable has a fault. If the arm is raised, check that the platter has stopped, re-press the START/STOP switch and commence play by pressing the ARM ELEVATION switch for DOWN.*

### Operations for stopping play

**(1) Press the ARM ELEVATION switch.**

The stylus will be raised from the record to stop play (platter continues revolving).

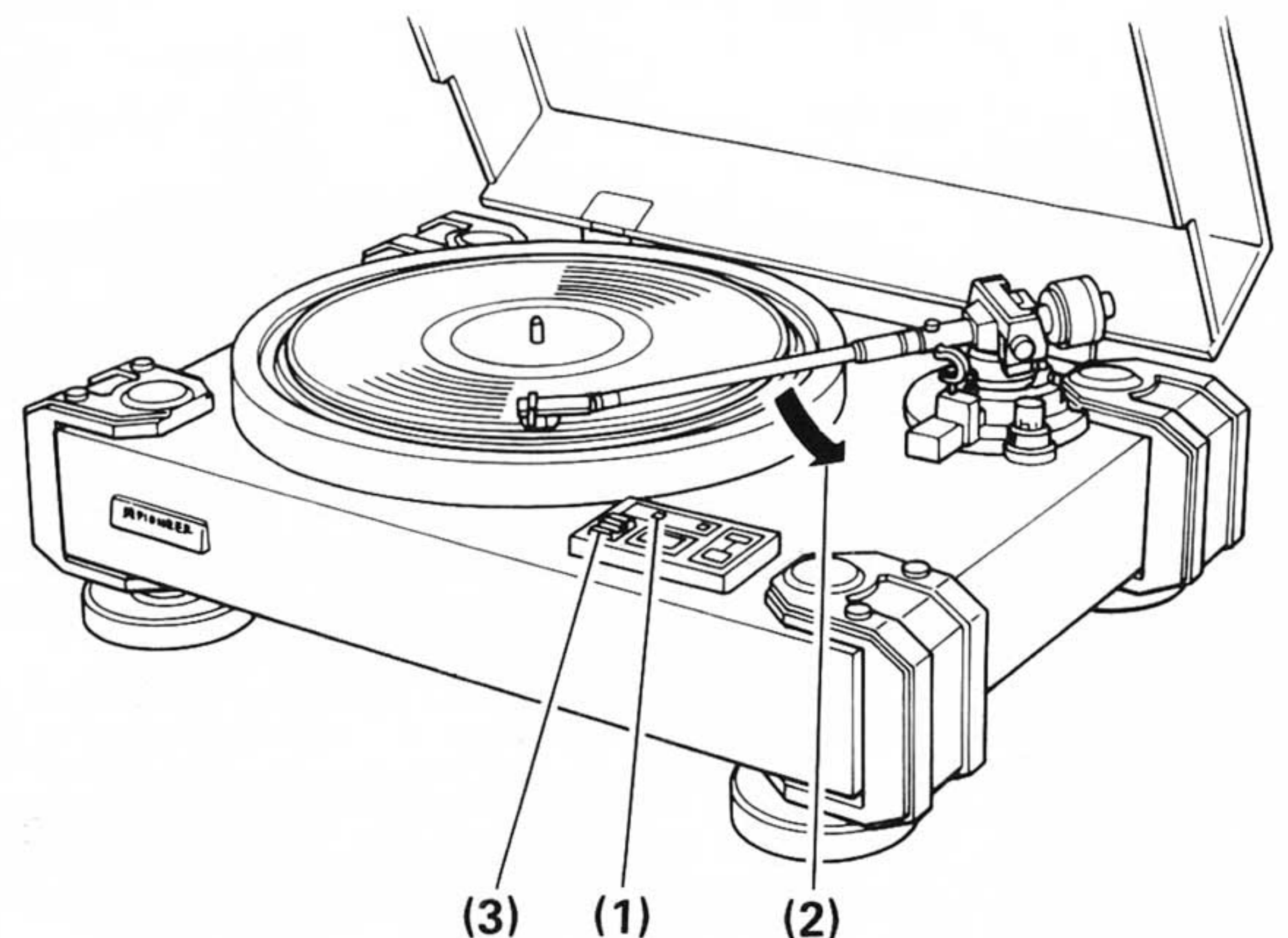
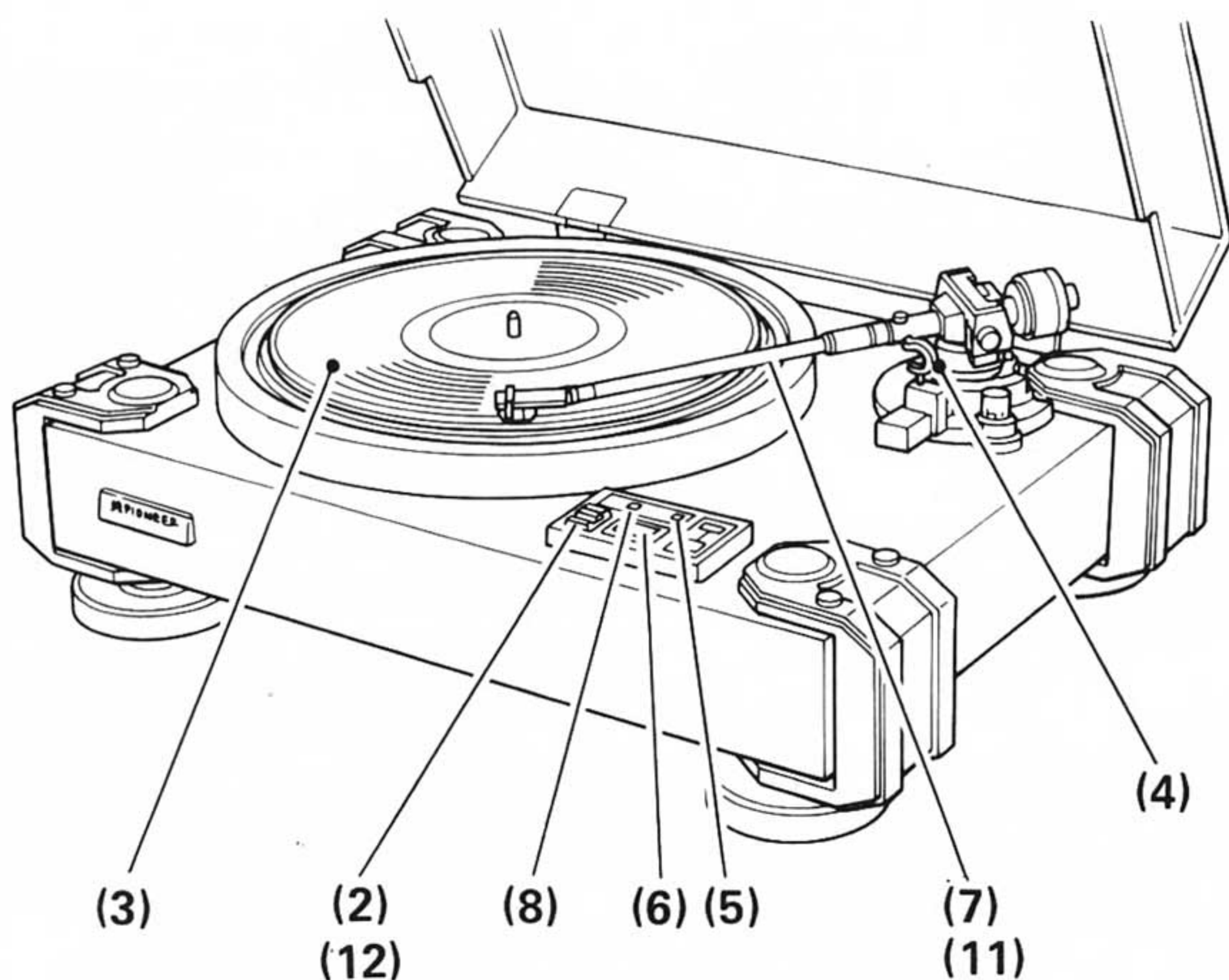
If the ARM ELEVATION switch is pressed again, the stylus is lowered to the record and play commences once more.

**(2) Return the tonearm by hand to the arm rest.**

**(3) Press the POWER switch to turn off the power supply.**

*NOTE:*

*When stopping the platter, use the START/STOP switch. If the platter is stopped by switching off the POWER switch, the brake does not operate and it takes some time before the platter comes to a stop.*



# MAINTENANCE

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## CARE OF THE STYLUS

- **Use a soft brush**

Move the brush towards you when removing dust and debris from the stylus. Do not use your finger as this will result in damage.

- **When debris cannot be removed with a brush**

Use a recommended stylus cleaner. Do not allow the cleaner to come into contact with any plastic parts or the stylus's damper rubber as these materials are dissolved by such liquids.

## CARE OF THE RECORDS

### Use a good quality record cleaner

Use of a dry cleaner (velvet or nylon brush) results in noise due to the build up of static charge on the record. Liquid cleaners and anti-static sprays are more effective in getting rid of dust.

## CONDENSATION

When the platter is brought into a warm room from previously cold surroundings, or when the room temperature rises suddenly, condensation may form inside the unit which will cause some loss of performance. In cases like this, allow the turntable to stand for about an hour, or slowly raise the room temperature.

# SPECIFICATIONS

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## Motor and Platter

Motor ..... Quartz PLL DC Hall Motor  
Drive System ..... Direct drive  
Speeds ..... 33-1/3 and 45 rpm  
Wow and flutter... \*0.008% WRMS – [FG method]

0.023% WRMS (JIS) } – [Record method]  
±0.030% WTD Peak (DIN) }

\* The FG method entails measurement of wow and flutter from the platter's rotational frequency.

S/N ..... 85 dB (DIN-B)  
Platter ... 360 mm diameter aluminum diecast  
Motor characteristics  
Activation ..... Below 1 revolution  
Deviation in rotation ..... Below 0.002%  
Drift ..... Time 0.00008%/h  
Temperature : 0.00003%/°C

## Tonearm

Type ..... Static balance replaceable pipe type  
Accessory straight arm pipe with integrated head shell  
Effective length ..... 282 mm  
Overhang ..... 13.5 mm  
Compatible cartridge dead weight .....  
For straight arm use, 2.4 – 12 g  
Height adjustment range ..... + 6 mm, – 4 mm

## Accessories

DRA (Dynamic Resonance Absorber)  
Auto-up mechanism  
Quick stop mechanism  
Anti-skating mechanism  
Arm elevation mechanism  
Direct reading tracking force weight

## Power, other items

Power supply ..... AC120V,60Hz  
Power consumption ..... 14 W  
External dimensions ..... 596(W) x 215(H) x 434(D) mm  
23-7/16(W) x 8-7/16(H) x 17-1/16(D) in  
Net weight ..... 17.3 kg (38 lb 2 oz)

## Accessory equipment

EP adaptor ..... 1  
Overhang gauge ..... 1  
Cartridge mounting screws ..... 8  
Cartridge mounting washers ..... 2  
Cartridge mounting nuts ..... 2  
Weight plate ..... 1  
Operating instructions ..... 1

### NOTE:

*Specifications and design subject to possible modification without notice, due to improvements.*

# TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check with the points below. Sometimes, the trouble may lie in another component. Investigate the other components and electrical appliances being used.

If the trouble can not be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Faulty condition	Possible cause	Remedy	Page No.
Platter does not rotate	<ul style="list-style-type: none"> <li>Power plug is not in socket</li> <li>Stereo amplifier's power switch is OFF when the turntable's power plug has been inserted in the SWITCHED outlet coupled to the amplifier's power switch</li> </ul>	<ul style="list-style-type: none"> <li>Insert the power plug into either the wall socket or stereo amplifier's power outlet</li> <li>Turn ON the stereo amplifier's power switch</li> </ul>	8 —
No sound	<ul style="list-style-type: none"> <li>Improper output lead connection</li> <li>Dirty output lead pin plugs or stereo amplifier input jacks</li> <li>Incorrect mounting of the cartridge and or arm pipe</li> <li>Incorrect stereo amplifier operation</li> </ul>	<ul style="list-style-type: none"> <li>Properly connect output lead to the amplifier</li> <li>Clean</li> <li>Mount correctly and secure in place.</li> <li>Check the control switch positions on the stereo amplifier</li> </ul>	8 — 4-5 —
Noise, scratch noise	<ul style="list-style-type: none"> <li>Dust or debris on the record surface</li> <li>Warped or scratched record</li> </ul>	<ul style="list-style-type: none"> <li>Remove with a suitable record cleaner</li> <li>Change the record</li> </ul>	10 —
Intermittent sound, distorted sound	<ul style="list-style-type: none"> <li>Incorrect tracking force</li> <li>Too much anti-skating</li> <li>Bent cartridge mounting</li> <li>Dirt on the output lead pin plugs or stereo amplifier jacks</li> <li>Dust or debris on the stylus</li> <li>Worn stylus</li> <li>Dirt or debris on the record surface</li> <li>Warped or scratched record</li> </ul>	<ul style="list-style-type: none"> <li>Use correct tracking force for the cartridge</li> <li>Apply the correct anti-skating force for the cartridge</li> <li>Re-mount cartridge correctly</li> <li>Clean</li> <li>Use a soft brush to clean the stylus</li> <li>Replace stylus</li> <li>Use suitable record cleaner</li> <li>Change the record</li> </ul>	6 6 5 — 10 — 10 —
Howl [prolonged howling sound heard through speakers when the volume is turned up during play]	<ul style="list-style-type: none"> <li>Vibrations from the speaker system are being transmitted through the floor to the record or cartridge</li> <li>Sound pressure from the speakers is being transmitted directly to the cartridge</li> </ul>	<ul style="list-style-type: none"> <li>Place the turntable away from the speaker system</li> <li>Place the turntable on a firm stand</li> <li>Try changing the installation location of the turntable</li> </ul>	— — —
Ham sound [whirring sound from the speaker system]	<ul style="list-style-type: none"> <li>Incorrect connection of either the output lead or ground</li> <li>Incorrect mounting of the arm pipe</li> <li>Influence of magnetic flux from the power transformer of the stereo amplifier</li> </ul>	<ul style="list-style-type: none"> <li>Connect up the leads correctly to the stereo amplifier</li> <li>Make sure that the arm pipe is inserted as far as it will go and tighten the securing screw</li> <li>Change the installation position of the stereo amplifier and turntable</li> </ul>	8 4-5 —
Sound has odd tempo	<ul style="list-style-type: none"> <li>Speed switch setting does not match the required speed for the record</li> </ul>	<ul style="list-style-type: none"> <li>Change the speed setting to the correct one for the record being played (33 or 45)</li> </ul>	3