Deze download wordt u gratis aangeboden door Pick-upnaalden.nl

| | | |
|---|---|---|
| Web | : | www.pickupnaalden.com |
| Email | : | info@pick-upnaalden.nl |
| Facebook | : | www.facebook.com/pickupnaalden |
| Twitter | : | twitter.com/Pickupnaalden |
| Google+ | : | https://plus.google.com/+FCaris_pickupnaalden |

# PS-FL5/FL5C

*PS-FL5:*

*AEP Model*
*UK Model*
*US Model*
*Canadian Model*
*E Model*

*PS-FL5C:*

*US Model*

# STEREO TURNTABLE SYSTEM

## SPECIFICATIONS

**Turntable**

| | |
|---|---|
| Platter | 30 cm (11⅞ in.), aluminum-alloy diecast |
| Motor | Linear torque BSL (brushless and slotless) motor |
| Drive system | Direct drive |
| Control system | Quartz lock control, magnedisc servo control system |
| Speed | 33⅓ rpm, 45 rpm |
| Starting characteristics | Comes to nominal speed within a half revolution (33⅓ rpm) |
| Wow and flutter | 0.02% (WRMS)* 0.025% (WRMS) ±0.04% (DIN) |
| Signal-to-noise ratio | 78 dB (DIN-B) |
| Load characteristics | 0% up to 100 g stylus force (at lead-in groove of a record) |
| Speed deviation | Within ±0.003% |
| Automatic system | Lead-in, return, reject, repeat, record size selection |

**Tonearm**

| | |
|---|---|
| Type | Statically balanced |
| Pivot-to-stylus length | 216.5 mm (8½ in.) |
| Overall arm length | 300 mm (11⅞ in.) |
| Overhang | 16.5 mm (21/32 in.) |
| Tracking error | +3°, −1° |
| Stylus force adjustment range | 0–2.5 g |
| Cartridge shell weight | 5 g |

Cartridge weight range (including supplied cartridge shell)

| | |
|---|---|
| PS-FL5: | 7.5–11.5 g |
| PS-FL5C: | 7.5–12 g |

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

— Continued on page 2 —

SONY®

SERVICE MANUAL

**Cartridge XL-20** (Supplied only with E model.)

| | |
|---|---|
| Type | Moving magnet type |
| Frequency response | 10 Hz to 30 kHz |
| Channel separation | 25 dB at 1 kHz |
| Output voltage | 3 mV at 1 kHz, 5 cm/sec., 45° |
| Load impedance | 50 to 100 kilohms |
| Tracking force | 1.0 to 2.0 g (1.5 g recommended) |
| Stylus | Sony ND-200E |
| Weight | 3.4 g |

**Cartridge VL-5 (Supplied only with the PS-FL5C)**

| | |
|---|---|
| Type | Moving magnet type |
| Frequency response | 10 Hz to 20 kHz |
| Channel separation | 20 dB at 1 kHz |
| Output voltage | 3.5 mV at 1 kHz, 5 cm/sec., 45° |
| Load impedance | 47 to 100 kilohms |
| Tracking force | 1.5 to 2.5 g (2 g recommended) |
| Stylus | Sony ND-5G (conical 0.6 mil diamond) |
| Weight | 4.9 g |

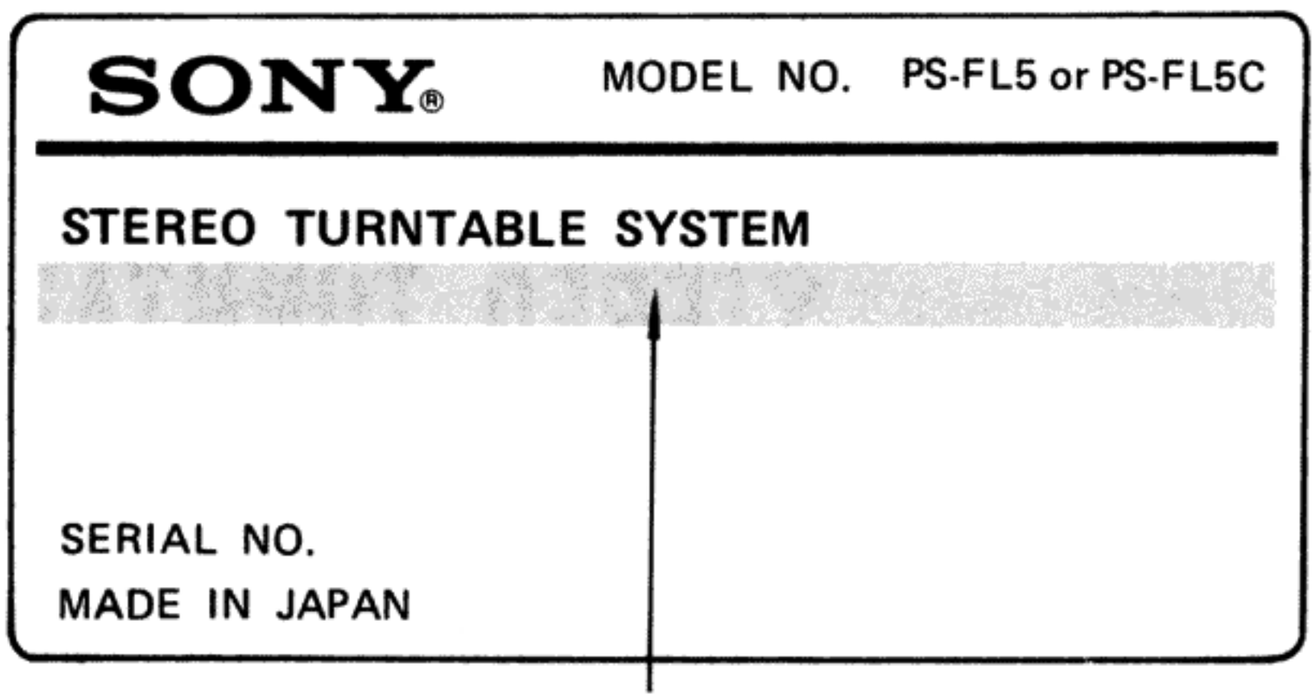
**General**

| | |
|---|---|
| Power requirements | AEP model: 220 V ac, 50/60 Hz<br>UK model: 240 V ac, 50/60 Hz<br>E model: 110–120 or 220–240 V ac adjustable 50/60 Hz<br>US, Canadian model, PS-FL5C: 120 V ac, 60 Hz |
| Power consumption | 10 W |
| Dimensions | Approx. 430 x 107 x 385 mm (w/h/d) (17 x 4¼ x 15¼ in.) including projecting parts and controls |
| Weight | Approx. 10.8 kg (23 lbs 13 oz), net<br>Approx. 12.7 kg (28 lbs), in shipping carton |

* This new measuring method concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

**— Specification Label —**

**MODEL IDENTIFICATION**

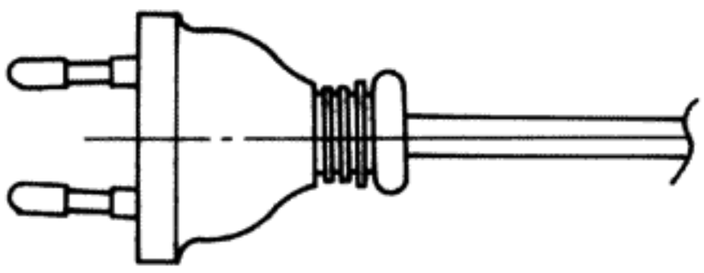



PS-FL5:

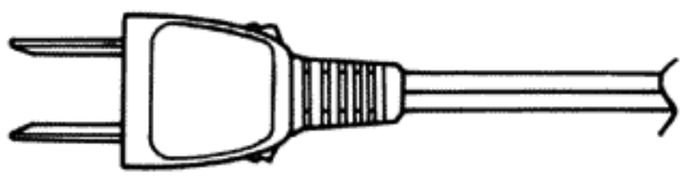
| | |
|---|---|
| US, Canadian model: | AC 120 V 60 Hz 10 W |
| AEP model: | AC 220 V ~ 50/60 Hz 10 W |
| E model: | AC 110 – 120 V, 220 – 240 V ~ 50/60 Hz 10 W |
| UK model: | AC 240 V ~ 50/60 Hz 10 W |
| PS-EL5C: | AC 120 V 60 Hz 10 W |

**— Power Cord —**

**E1 Model**
Euro-plug
1-555-734-00



**E2 Model**
Parallel-blade plug
1-551-472-00



## Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

### Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

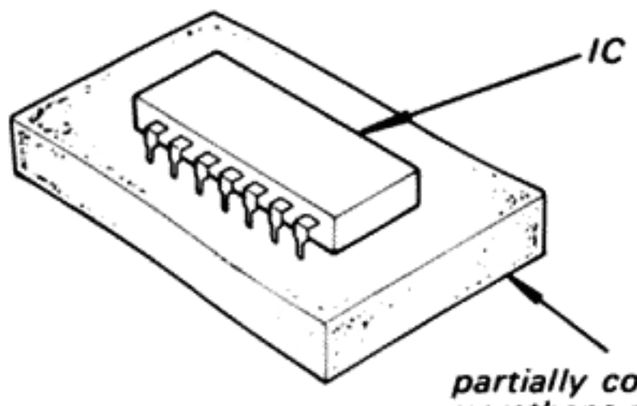



Fig. A

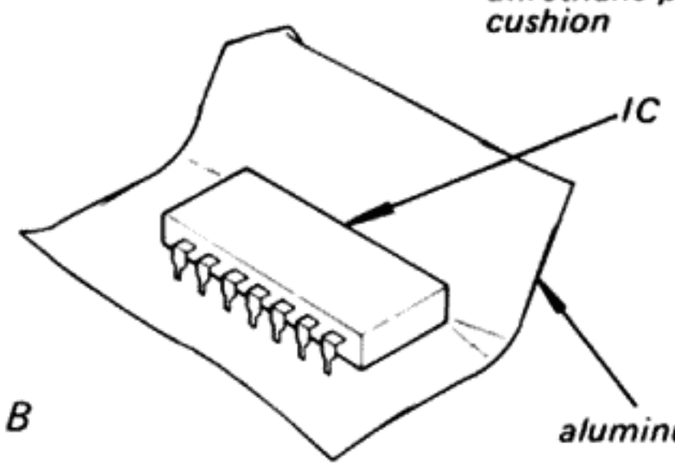



Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

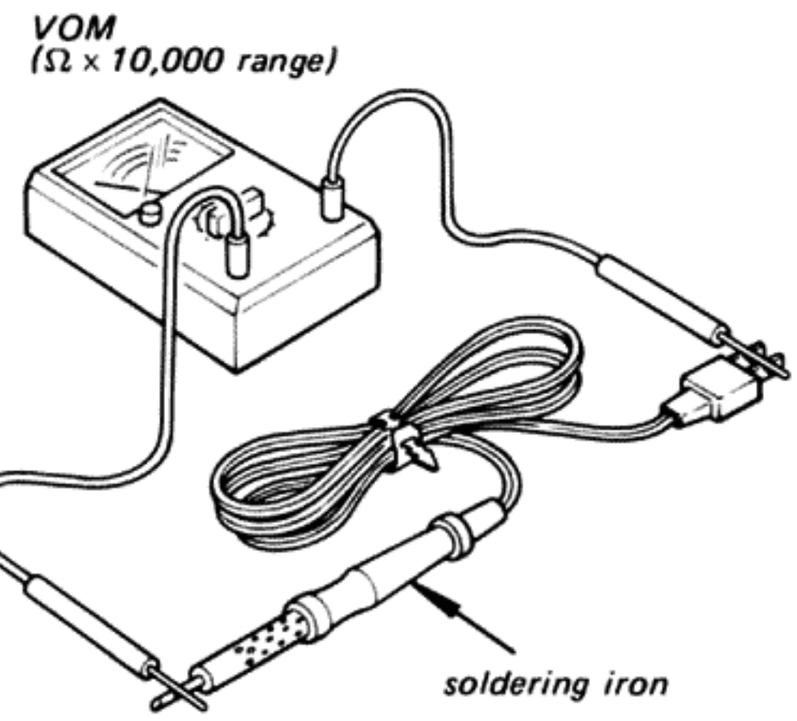



Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

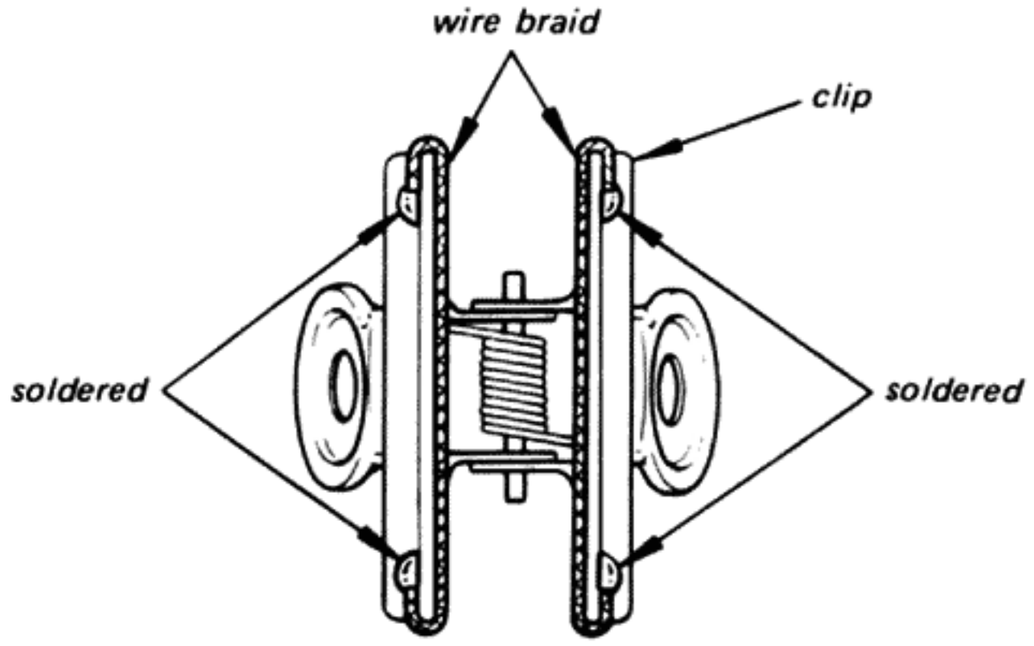



Fig. D

Make sure that there is no solder on the inside.

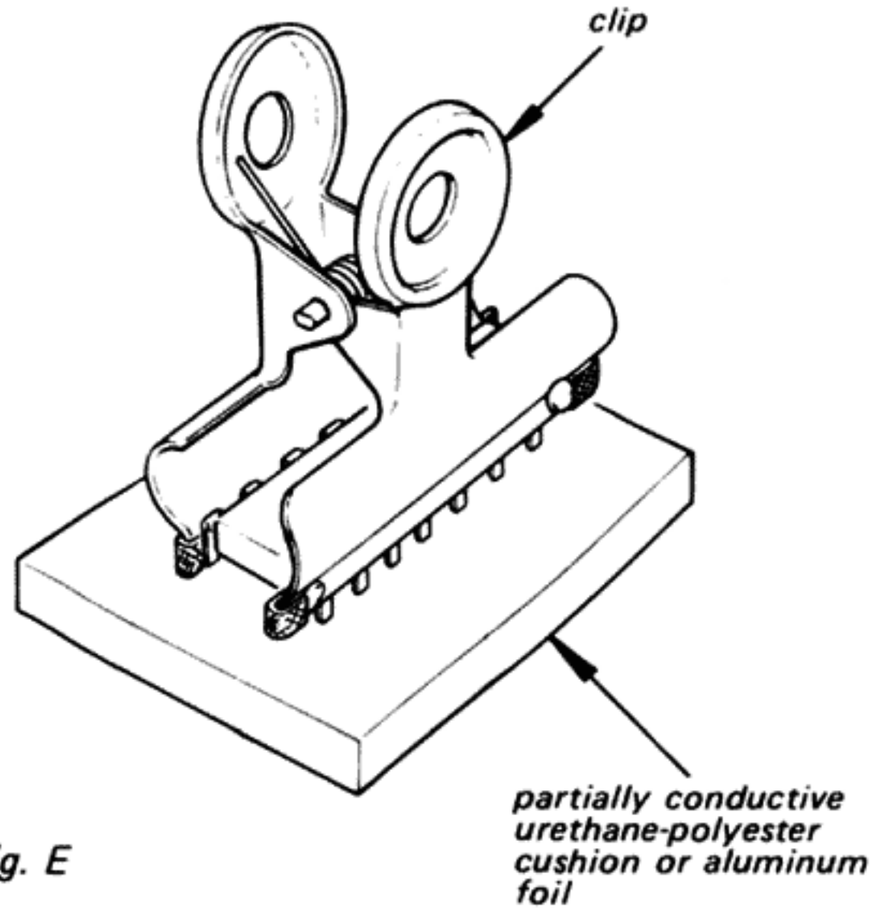



Fig. E

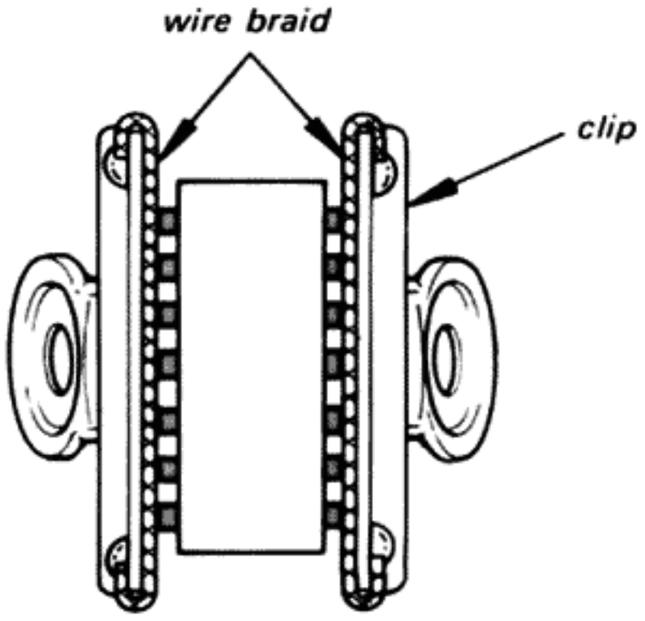



Fig. F

Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

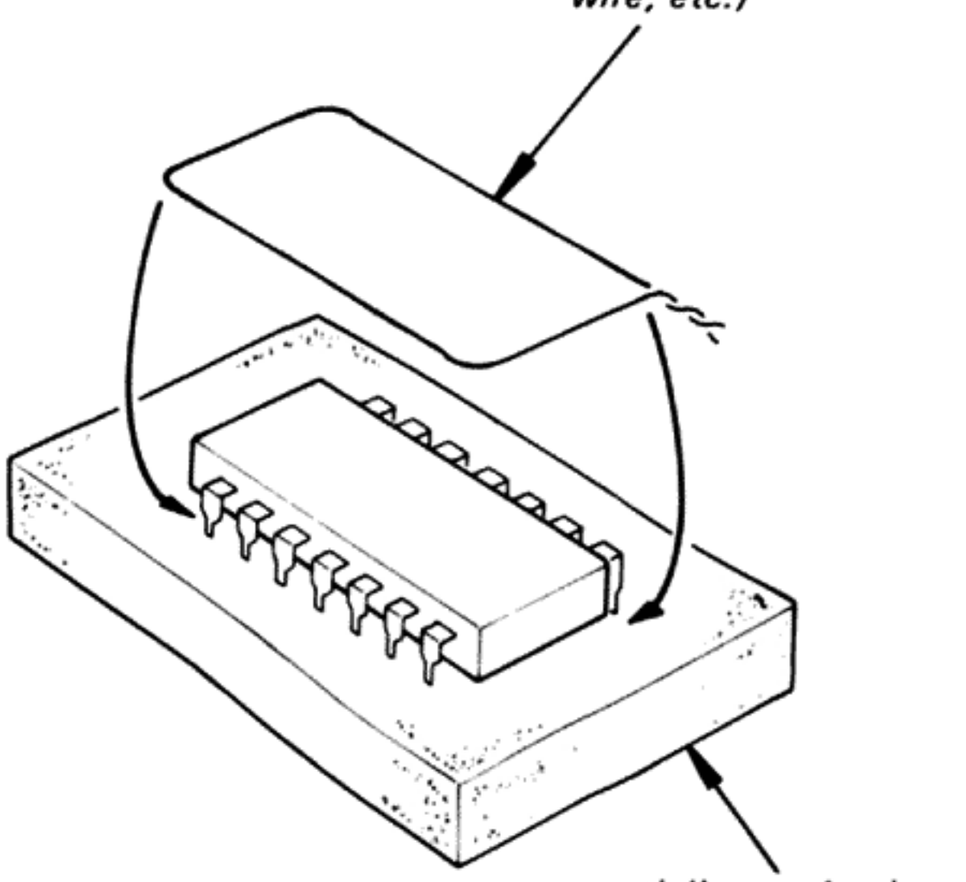



Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

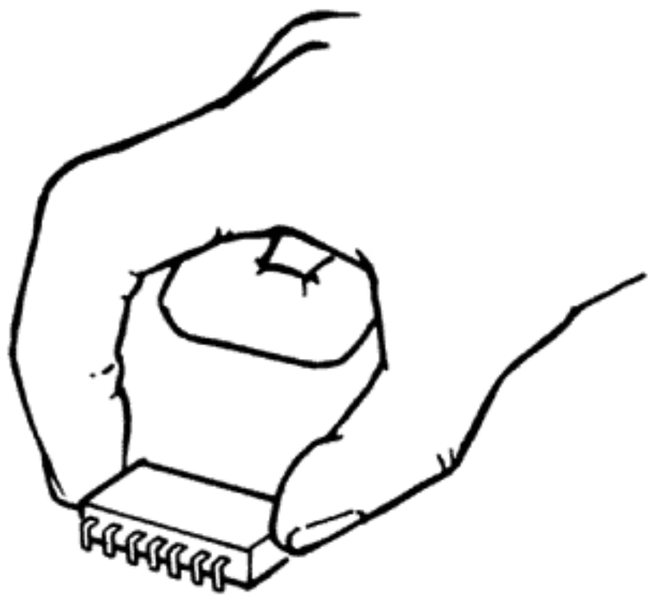


Fig. H

5. Method of Mounting
Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

**Precaution while Checking C-MOS ICs**

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B– voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

**Example:**

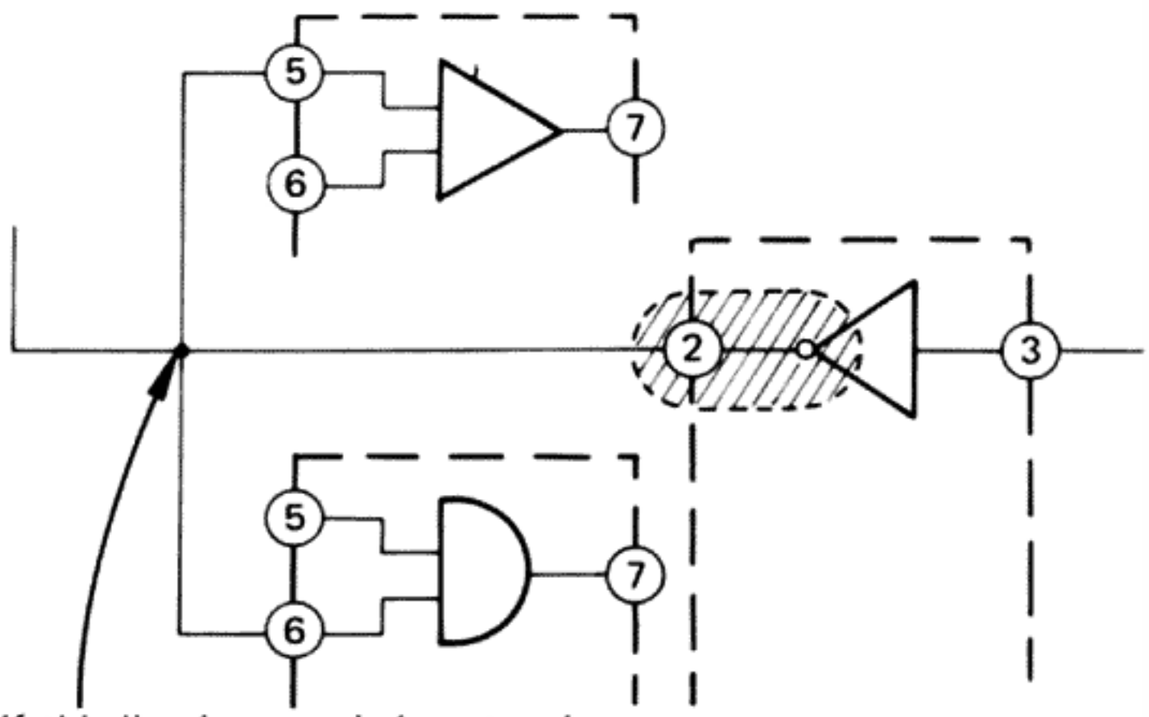
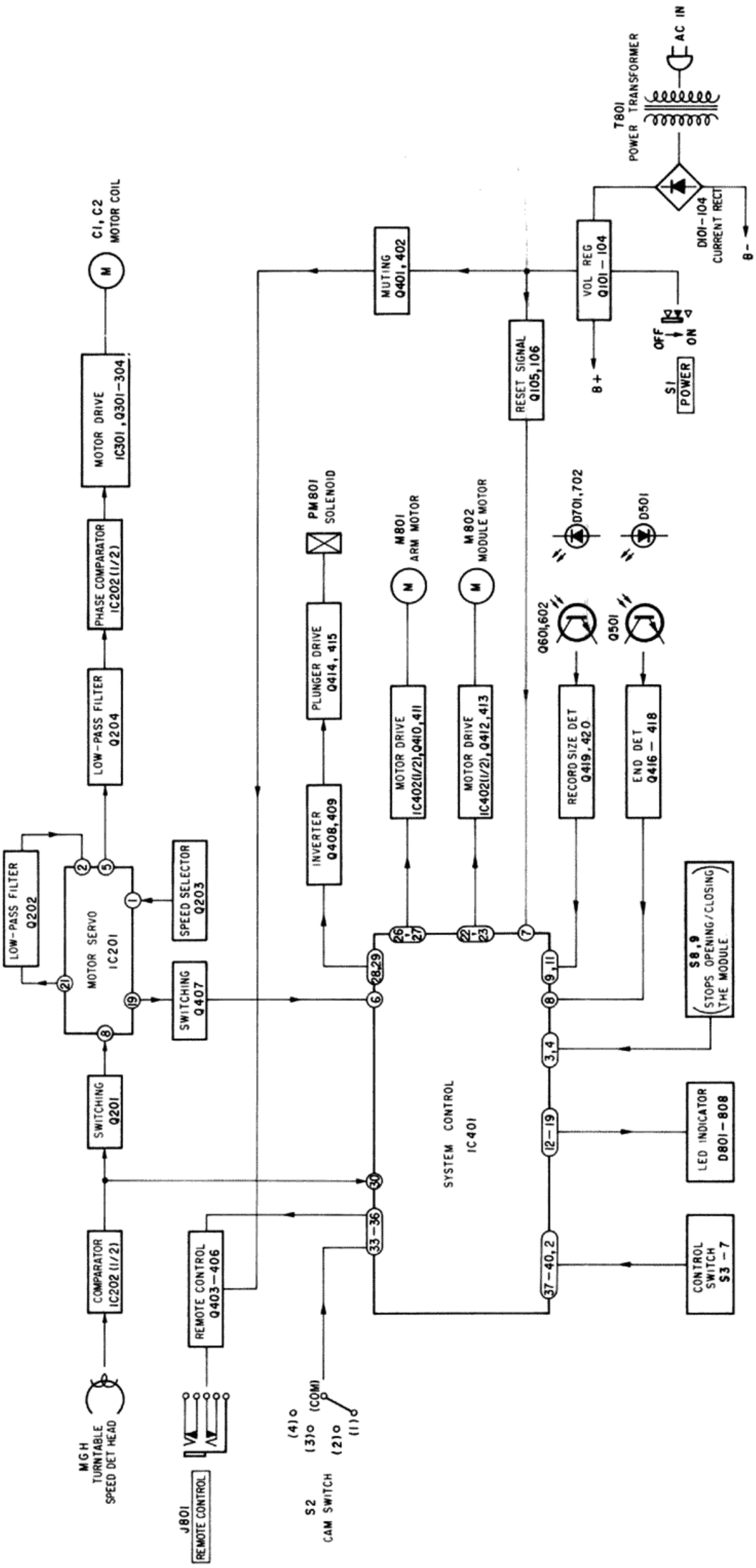



Fig. I

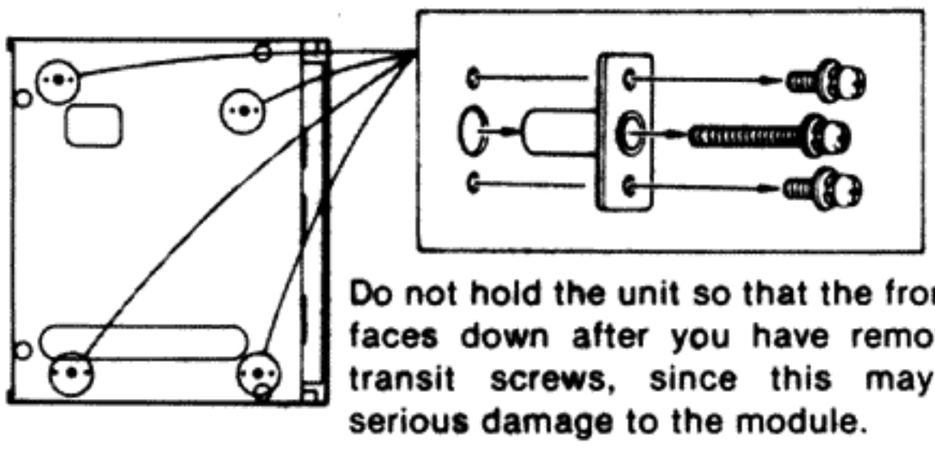
# SECTION 1
# OUTLINE

## 1-1. BLOCK DIAGRAM



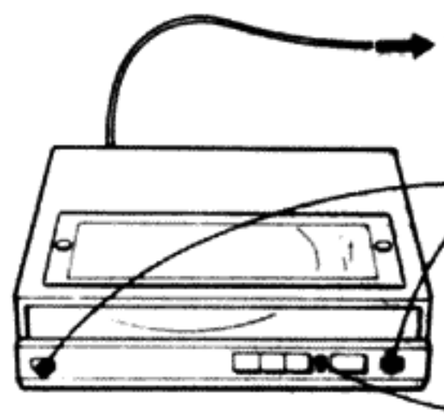
## 1-2. OUTLINE
## TURNTABLE ASSEMBLY

❶ Remove the transit screws with red heads. Save these screws and screw guides, since they will be required when repacking.



Do not hold the unit so that the front panel faces down after you have removed the transit screws, since this may cause serious damage to the module.

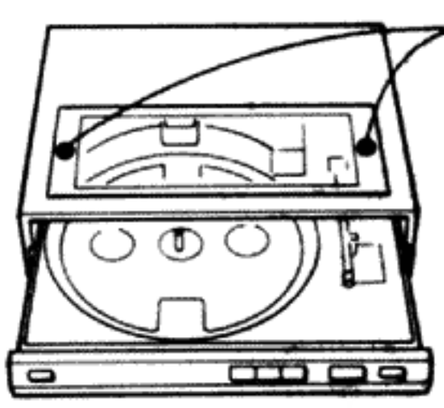
Remove all packing material and wipe the cabinet off.
Save the packing box and materials for possible future use.



To an ac outlet.

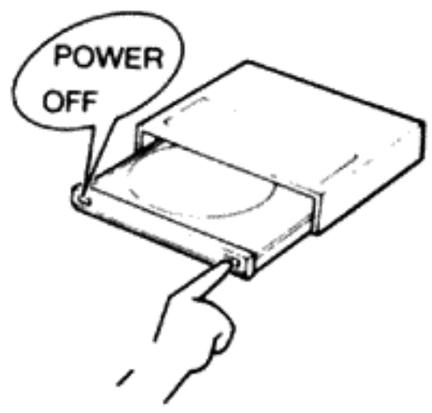
Press the POWER button and press the OPEN/CLOSE button. The module will open.

While the tonearm operation indicator is flickering, the OPEN/CLOSE button will not operate. Press it again when the indicator goes out.

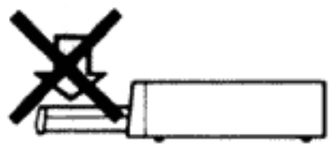


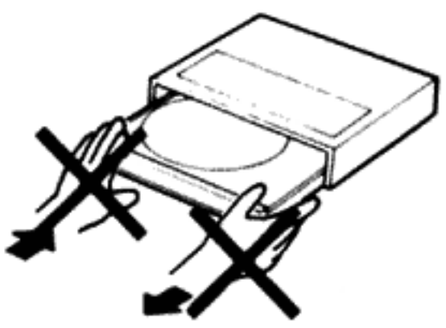
Unscrew the two screws using a coin or a screwdriver and remove the glass plate.

The OPEN/CLOSE button does not activate when the power is turned off. Never push or pull the module forcibly.



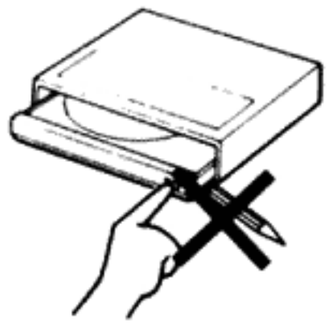

Do not push down on the module.





Do not stop the module when it is moving.

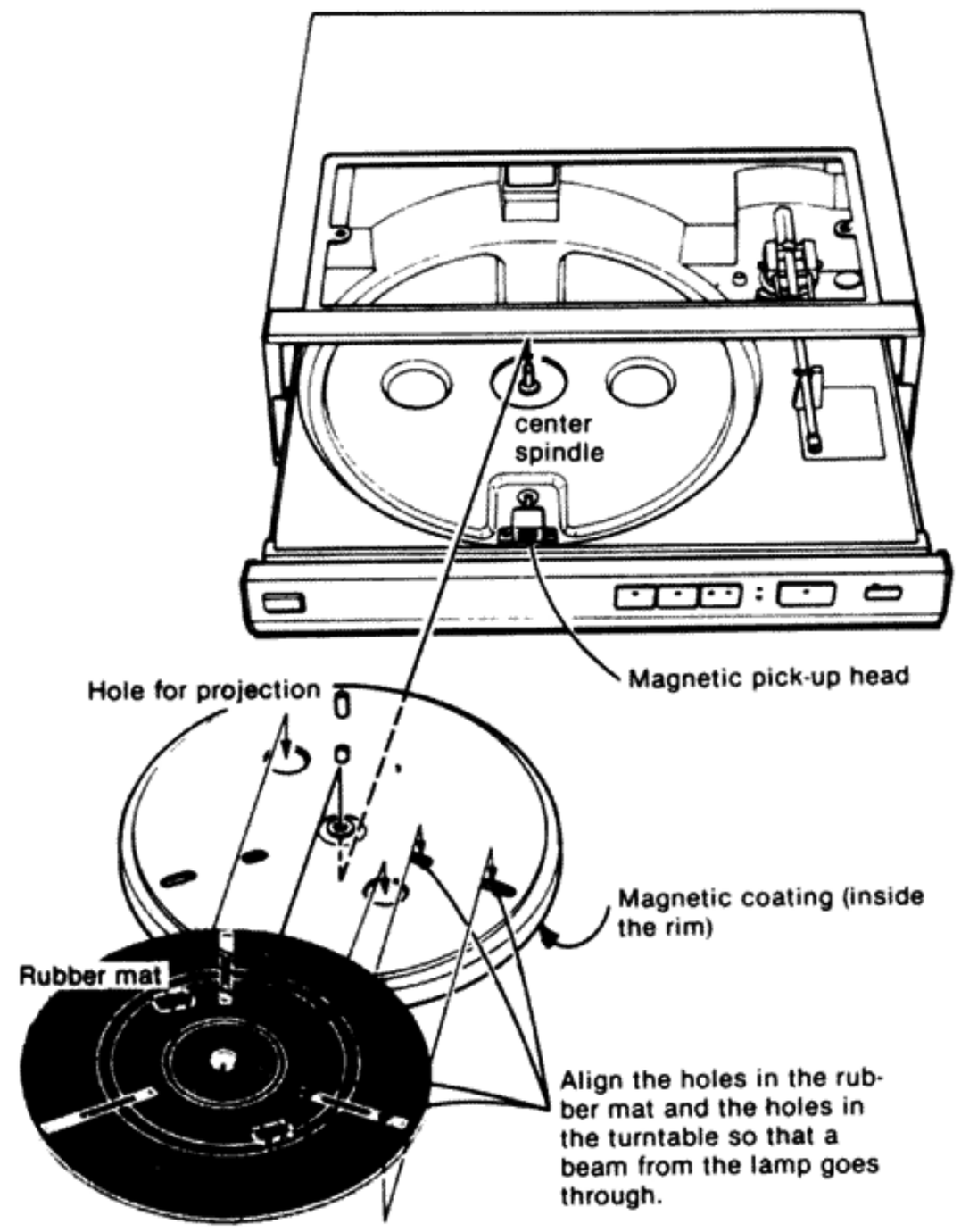
Be careful that no foreign object is caught between the module and the cabinet.



If the foreign object should be caught in this position, press the OPEN/CLOSE button immediately so that the module will move to the opposit direction.
If you leave the foreign object between the module and the cabinet for 15 seconds, the module will automatically move to the opposite direction.

❷ Carefully place the platter on the motor board by fitting the center hole over the center spindle. Be careful that no foreign objects lodge under the platter.
● Do not touch the magnetic coating or the magnetic pick-up head.

❸ Place the rubber mat on the platter, by matching the projections on the back of the rubber mat to the holes on the platter, and also the holes for record size selection on the rubber mat to those on the platter.
Do not use the rubber mat other than the one supplied.

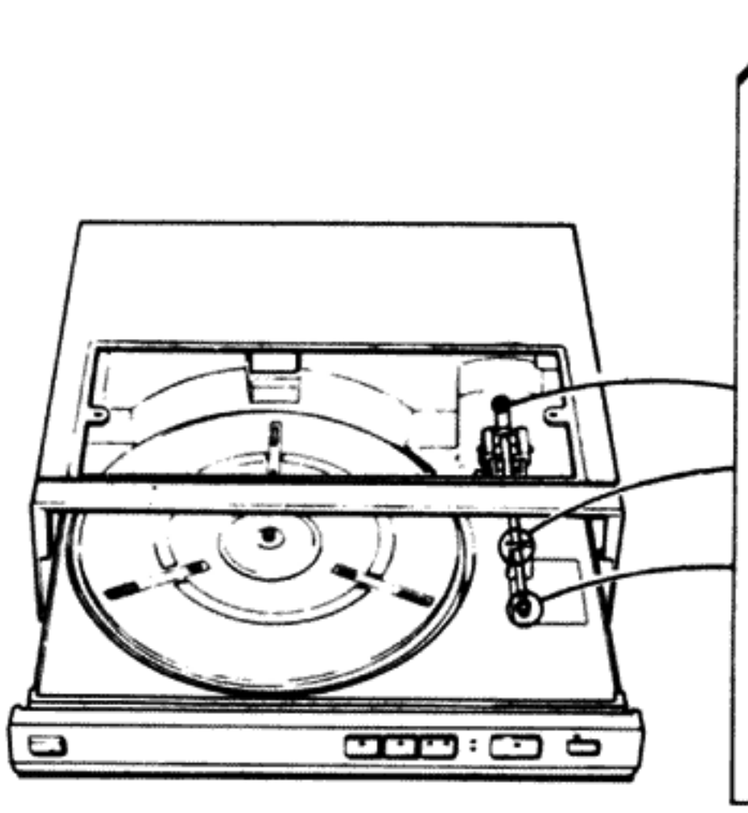


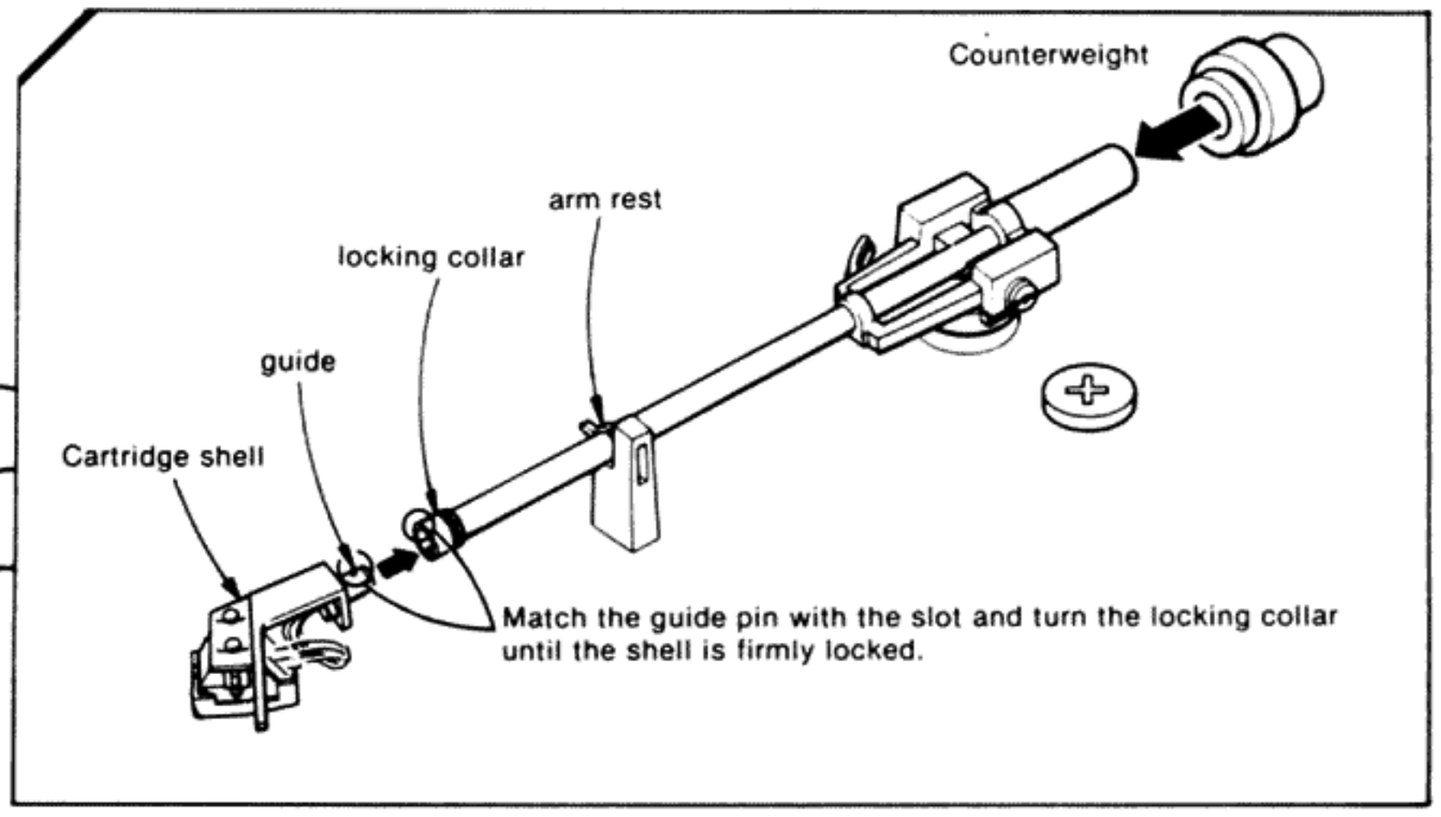

## TONEARM ADJUSTMENT

The turntable must be on a level surface while the tonearm is being adjusted.
Be careful not to damage the stylus tip while making adjustments.

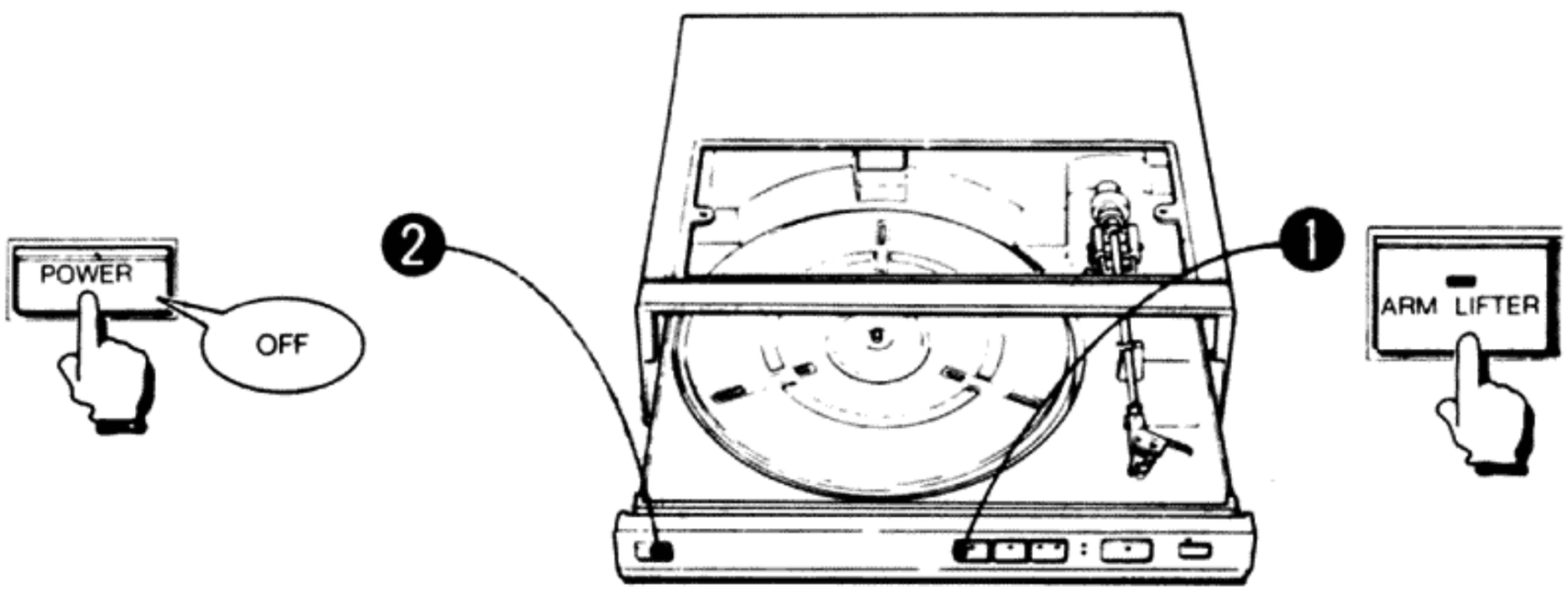
### TONEARM BALANCE ADJUSTMENT

It is critically important for good sound reproduction that the stylus traces the record groove accurately and with the proper tracking force.
To do this, the tonearm must first be balanced so that the proper tracking force can be applied.
To balance the tonearm, proceed as follows :
❶ Secure the tonearm to the arm rest and insert the counterweight and the cartridge shell.

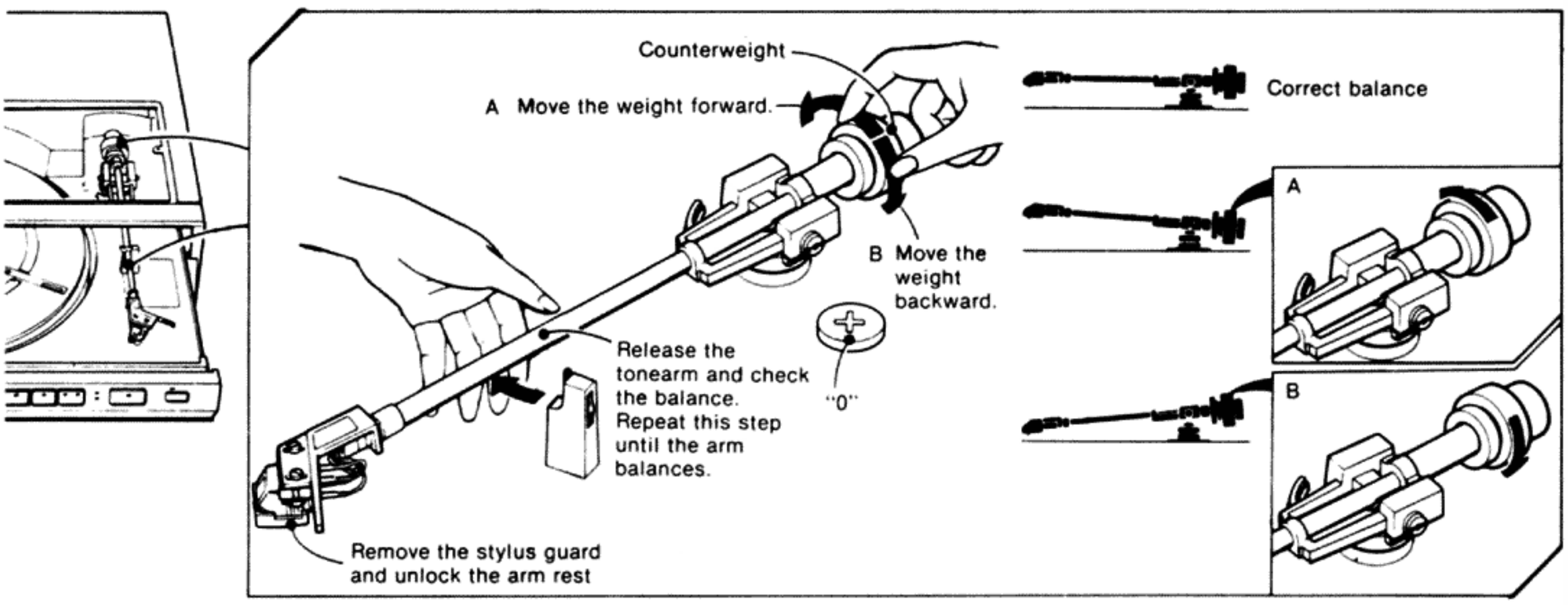




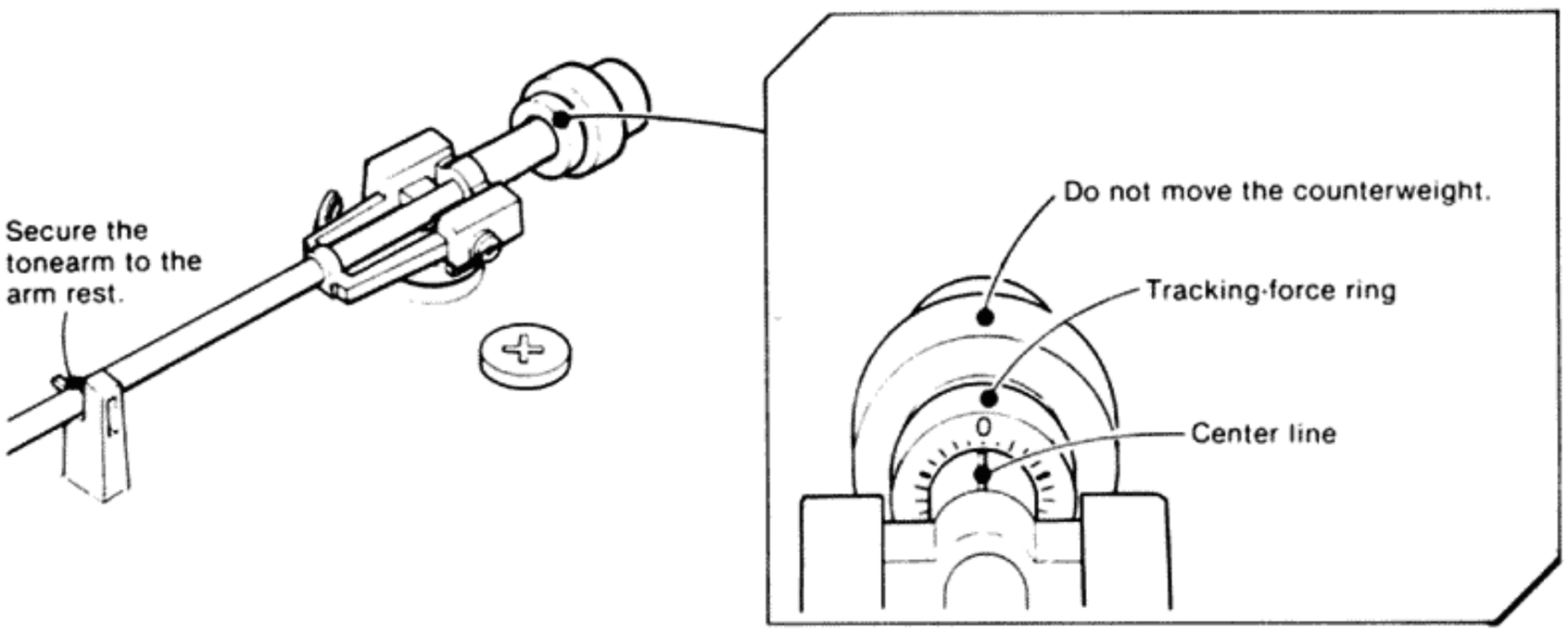
❷ Press the ARM LIFTER button. This will cause the turntable to rotate and the cueing platform to lower.
After the cueing platform has lowered, press the POWER button again to turn the unit off and stop the turntable by hand.




❸ Set the anti-skating compensator to "0".
❹ Remove the stylus guard and release the tonearm from the arm rest.
❺ Adjust the position of the counterweight by turning it.
❻ After the tonearm is balanced, replace the stylus guard and secure the tonearm to its rest.

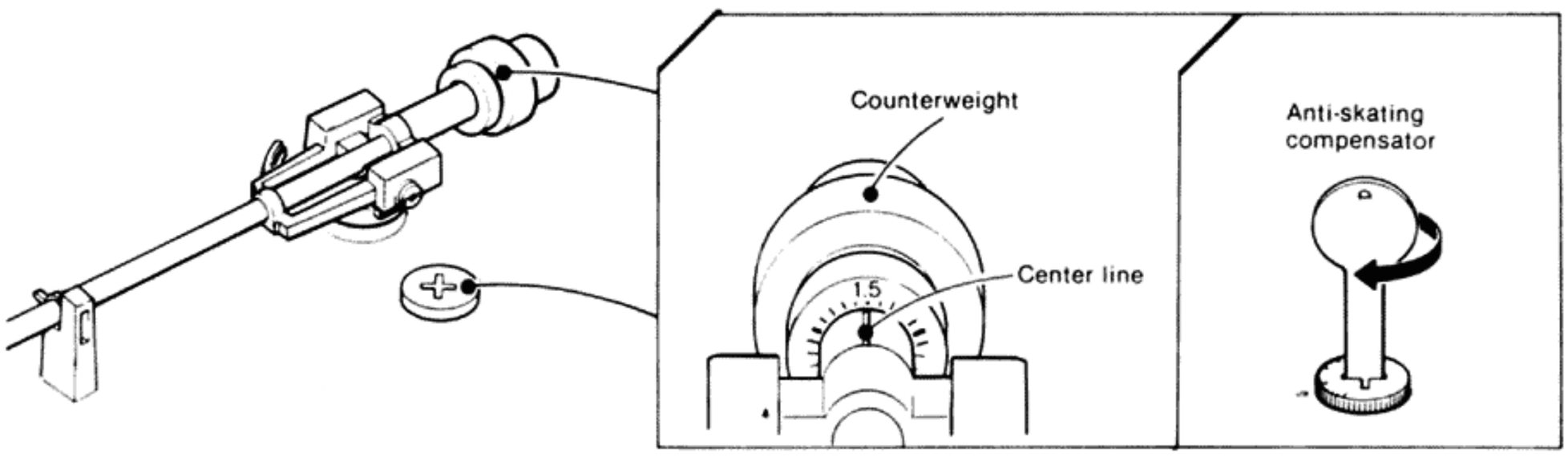


❼ **While making sure that the counterweight remains in the balanced position,**
carefully turn the tracking force ring until the "0" indication is aligned with the center line on the tonearm.




**TRACKING FORCE*1 ADJUSTMENT**
Turn the counterweight as illustrated so that the recommended tracking force for your cartridge is aligned with the center line on the tonearm. The maximum tracking force available is 2.5 grams.

**ANTI-SKATING*2 COMPENSATION**
Turn the anti-skating compensator so that the guide mark is aligned with the selected tracking force value.




**OVERHANG CHECK*3**
Check that the cartridge is correctly installed, using the alignment gauge on the underside of the rubber mat. If the installation is incorrect, the tonearm drop-point during auto play will be incorrect.

❶ Place the rubber mat upside down.
❷ Turn the power on and press the ARM LIFTER button. After the cueing platform has lowered, press the POWER button again to stop the turntable.
❸ Bring the tonearm over the point where the two fine lines cross and carefully lower the stylus to this point.
❹ Check to see that the head shell is parallel to the lines marked on the rubber mat. If it is not, loosen the cartridge mounting screws and slide the cartridge to the required position. Tighten the screws and recheck the balance and tracking-force.

**AFTER THE TONEARM ADJUSTMENT**
When the tonearm adjustment is completed, replace the glass plate and secure with the screws.

***1 Tracking force**
Tracking force is the vertical force applied to the stylus tip so that it can accurately trace a record groove.
The tracking force is applied after the tonearm is balanced.
Since the proper tracking force differs depending on which cartridge is installed, be sure to apply the tracking force recommended for your cartridge. If the tracking force is too light, the stylus will skip grooves. When it is too heavy, the stylus tip and the record will wear excessively. Note that if you play a record at a temperature below 10°C (50°F), or if the record to be played is badly warped, the tracking force should be increased by 20%.

***2 Anti-skating compensator**
While the record is being played, friction between the record groove and the stylus produces a force that tends to drive the tonearm toward the center of the record.
The anti-skating compensator cancels this force. The anti-skating force should be the same value as the tracking force.
Incorrect adjustment of the anti-skating compensator results in sound distortion and uneven wear on both the stylus and the record.

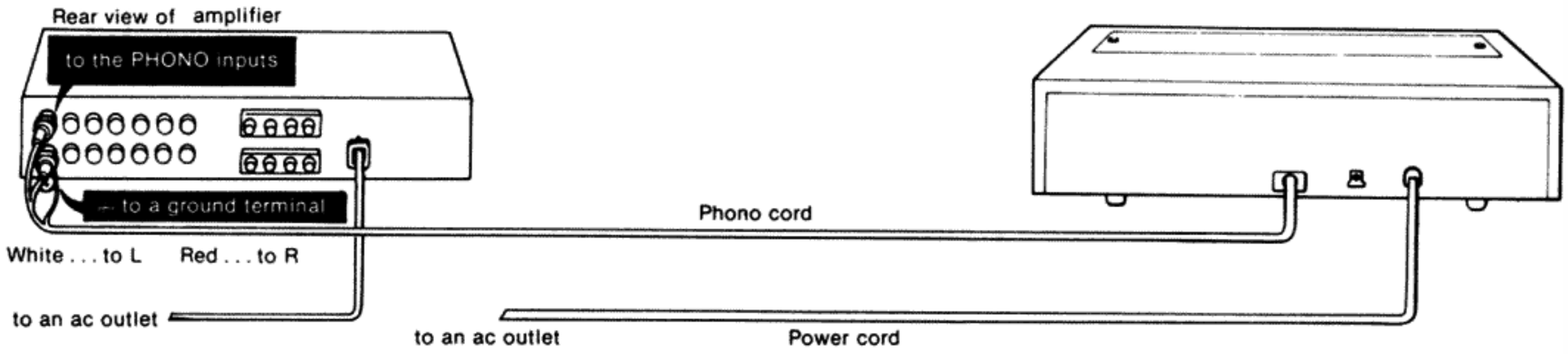
***3 Overhang**
While record grooves are cut by a head which tracks a record's radius in a line, a tonearm, because it is pivoted, traces an arc on a record. To compensate for this difference in movement, the head shell is angled and the cartridge is installed with a 16.5mm overhang. The correct overhang is obtained by installing the cartridge with a 37.5mm space between the stylus tip and the end of the cartridge shell and by checking the installation with the alignment gauge.

## CONNECTIONS

- Turn off the amplifier before making connections.
- Be sure to insert the cable connectors firmly into the jacks.

Loose connections may cause hum and noise.

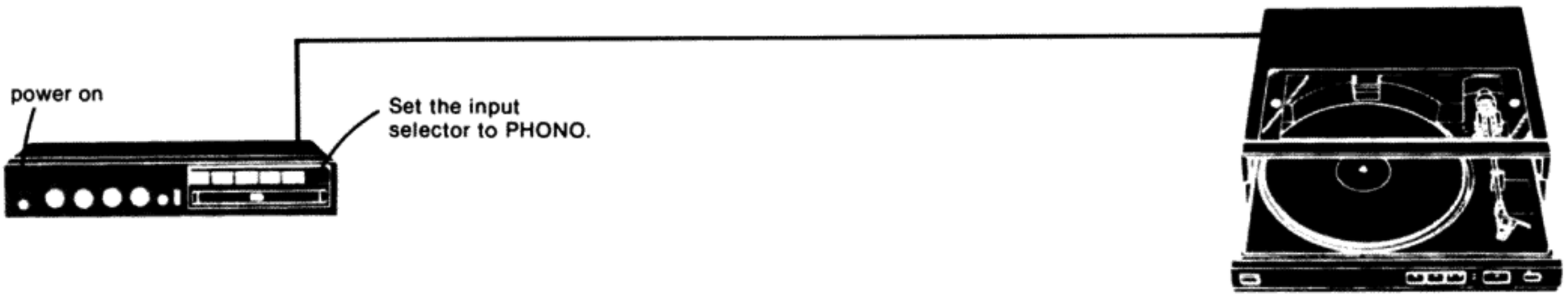
- Leave a little slack in the connecting cord to allow for inadvertent shock or vibration.

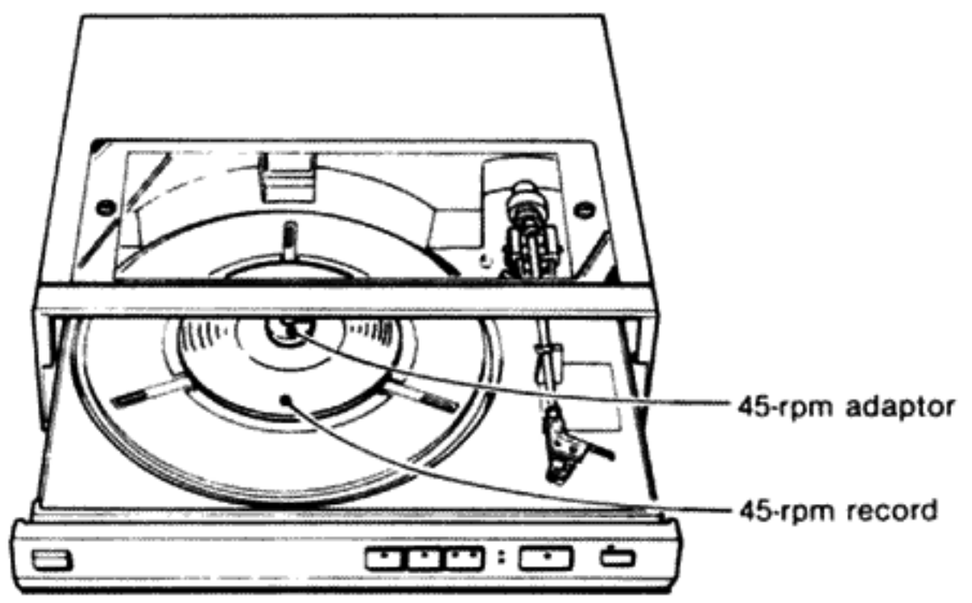



## RECORD PLAYING

### PREPARATION

- Place a record on the platter. For 17 cm (7 inch) records, put the supplied 45-rpm adaptor over the center spindle.
- Unlock the arm rest latch during operation. After playing, secure the tonearm to the arm rest.





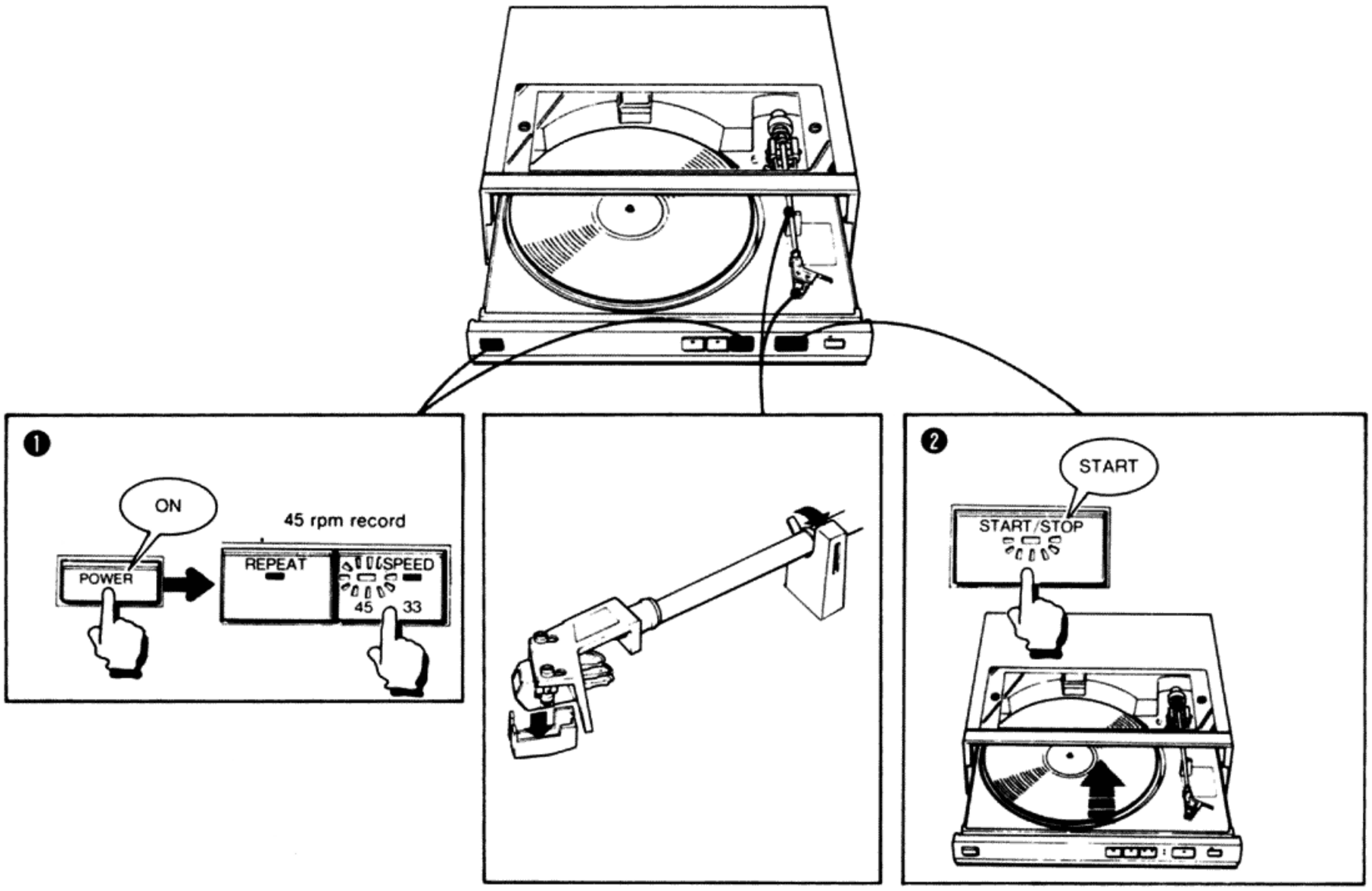

**Record**

With transparent or badly warped records, the auto record size selection does not operate. In this case, play a record in the following way:

- For 30 cm (12 in) records, bring the tonearm onto a record and press the ARM LIFTER button, or cover the holes for auto record size selection by turning the rubber mat half a circle and press the START/STOP button.
- For 17 cm (7 in) records, place the supplied sheet underneath a record to cover the holes and play a record pressing the START/STOP button or ARM LIFTER button.

**AUTO PLAY**

❶ Press the POWER button (ON).
Select the correct record speed. The record speed will always be 33⅓ rpm unless the SPEED selector is pressed to select 45 rpm.
❷ Press the START/STOP button. Play will begin.
❸ When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop.




**Notes**

- 25 cm (10 inch) records can't be played automatically. To play these records, bring the tonearm onto a record and then start the playing, following the instructions in "Manual play" on the next page.
- Turn off the POWER button after the tonearm returns to the arm rest. If the POWER button is turned off while the tonearm is returning to the arm rest, when you press the START/STOP button the next time the tonearm will return to the arm rest and the record will not be played. If this happens, press the START/STOP button again.

If the turntable rotates out at an abnormal speed for a certain time, such as might happen if you slow it by hand or apply a record cleaner, the safety mechanism may activate to return the tonearm to the arm rest.

**MANUAL PLAY- for playing records at any point**

❶ Press the POWER button (ON).

● Select the correct record speed. The record speed will always be 33⅓ rpm unless the SPEED selector is pressed to select 45 rpm.

❷ Bring the tonearm to the desired position over the record.

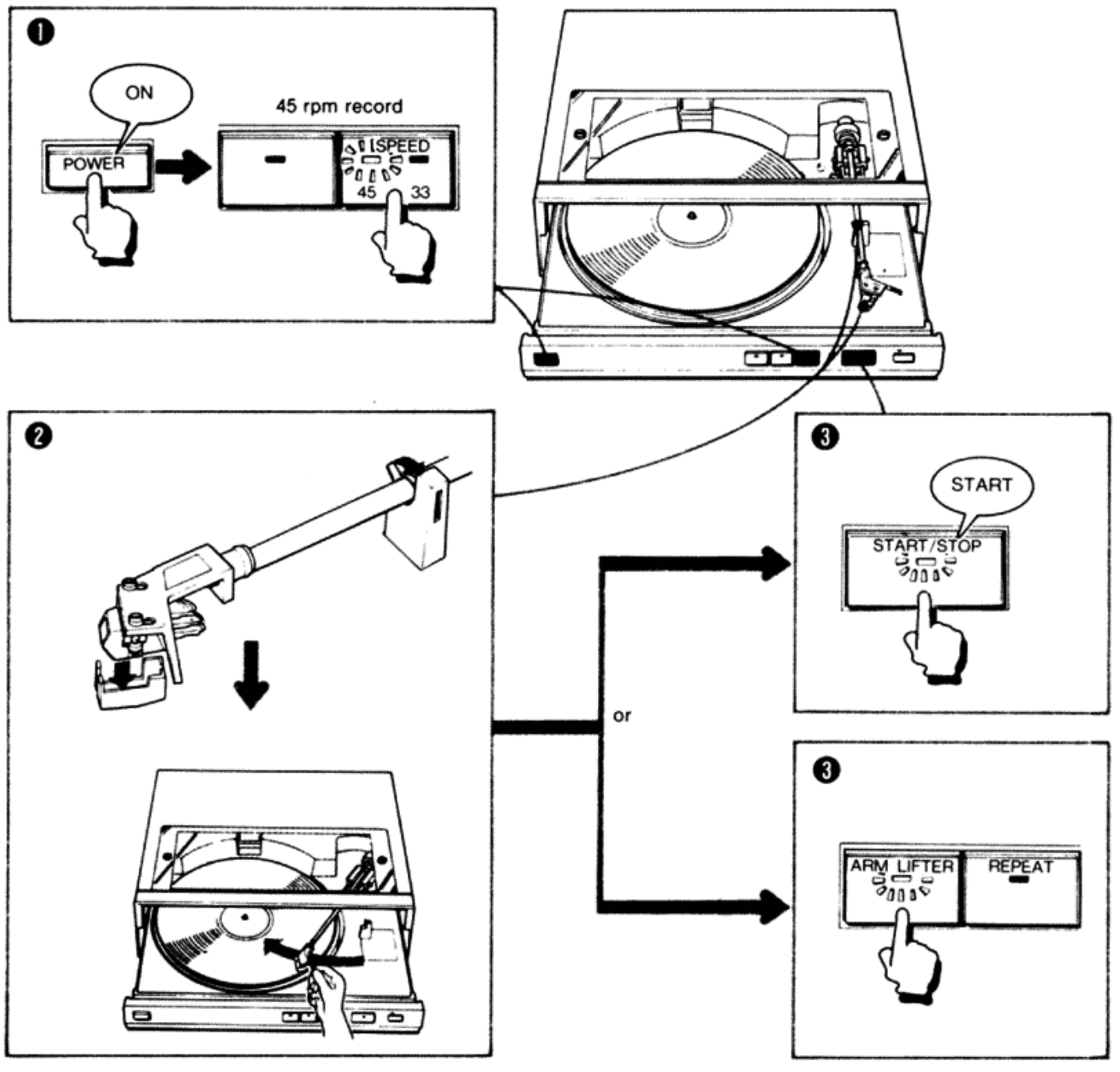
❸ Press the START/STOP button. The module will close, the tonearm will lower to the record and play will begin.

● To play with the module opened, press the ARM LIFTER button. In this case, auto return and repeat may not activate at the end of the groove. Press the START/STOP button to return the tonearm to the arm rest.

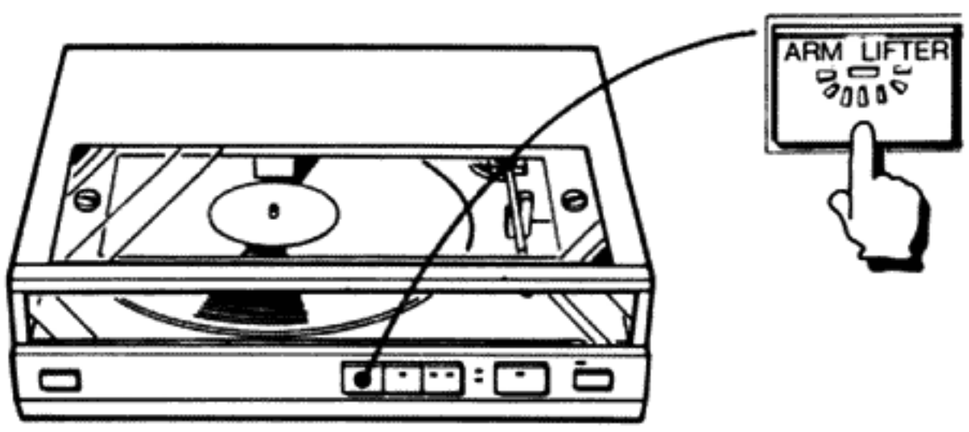
❹ When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop.

**Note**

If you lower the tonearm too near the record label, the auto return mechanism may not activate at the end of the groove. This is because the tonearm reaches the end of the record before the auto return detector can activate.

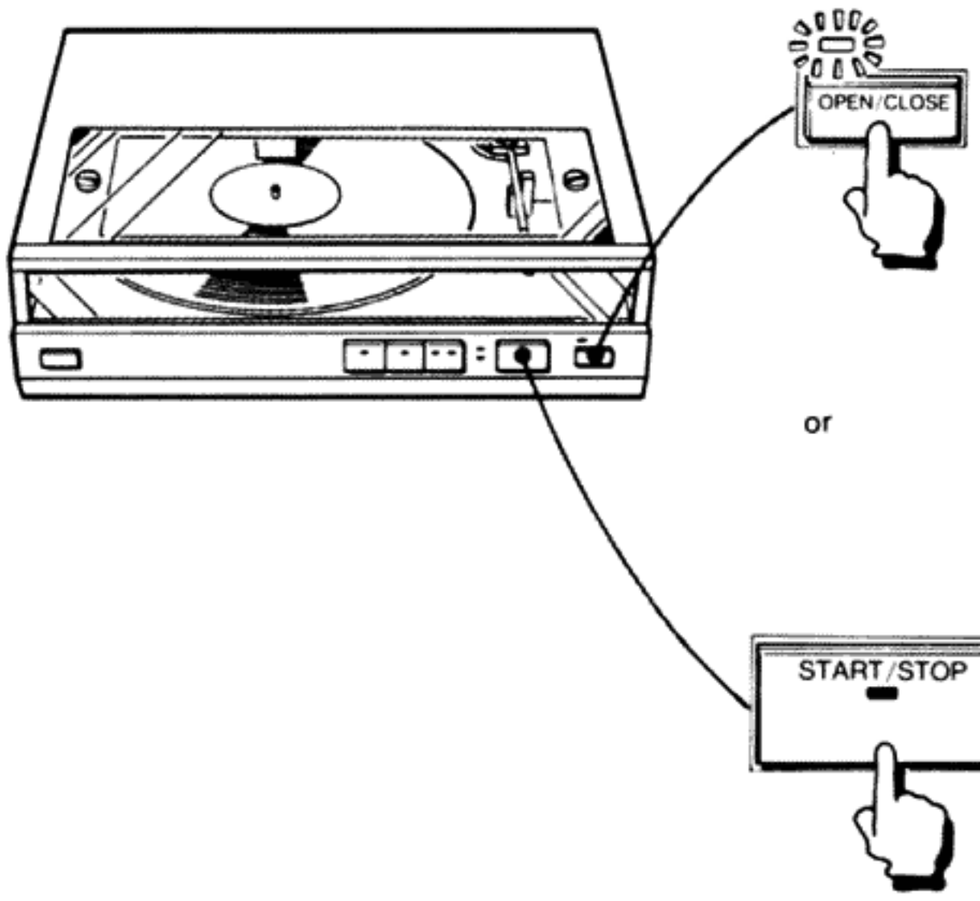


### TO LIFT UP THE STYLUS DURING PLAY




To lift the stylus from a record for a moment and then start playing from the same point, press the ARM LIFTER button. To lower the tonearm onto the record, press the button again.

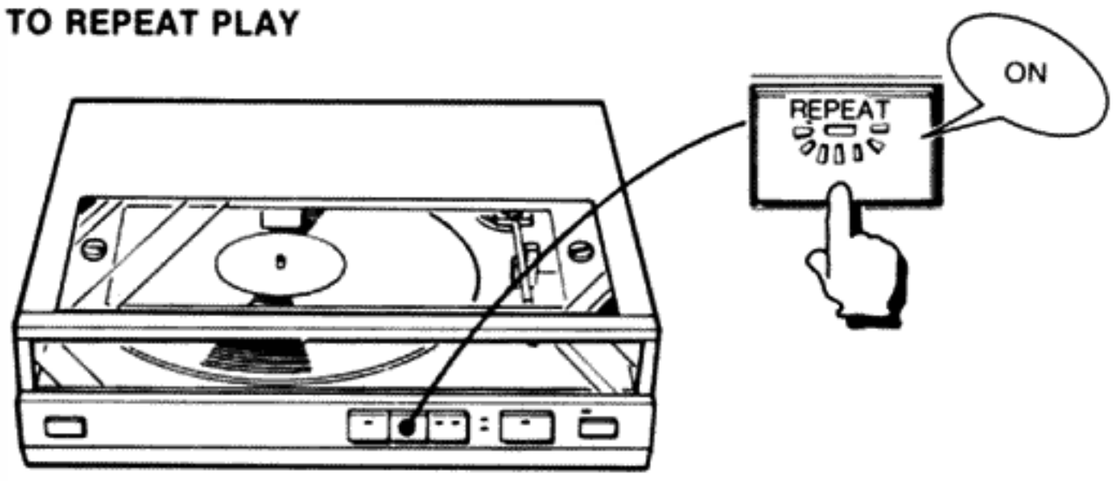
### TO STOP DURING PLAY



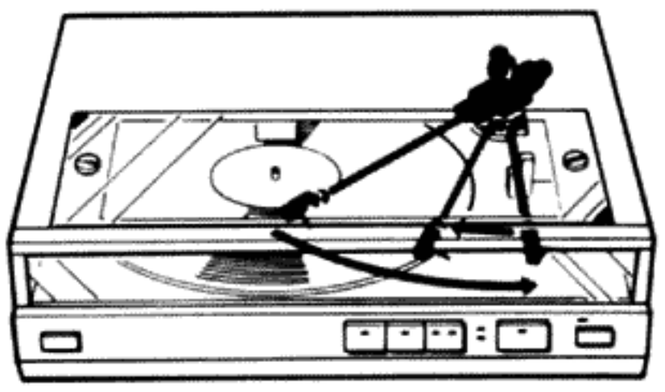

Press the OPEN/CLOSE button. The tonearm will return to the arm rest, the turntable will stop rotating and the module will open. (When the module has opened, a touch of this button will close the module.)

Press the START/STOP button. The tonearm will lift up and automatically return to the arm rest.
The cueing platform will lower when the tonearm reaches the arm rest and the unit will be turned off.

### TO REPEAT PLAY




Press the REPEAT button either before or after starting play. The tonearm continues repeat play unless the button is pressed again to turn off the repeat function. To stop during repeat play, press the START/STOP botton.

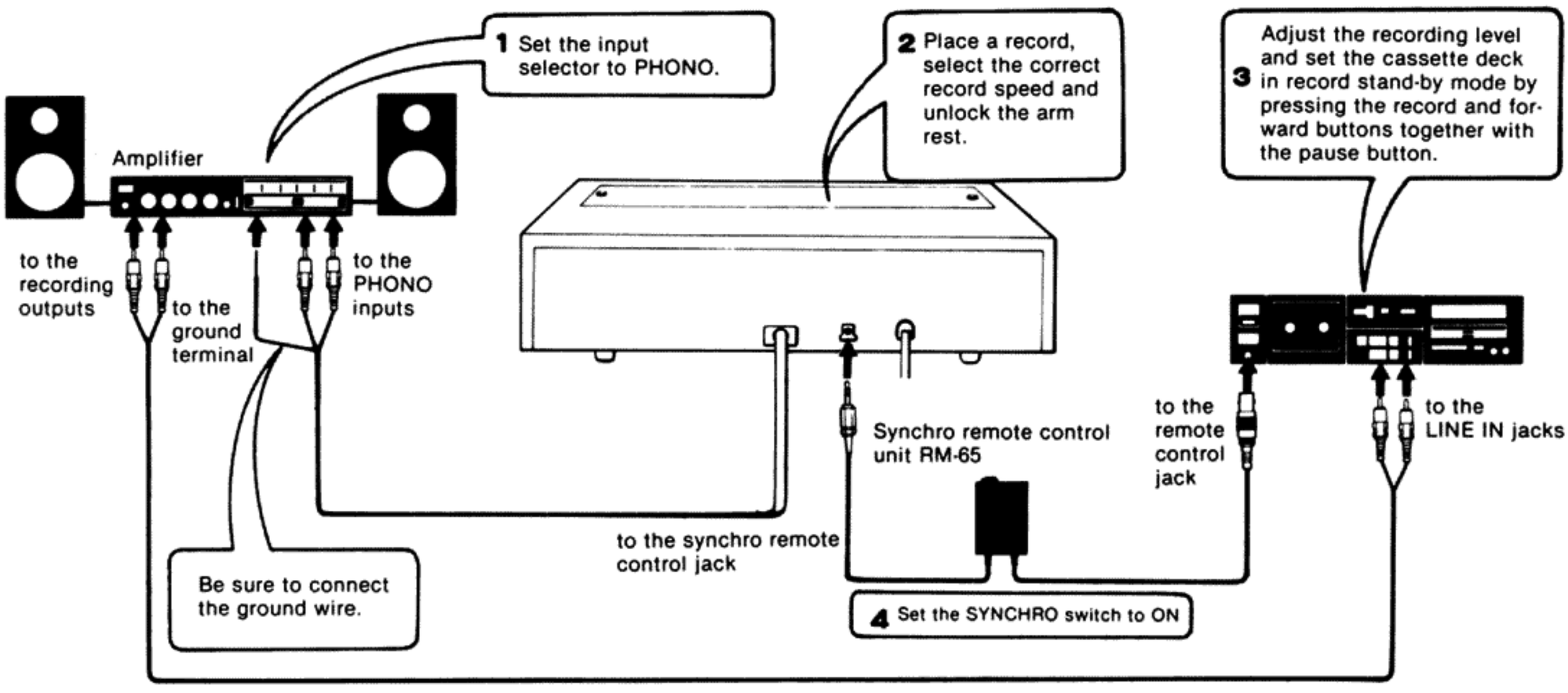


# SYNCHRONIZED PLAY OF THE TURNTABLE AND THE CASSETTE DECK

Record recording starts only when the START/STOP button is pressed. When the tonearm lowers to the record, the tape deck goes into the record mode and, when the tonearm is lifted up, the deck goes into auto record muting mode for four seconds, then into the pause mode.
Connection and operation are as follows:

Cassette deck which can be used with your turntable for this special synchronized operation are those Sony models which are equipped with a 4-pin remote control jack.
An RM-65 synchro remote control unit (optional) is required to connect the turntable and the cassette deck.

**Connection and preparation**




After turning the power of the turntable system on, set the SYNCHRO switch to ON and before turning the power of the turntable system off, set the SYNCHRO switch to OFF.

**RECORDING**

| Desired action | Turntable operation | Synchronized operation of the cassette deck |
|---|---|---|
| To record from the beginning of a record... | Press the START/STOP button. | When the tonearm lowers to the record, the pause mode is released and recording begins. |
| To record from a point some way into the record... | Bring the tonearm over the desired point and press the START/STOP button. | When the tonearm lowers to the record, the pause mode is released and recording begins. |
| To stop recording during record play... | Press the START/STOP button. | When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed. |
| When record play ends... | The tonearm returns automatically to the arm rest. | When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed. |

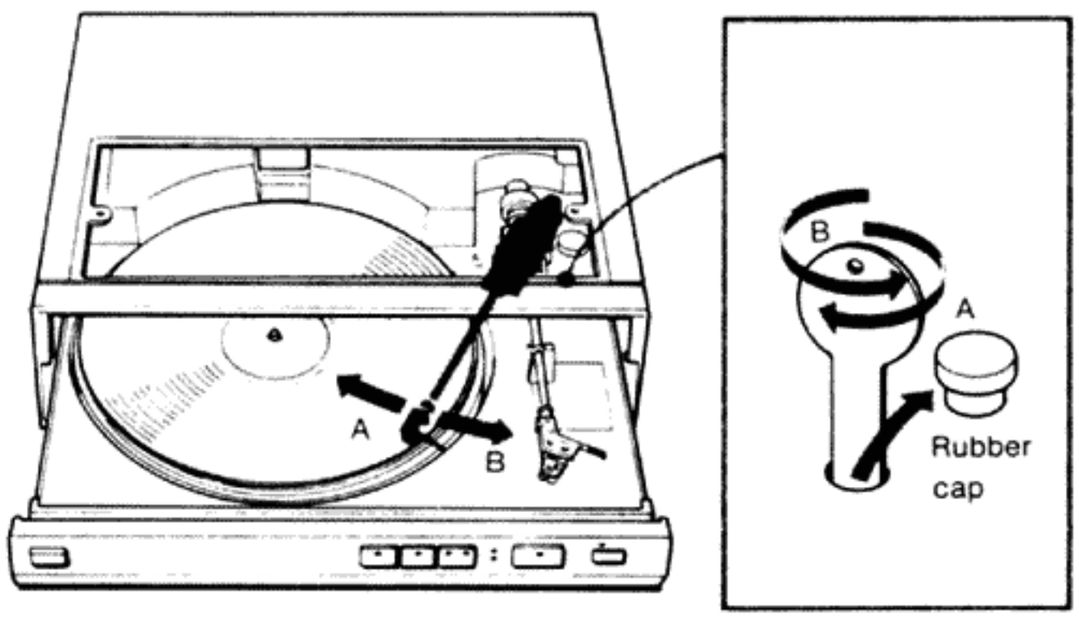
## TIPS ON RECORD HANDLING

● Before playing, clean the record with a record cleaner or soft cloth. If a spray cleaner is used, make sure that it has dried completely before playing the record. Playing the record before the cleaner has dried may damage the record.
It is a good idea to clean the record again before putting it away.
● Handle a record by its edges and do not touch the grooves.
Fingerprints on the record surface may encourage an accumulation of dust, resulting in impaired tone.
● Use a commercially available anti-static spray to neutralize the static electricity on a record.
● Avoid exposing a record to direct sunlight or sources of heat, such as a hot-air duct.
● Store your records vertically. They should not be compressed.

## TONEARM DROP-POINT ADJUSTMENT

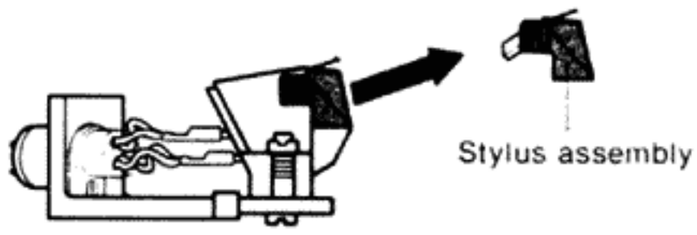
The tonearm's drop-point during auto play has been adjusted at the factory. If this needs to be readjusted, proceed as follows.

❶ Press the OPEN/CLOSE button to open the module. Then unscrew the two screws and remove the glass plate.
❷ Remove the rubber cap over the tonearm drop-point adjustment opening located at the right side of the arm base.
❸ Insert the supplied drop-point adjustment key into the opening
To move the drop-point inward . . . turn the screw in direction A.
To move the drop-point outward . . . turn the screw in direction B.
● Be sure not to turn the screw in direction B so far that the stylus tip cannot make contact with the record.
❹ Start auto play and check that the stylus lowers on the correct drop-point.
● If the drop-point is correct for 30 cm (12 inch) records, it will also be correct for 17 cm (7 inch) records.
● You can keep the adjustment key in your key holder if you like may come in handy for a variety of jobs.




## REPLACING THE STYLUS

The stylus will lose its effectiveness and begin to damage records after about 400 hours of use.
An ND-200E replacement stylus is available at your Sony dealer.
Handle the stylus carefully as it is very delicate.
Install the replacement stylus as follows.
❶ Secure the tonearm to the arm rest and separate the shell from the tonearm by turning the locking collar.
❷ Detach the stylus assembly by grasping it between the thumb and forefinger and pulling gently in the direction of the arrow.



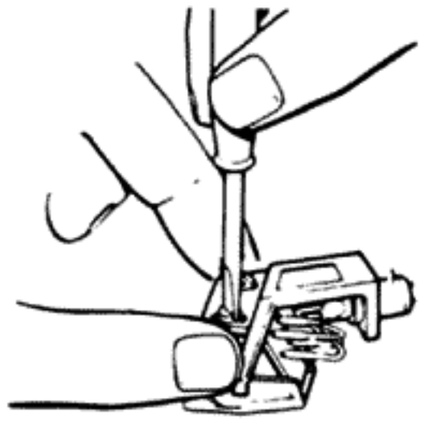

❸ Insert the new stylus into the cartridge.
❹ Plug the cartridge shell into the tonearm and turn the locking collar counterclockwise until the shell is locked.

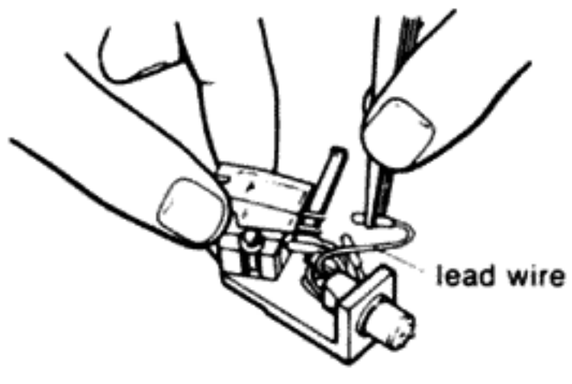
## INSTALLING A CARTRIDGE OTHER THAN THE ONE SUPPLIED

Cartridges weighing from 2.5 to 6.5g can be mounted in the supplied cartridge shell (5g).

**Removing the old cartridge**

❶ Secure the tonearm to the arm rest, then remove the shell from the tonearm by turning the locking collar.
❷ Remove the old cartridge by loosening the two mounting screws.
❸ Disconnect the lead wires of the shell from the four output terminals of the cartridge.

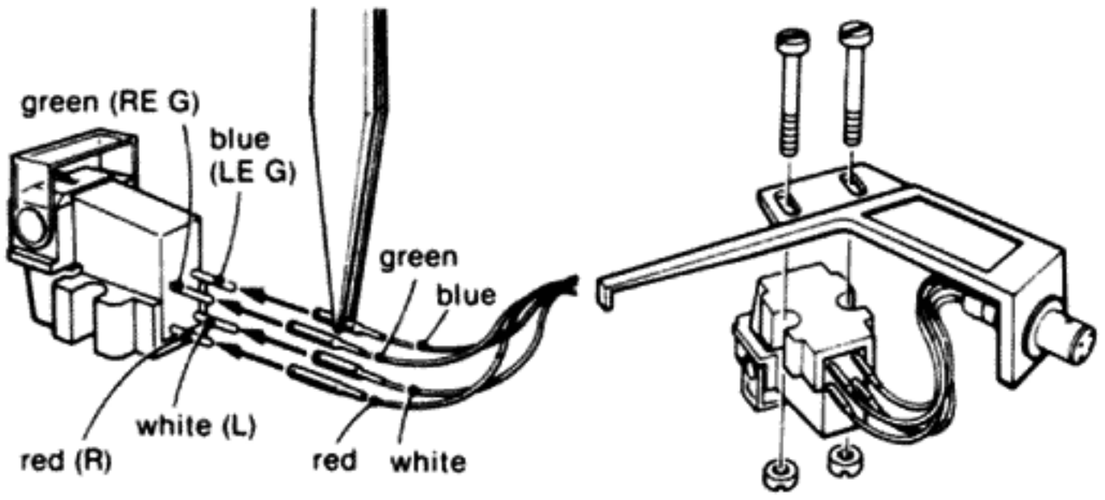




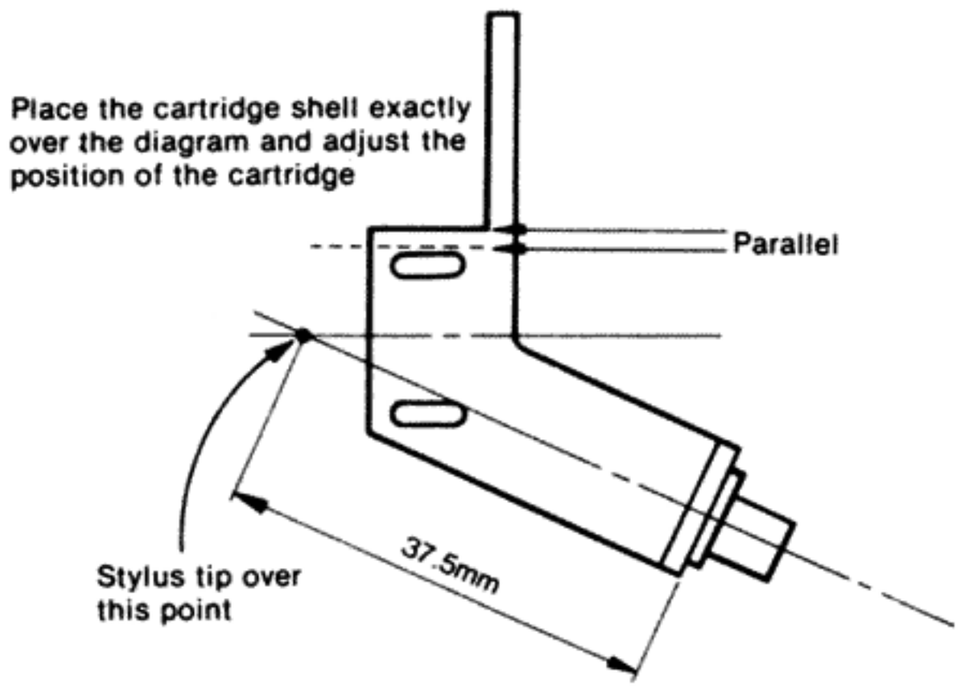

❹ Connect the lead wires of the shell to the corresponding pins on the cartridge.

| Wires | Cartridge pins |
|---|---|
| White | White, L (Left channel signal) |
| Blue | Blue, LE or G (Left channel ground) |
| Red | Red, R (Right channel signal) |
| Green | Green, RE or G (Right channel ground) |

❺ Temporarily install the new cartridge into the shell with the mounting screws as illustrated. Final adjustment should be made later during the overhang check.






❻ Plug the shell into the tonearm and turn the locking collar counterclockwise until the shell is firmly locked.

## MAINTENANCE

**Stylus**

Before playing a record, clean the stylus with a soft brush. Brush the stylus from back to front. Never attempt to clean the stylus with your finger tip. If fluid stylus cleaner is used, make sure not to moisten the stylus too much.

**Cabinet**

Clean the cabinet and dust cover periodically with a soft dry cloth. If the stains are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use solvents such as alcohol, benzine or thinner, since they will damage the finish.

**Rubber mat**

When the rubber mat becomes dirty, wipe it gently with a soft cloth slightly dampened with water.

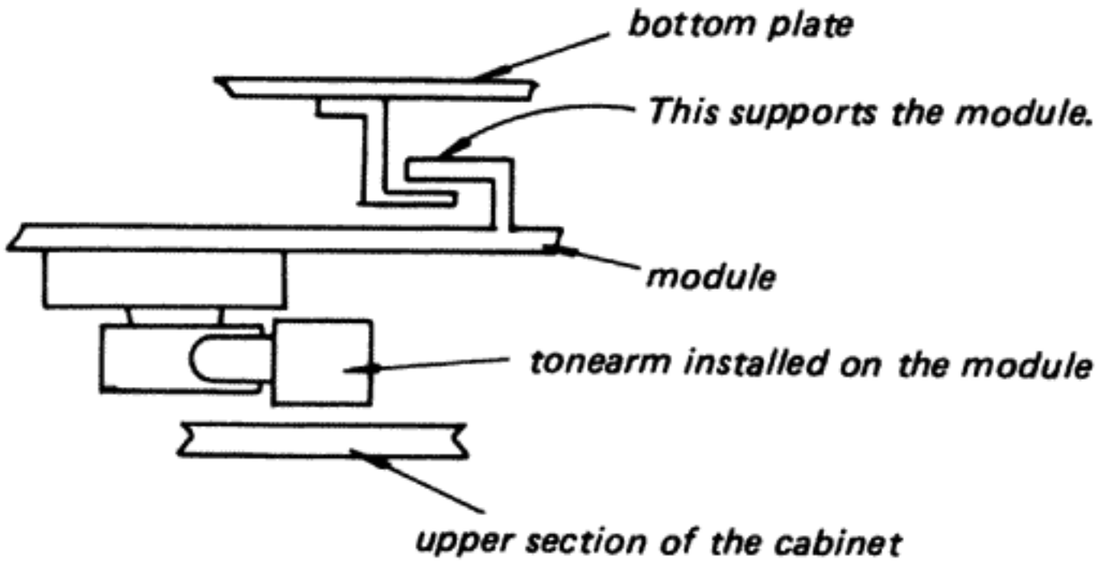
**Lubrication**

The turntable requires no periodic lubrication. The motor shaft is lubricated at the factory for the life of the turntable.

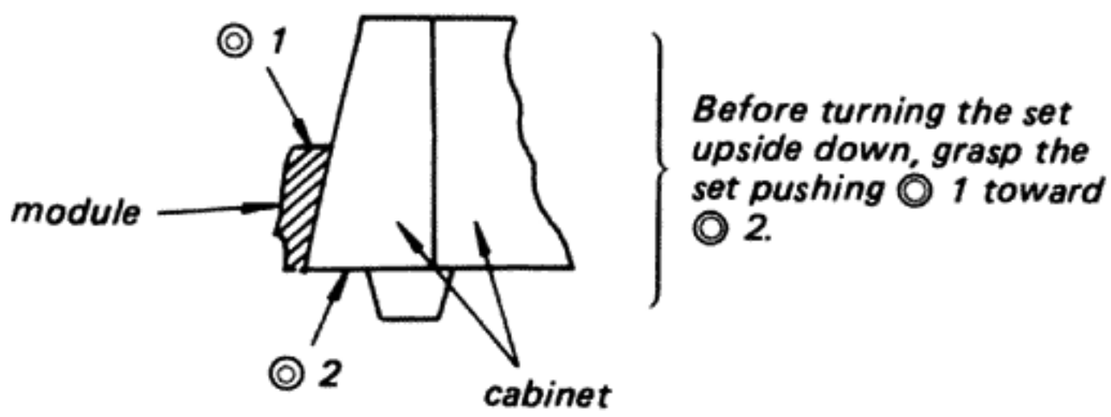
# SECTION 2
# DISASSEMBLY

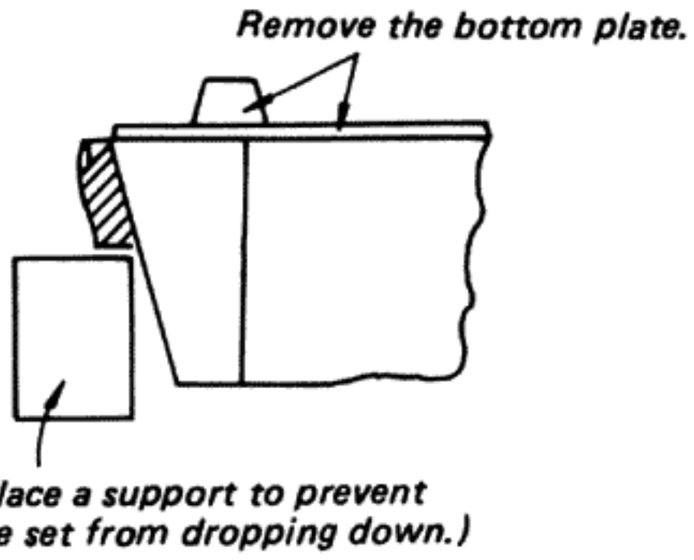
**Notes on Removal, Repair and Adjustment**

- When repairing or adjusting the set, care must be taken when turning the set upside down. Follow the procedures below.
  When the set with bottom plate installed is turned upside down, the module is to be supported by the bottom plate as shown below.



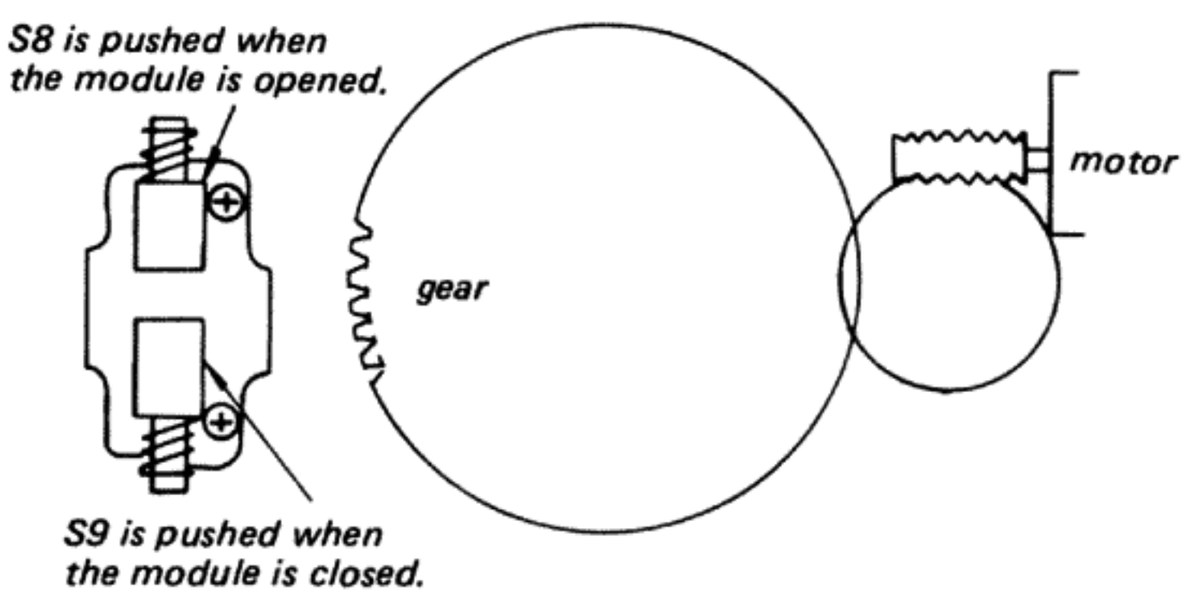

If the bottom plate is removed with the set in this position, the module will not only drop down, but also the front side of the set inclines and the tonearm will bend, because the cartridge will receive the weight of the front of the set. To avoid such damage, follow the procedures below.




- Before removing the bottom plate, disconnect the power cord from the wall outlet, because the power transformer and power supply board are mounted on the bottom plate.
  The power supply board has terminals for leads and they are always charged regardless of the status of the power switch.
  When repairing the power transformer or power supply board, it is convenient to support the set by using the holes of the frame screws.

- Although the gear and motor for sliding the module keep rotating when the power switch is turned on with the bottom plate removed, this does not indicate a break down. Follow the procedures below.

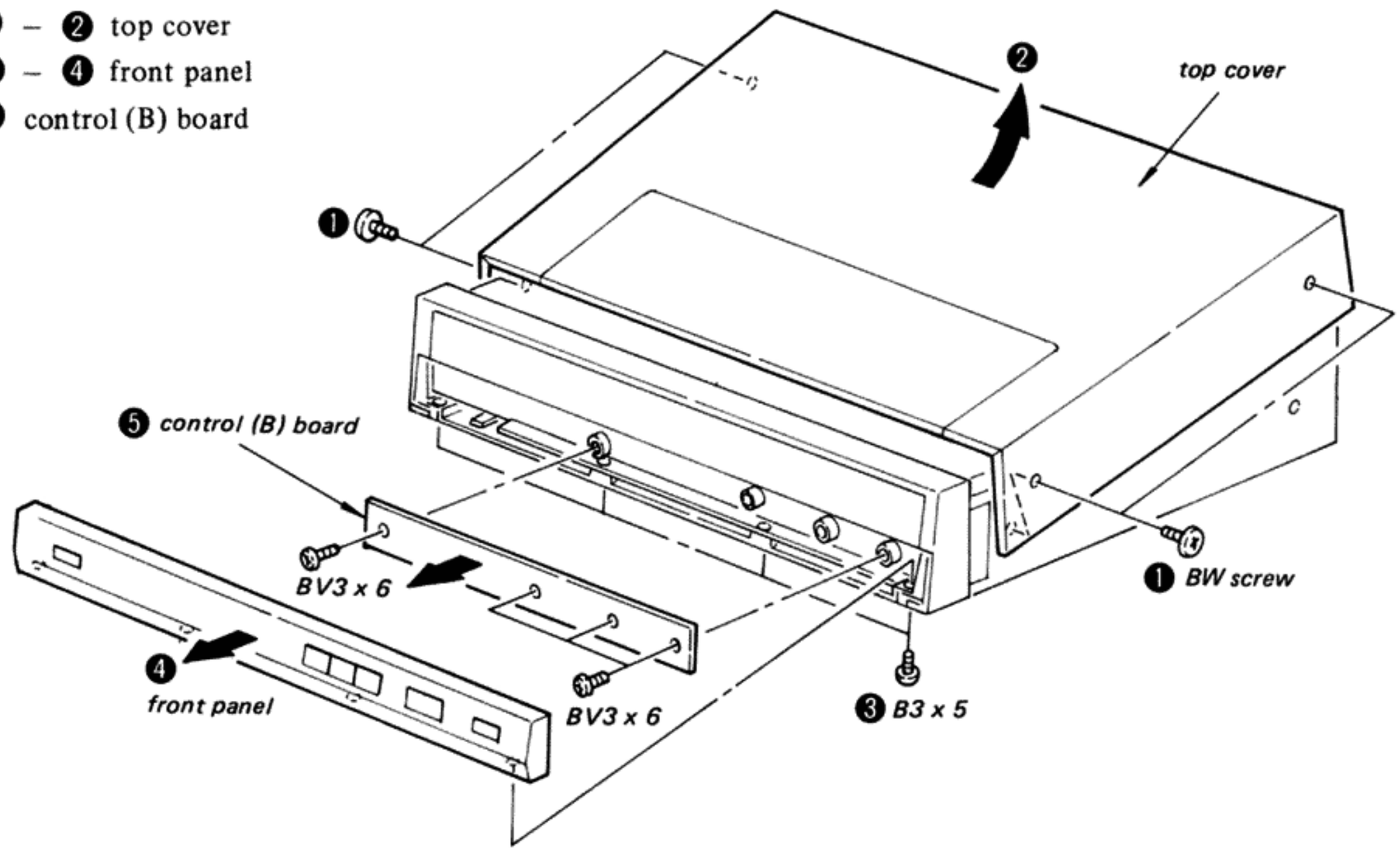



1. Before turning the power switch on, depress S9.
2. Turn the power switch on while pushing S9.
3. About 2 seconds later, release S9. (Until OPEN/CLOSE button is depressed, the computer does not see S8, 9.)

**Note:** Follow the disassembly procedure in the numerical order given.

### Top Cover/Front Panel/Control (B) Board

❶ – ❷ top cover
❸ – ❹ front panel
❺ control (B) board

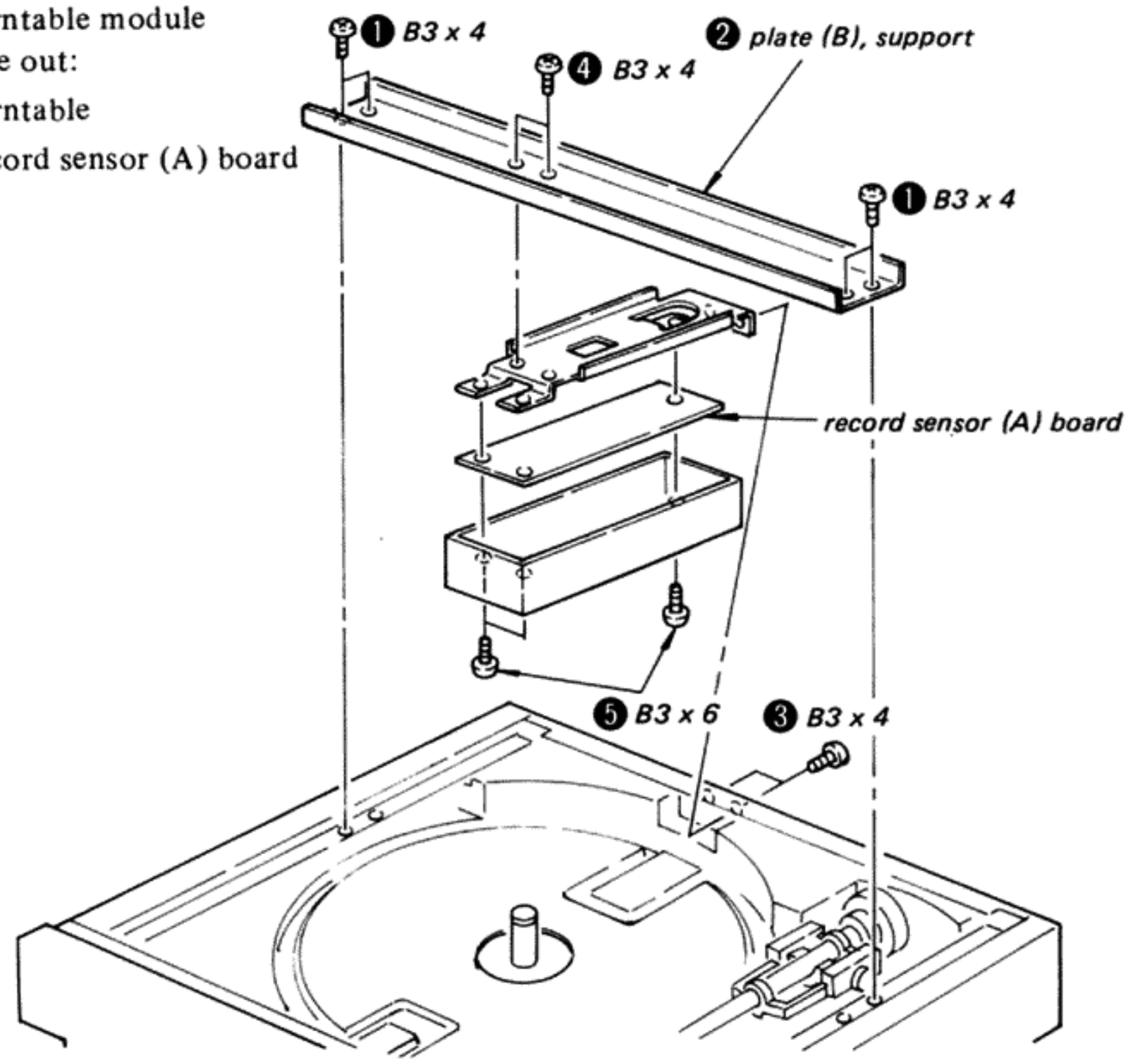



❶ – ❷

### Turntable/Record Sensor (A) Board

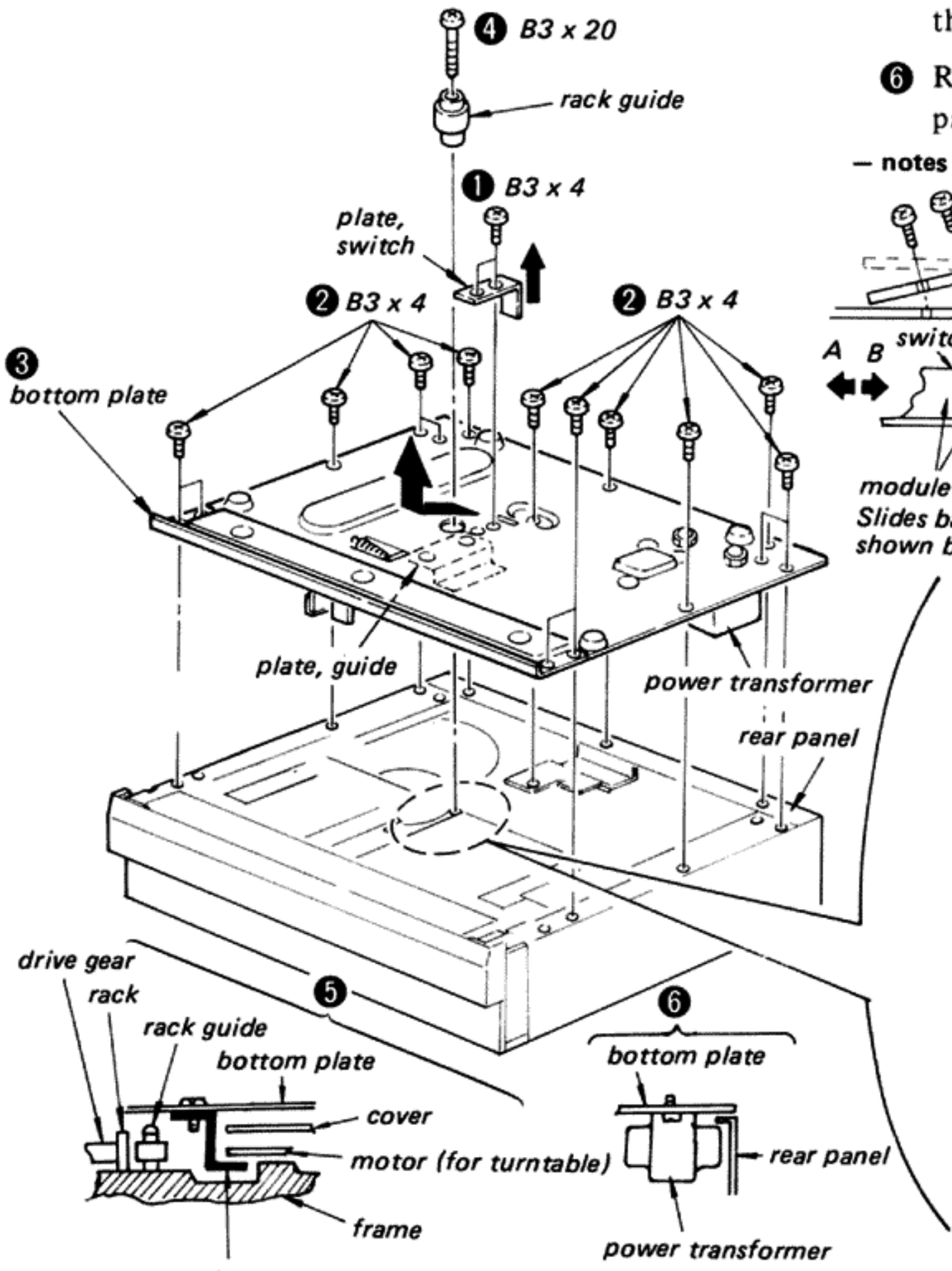
When the turntable module does not slide out:

❶ – ❷ turntable
❶ – ❺ record sensor (A) board



**Bottom Plate ····· CAUTION:** Disconnect the power cord from the wall outlet, because the power supply board is mounted on the bottom plate.

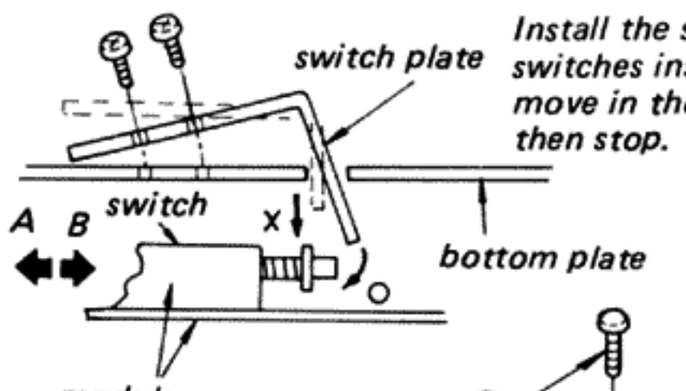
❶ – ❹ Remove the rack guide to free the rack panel.




❺ To remove the guide plate from the motor and cover, slide the bottom plate 1cm to the left as shown in the figure and lift the front side of the bottom plate.

❻ Remove the power transformer from the rear panel as shown below.

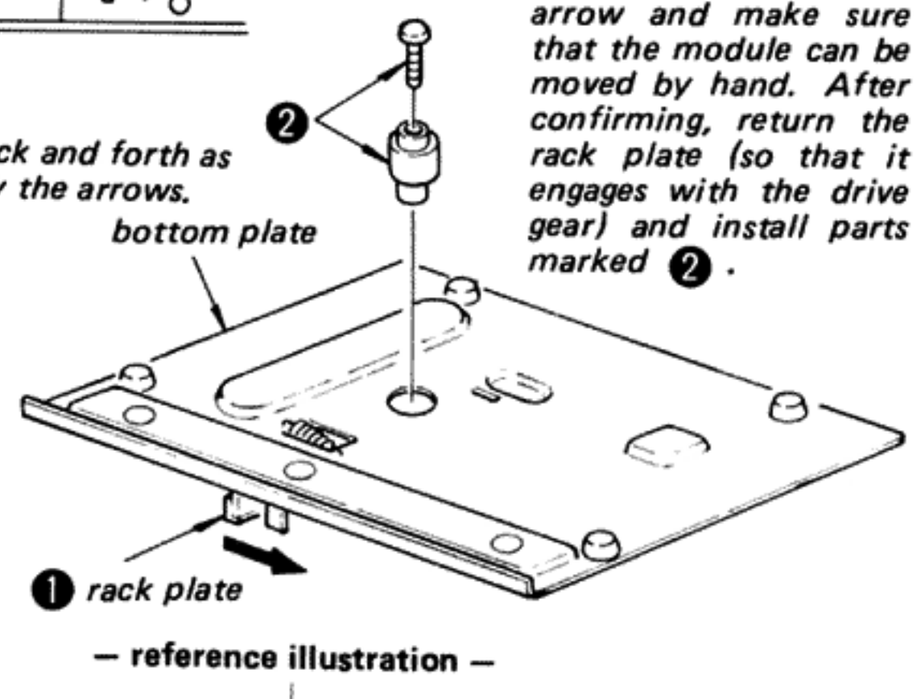
**— notes on installing the switch plate —**



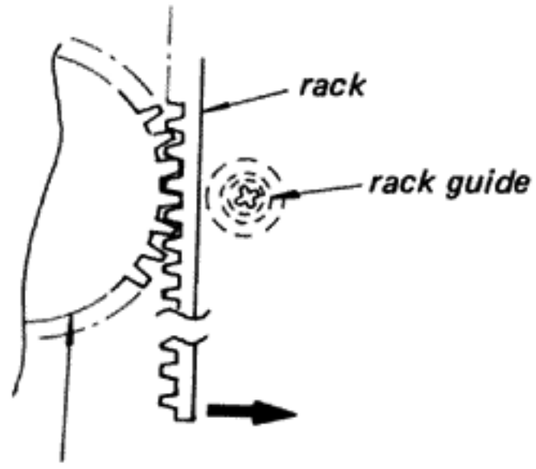

*Install the switch plate so that the switches installed on the module move in the direction of arrow B, then stop.*

**— Installation of the Bottom Plate —**

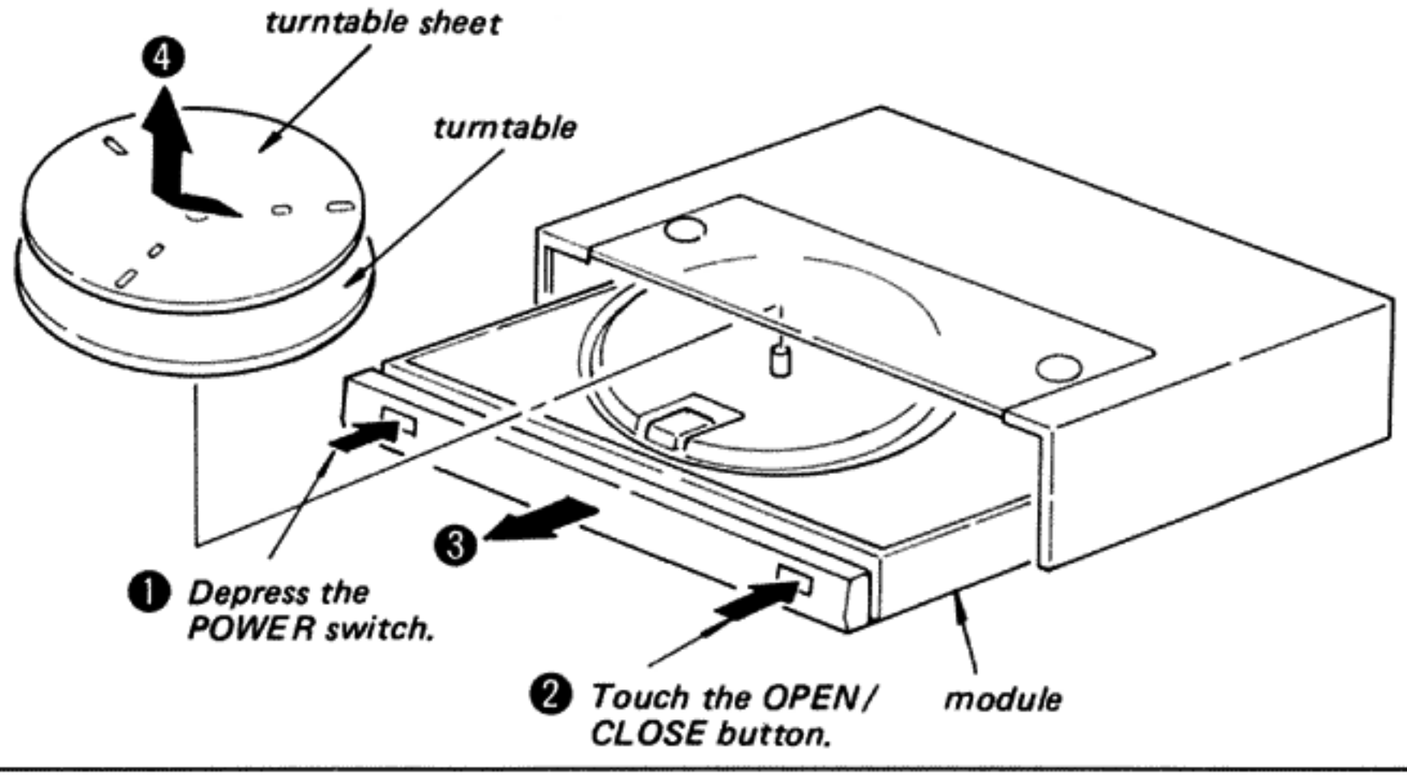
*Move the rack plate in the direction of the arrow and make sure that the module can be moved by hand. After confirming, return the rack plate (so that it engages with the drive gear) and install parts marked ❷.*




**— reference illustration —**

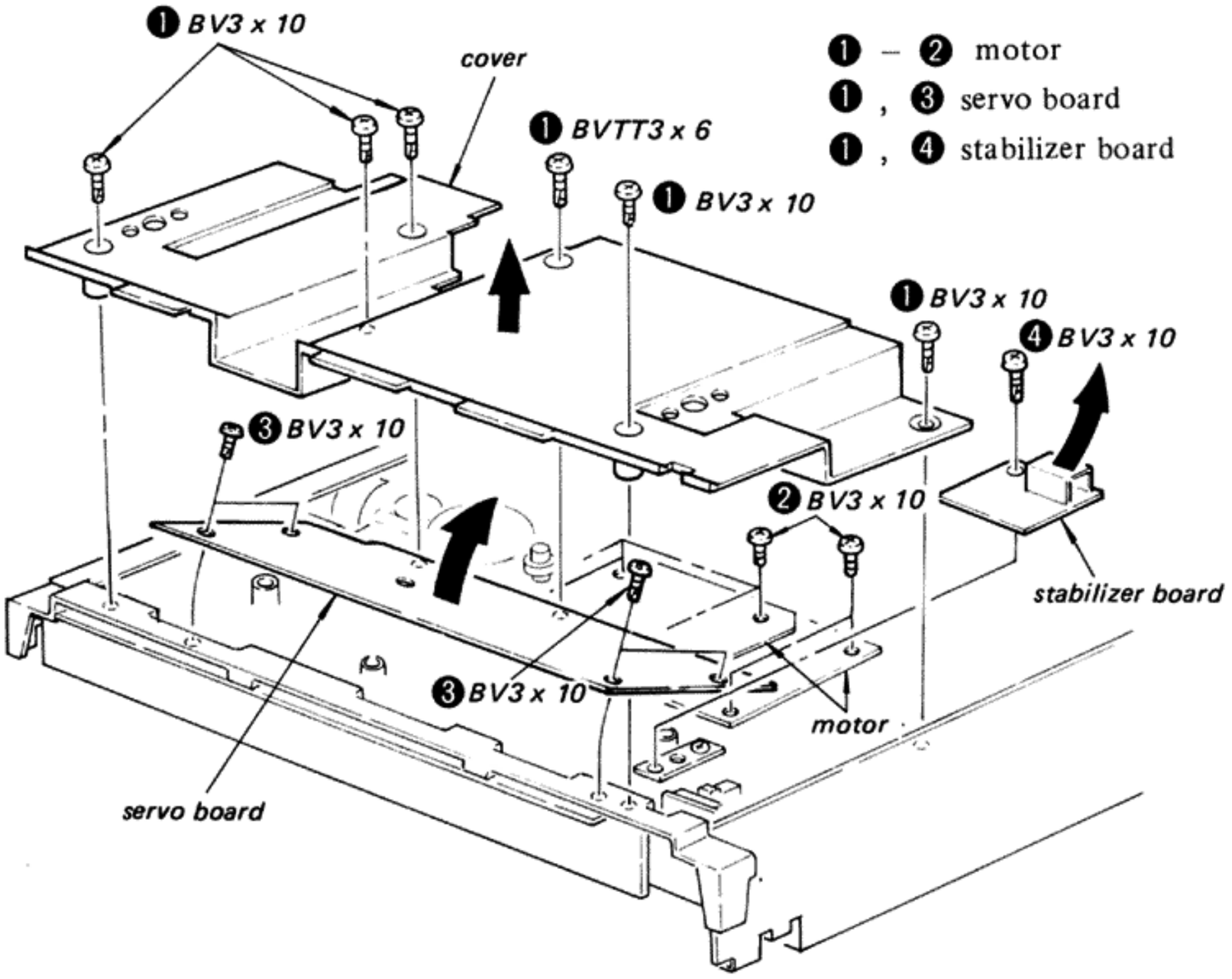



**Turntable/Turntable Sheet** **— When the module can slide out —**



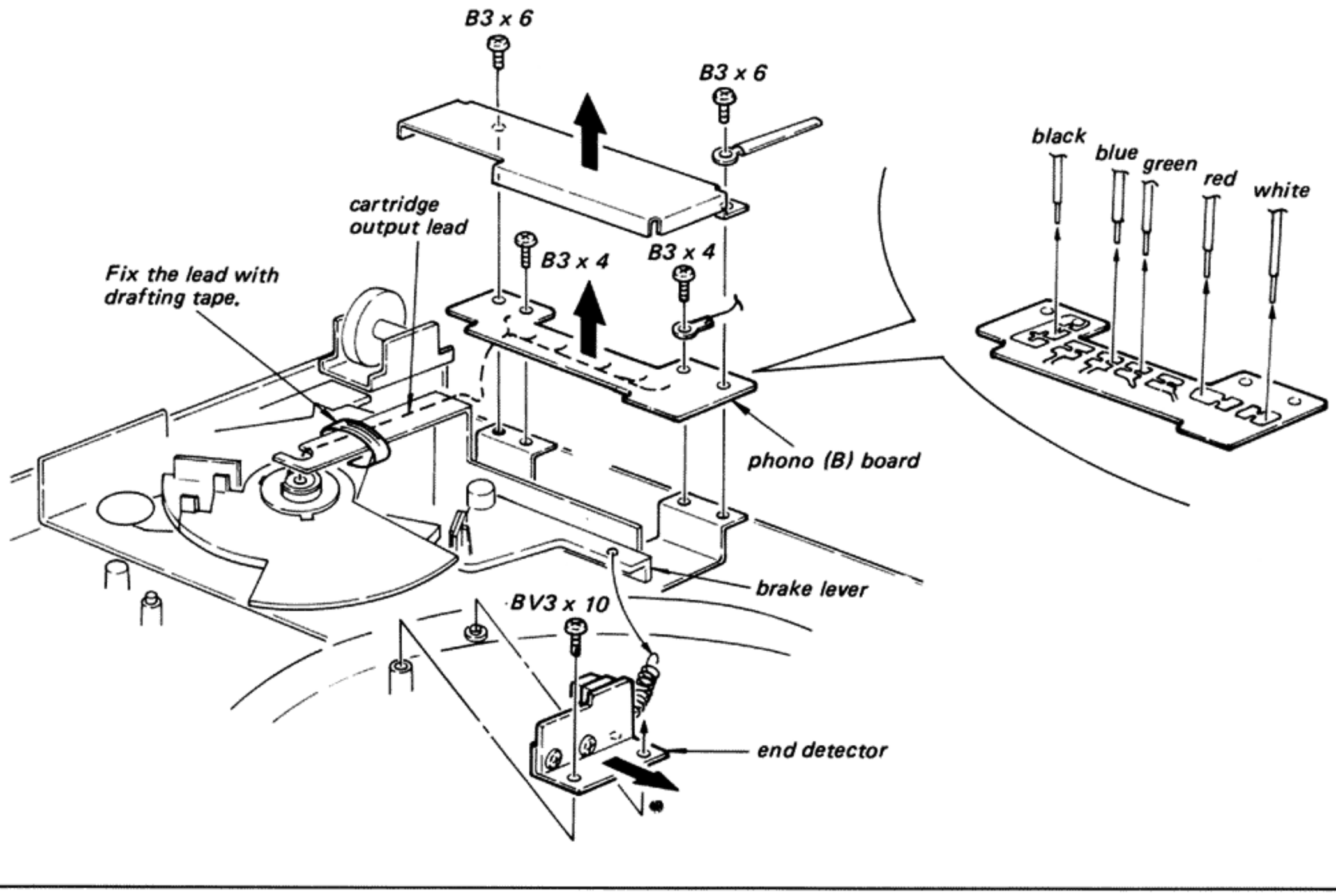

**Note:** When the module does not slide out because of troubles in the electrical section, remove the turntable after removing the top cover.

## Main Motor/Servo Board/Stabilizer Board



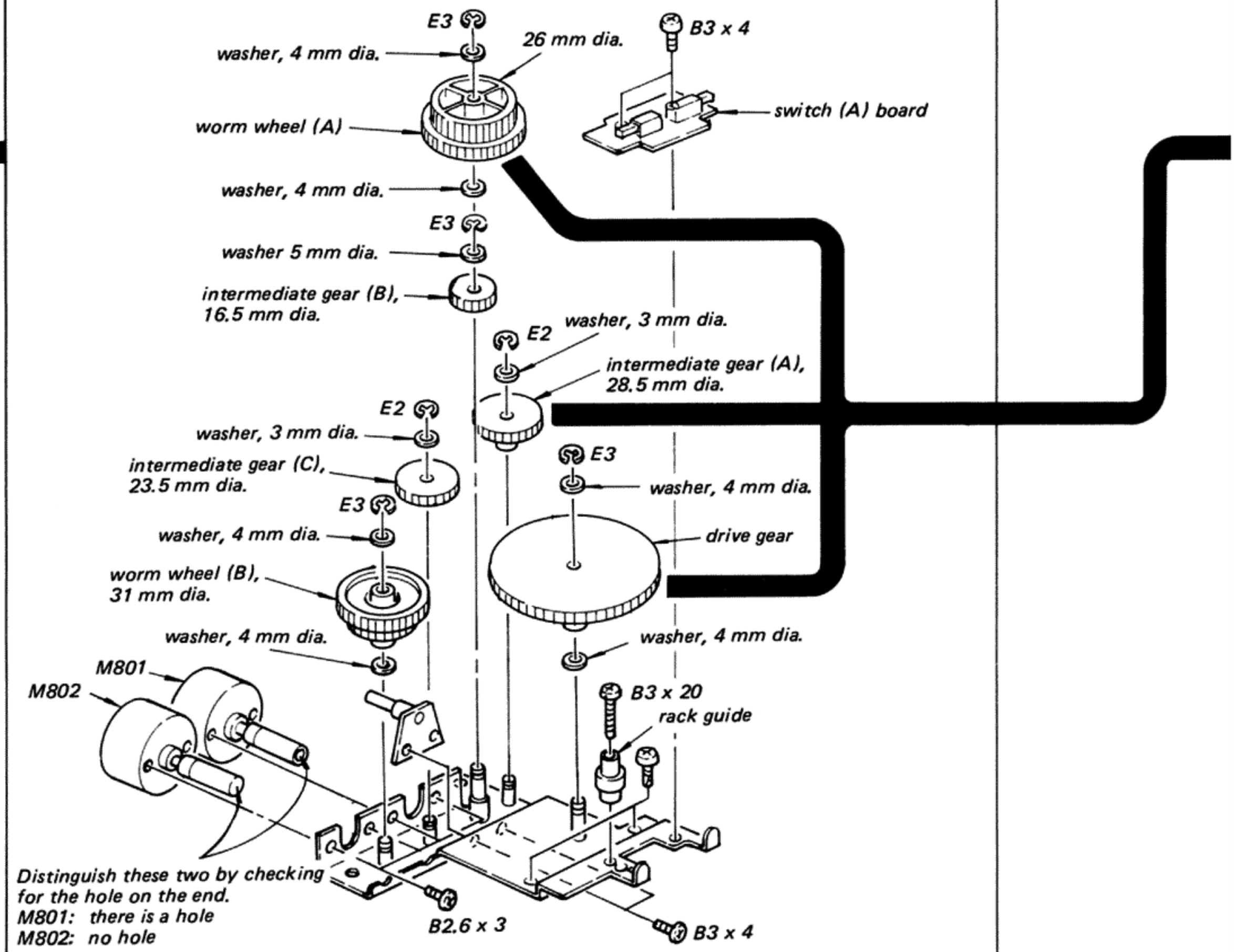

❶

## Phono Board

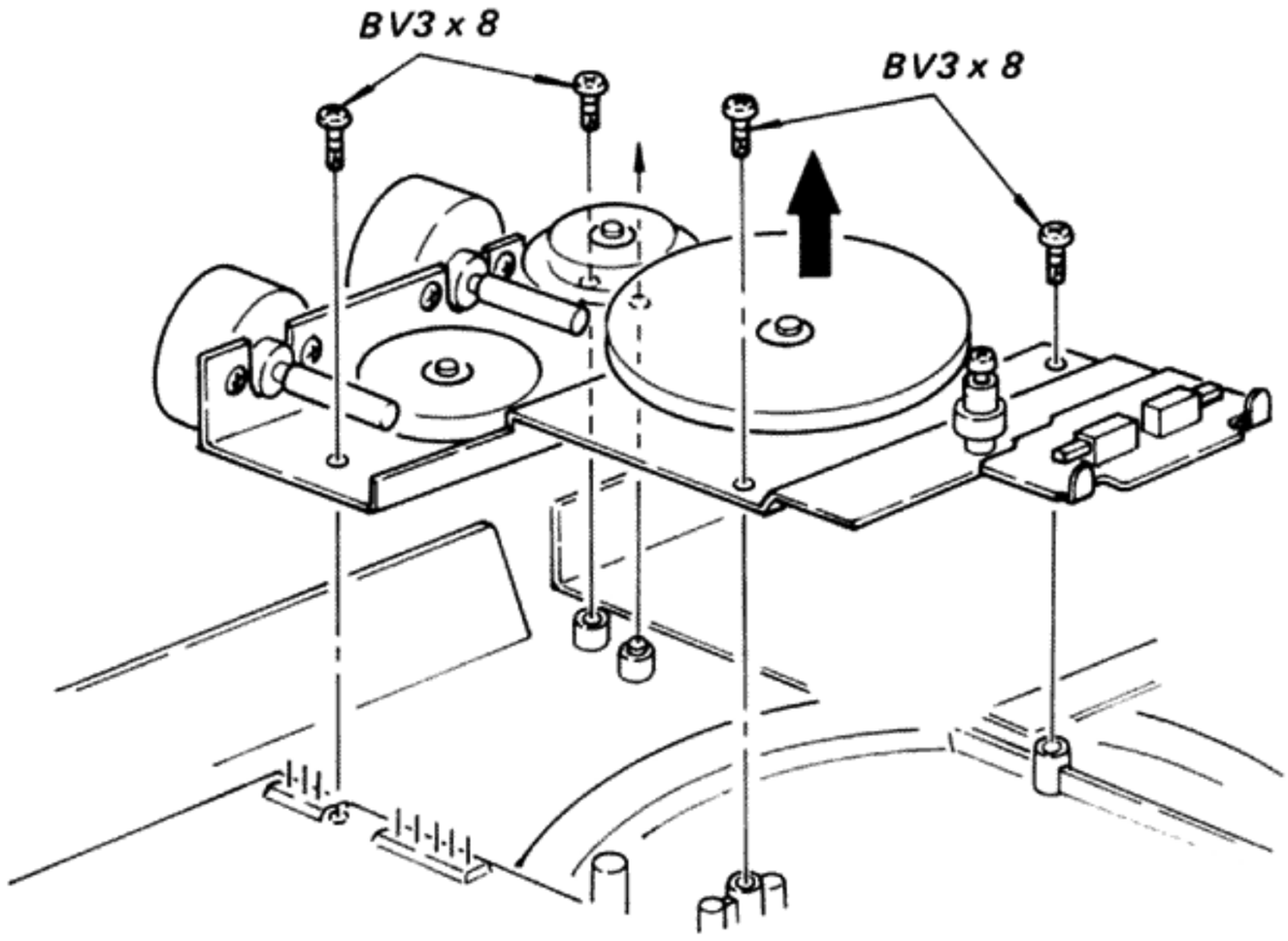


## Gears

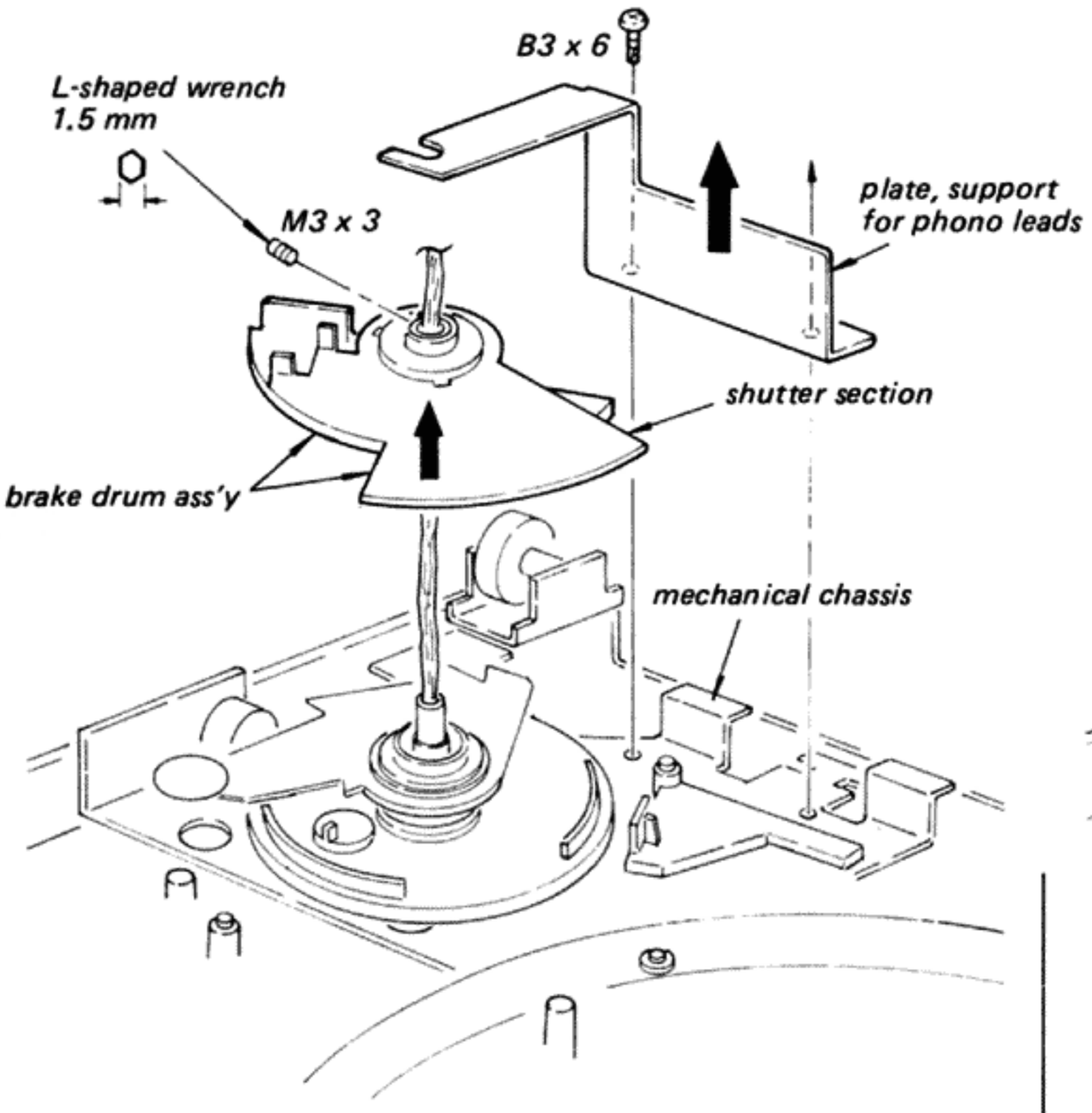
**Note:** Refer to the figure below for maximum diameters of each gear.
Module section: M801–worm wheel (A)–drive gear
Tonearm section: M802–worm wheel (B)–intermediate gear (C)–(B)–(A)–tonearm
It is not necessary to align the angle between gears, but they must engage.



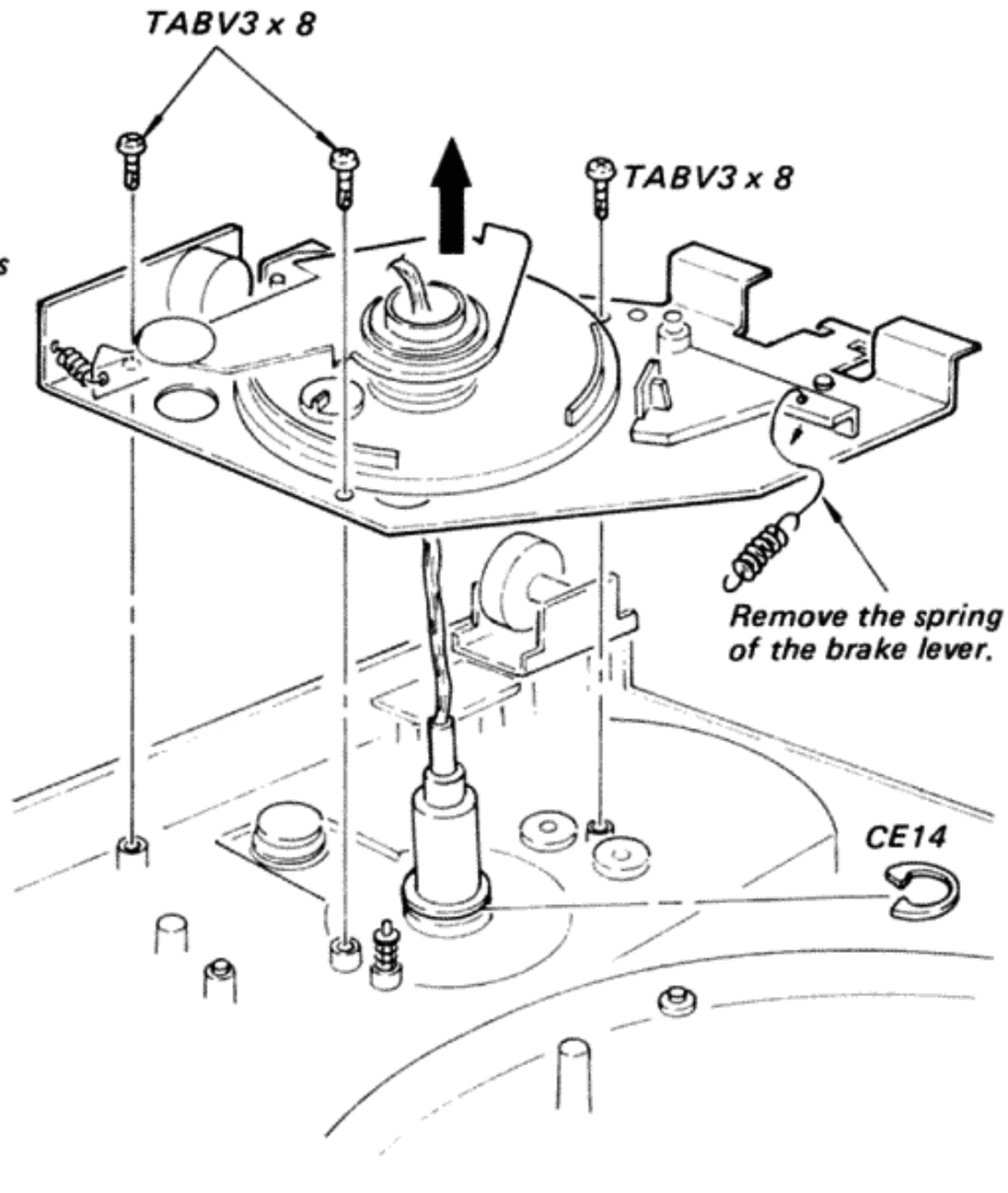

**— Removal of the Block —**



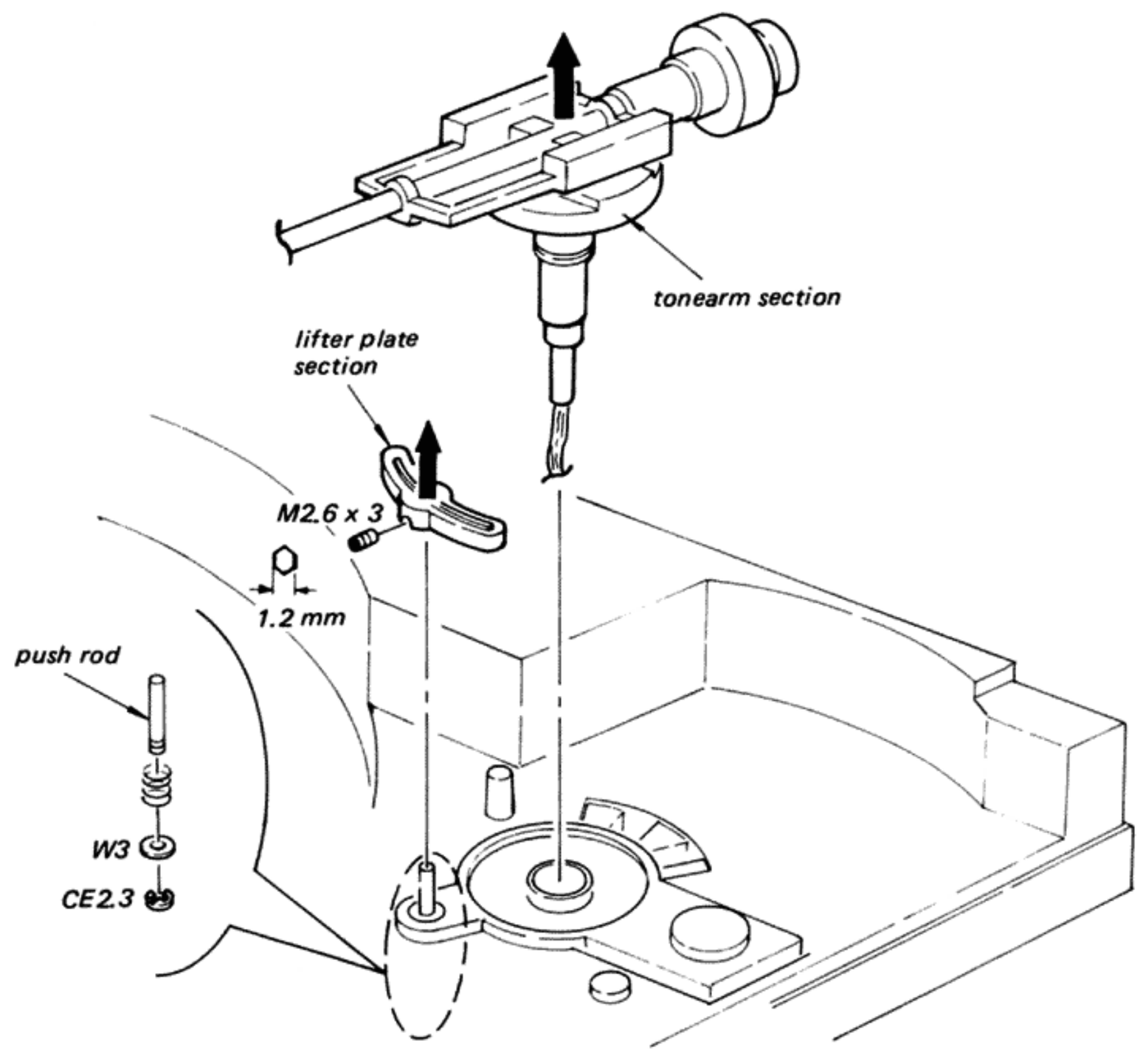
**Brake Drum . . . . . When installing, position adjustment is necessary.**



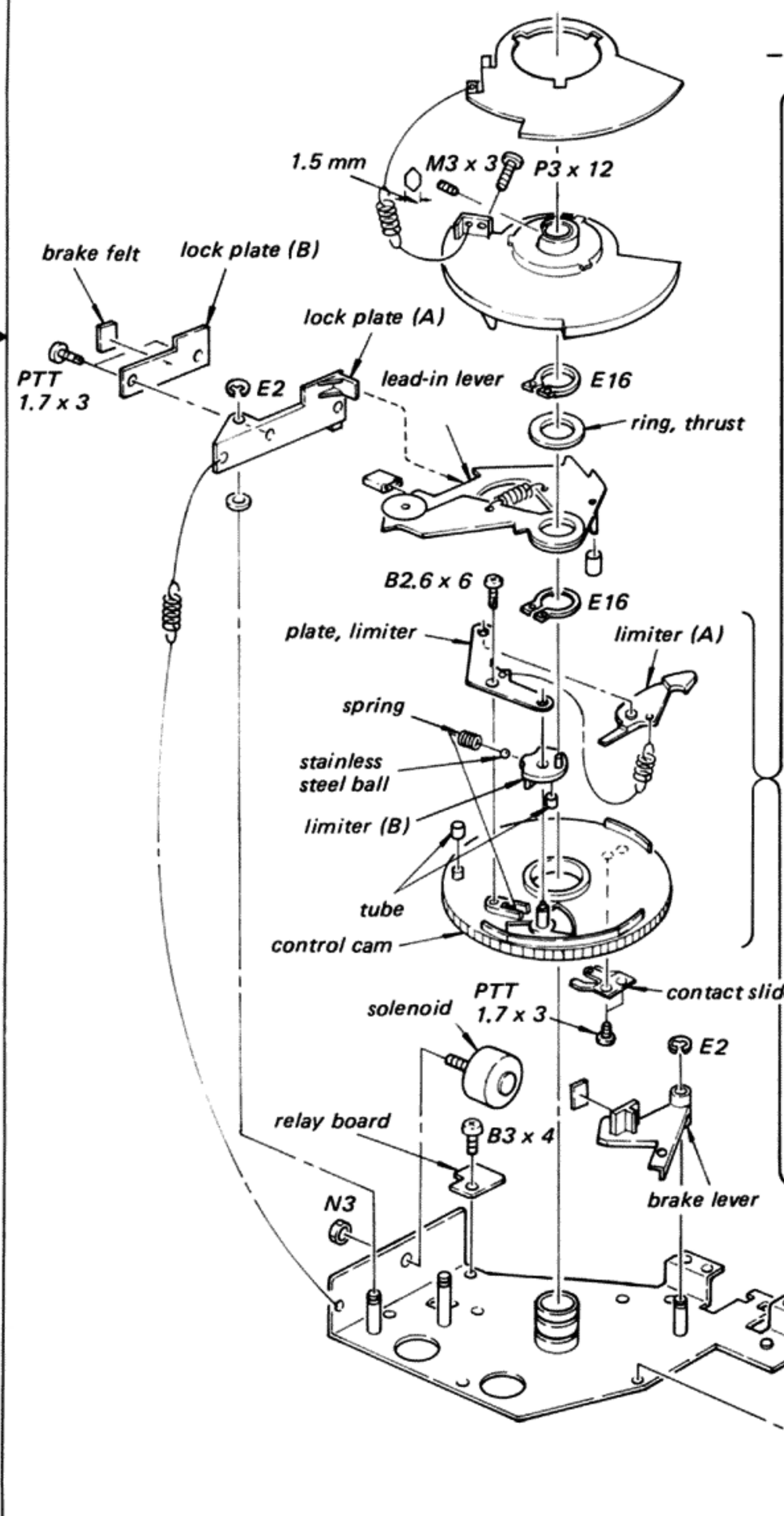

**Mechanical Chassis**



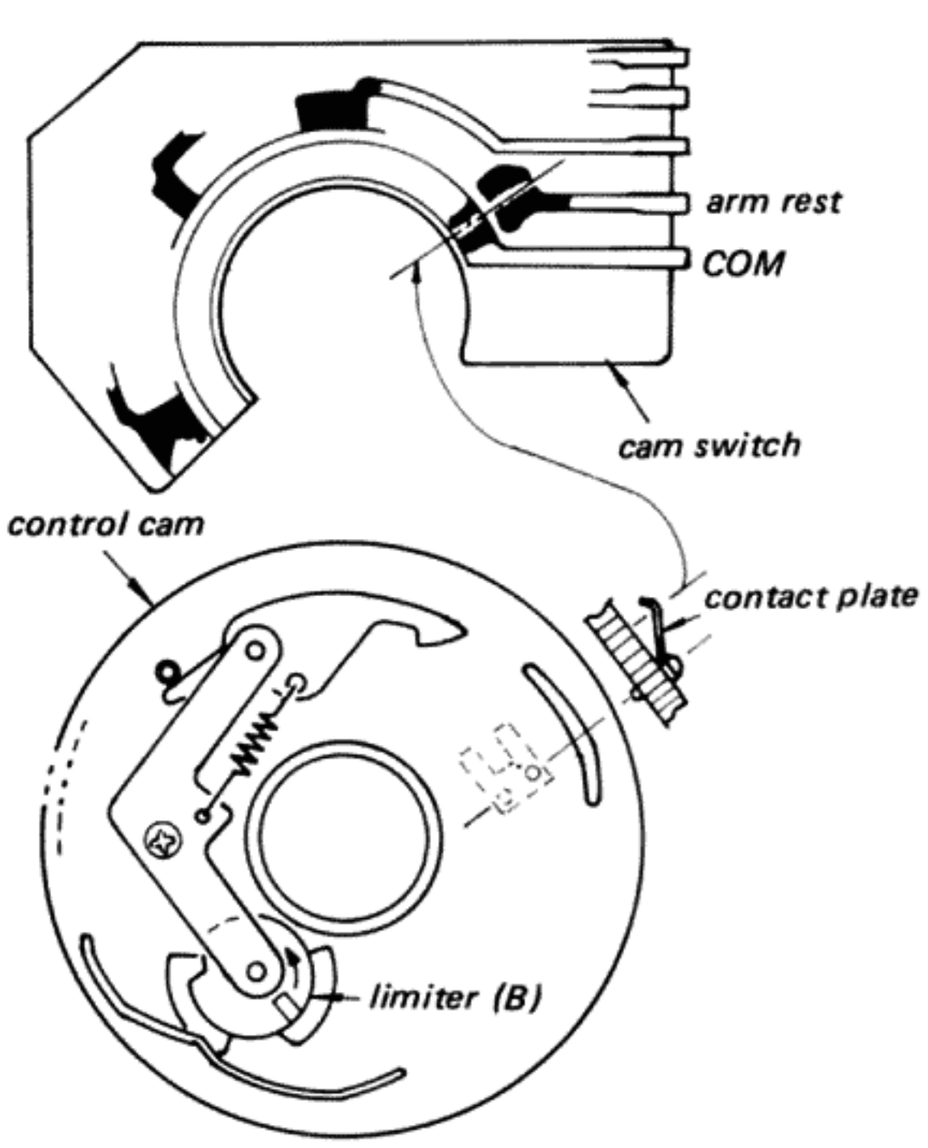

**Tonearm Section**



## Control Cam



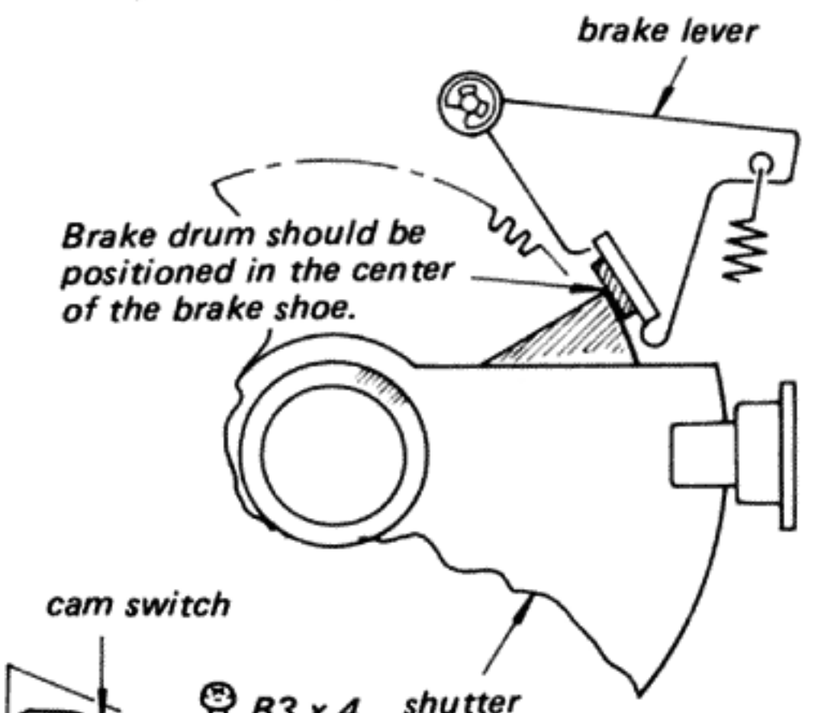

**— contact plate position when the tonearm is on the rest —**




*Turn limiter (B) in the direction of the arrow.*

**— brake shoe position when tonearm is on the arm rest —**

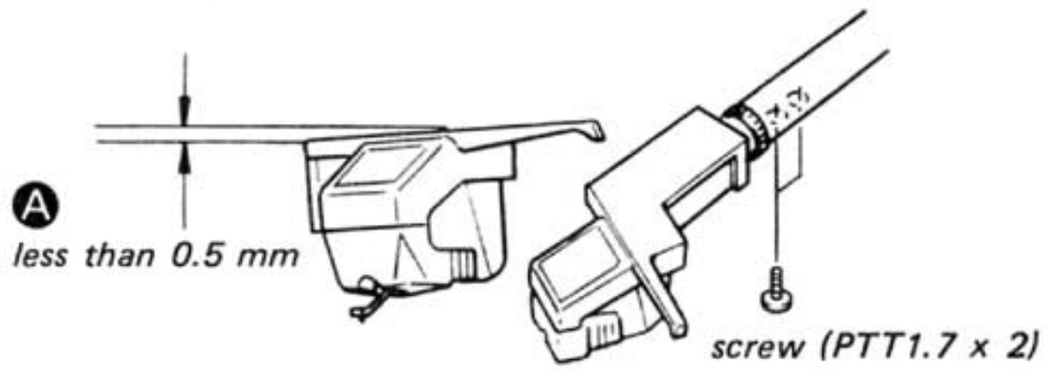
*(Return adjustment required.)*



# SECTION 3
# ADJUSTMENTS

## Shell's Horizontal Balance Adjustment

Loosen the screw on the neck cylinder so that the clearance Ⓐ is less than 0.5 mm.



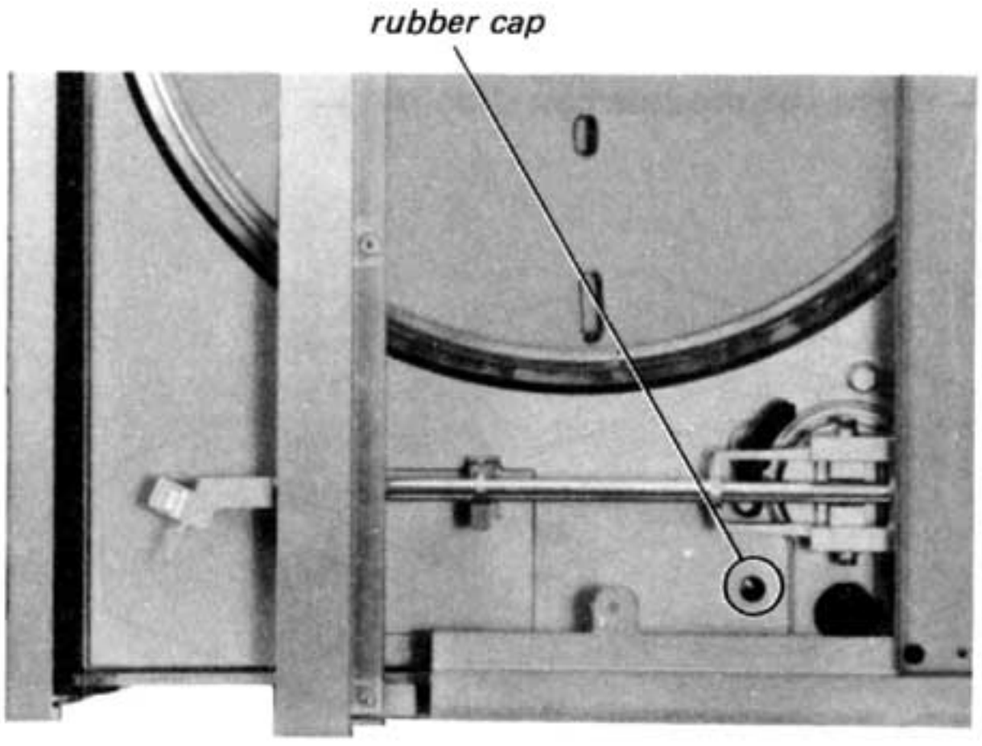

## Stylus Drop-point Adjustment

1. Remove the rubber cap.
2. Make sure that the stylus drops on the specified point of the test record.
   test record: YFSC-16

| Record size | Count of drop-point |
|---|---|
| 30 (12″) | 7 to 15 |

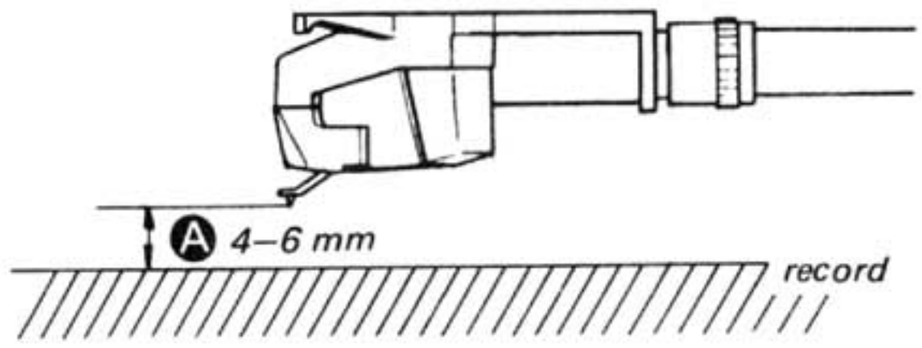
3. If necessary, insert a screwdriver into the hole and adjust the drop-point by turning the adjustment screw.
   To change the drop-point inward:
   Turn the adjustment screw slightly clockwise. (The count of the drop-point will be larger.)
   To change the drop-point outward:
   Turn the adjustment screw slightly counter-clockwise. (The count of the drop-point will be smaller.)

**Note 1:** Once it is properly adjusted with a 30 cm (12″) record, the drop-point will be correct for 17 cm (7″) records.



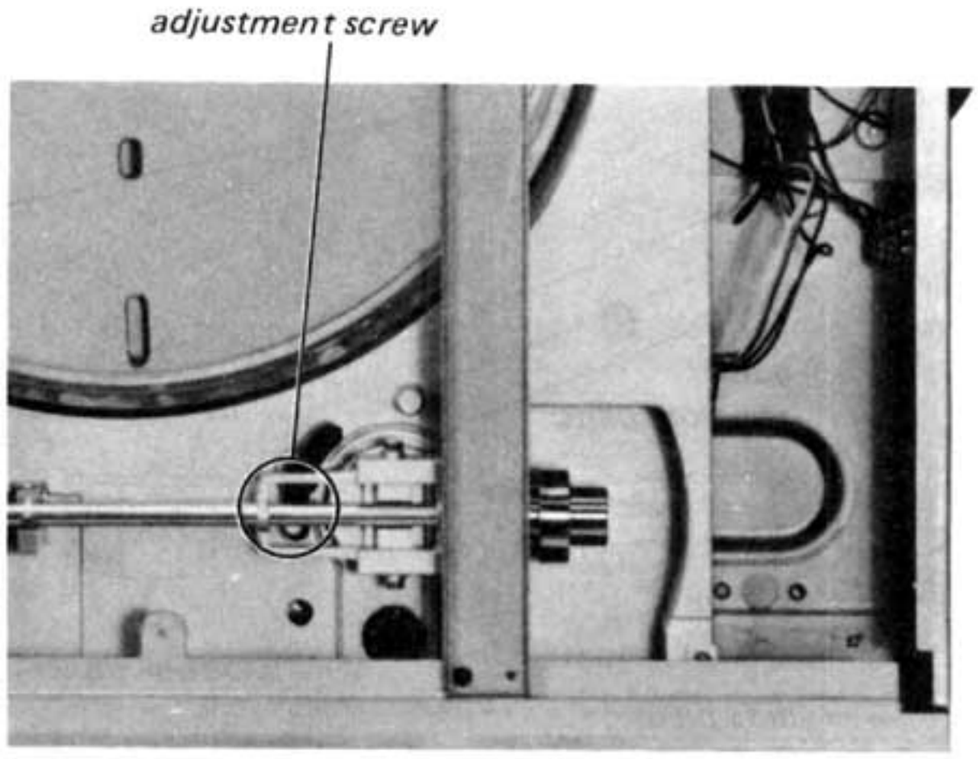

**Reference:** cartridge: XL-20
stylus force: 1.5 g
IFC knob: 1.5

## Stylus Height Adjustment




- **During auto play**

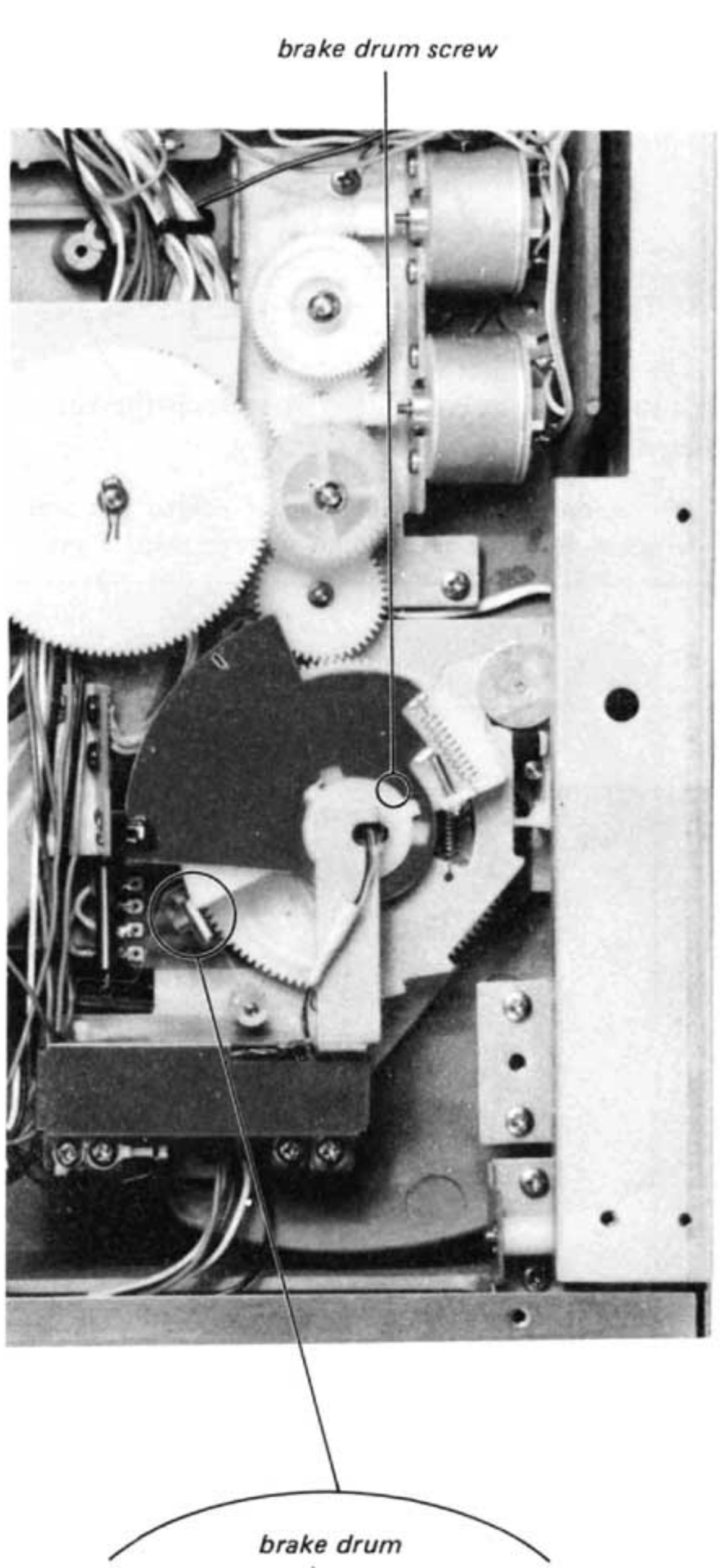
1. Put the record on the turntable and press START/STOP button for record play.
2. When the tonearm reaches the end of the record, turn the POWER switch off before it returns to the arm rest and stop the rotation of the turntable by hand.
3. Make sure that the clearance Ⓐ is 4 – 6 mm (5/32 – 1/4″). If necessary, loosen the set screw and adjust the lifter height.




**Note:** Make sure that cartridge does not touch the cabinet when the module opens.

### Brake Drum Position Adjustment

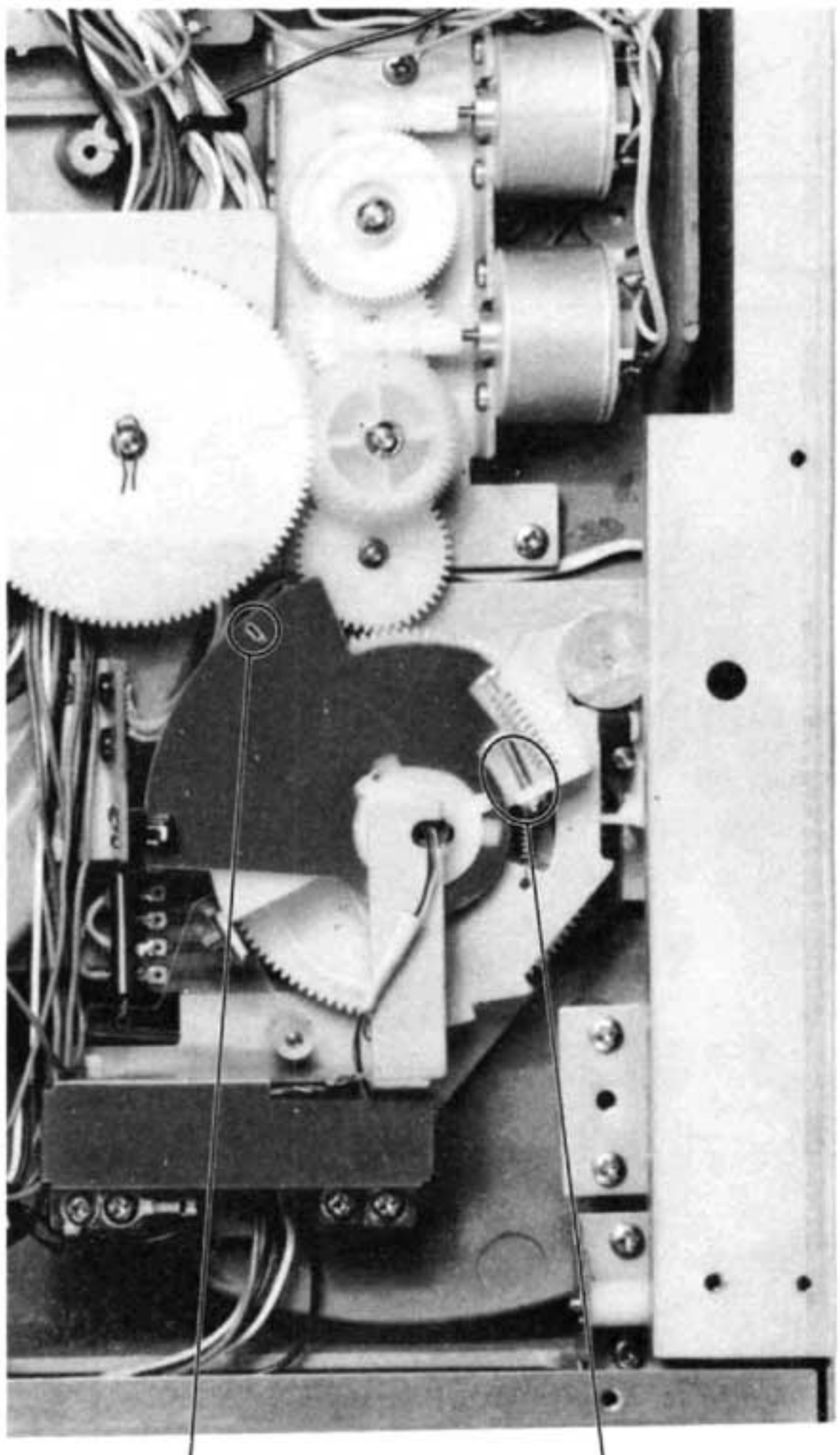
1. Lock the tonearm on the arm rest.
2. Adjust the position of the brake drum so that the edge is at the center of the brake felt.



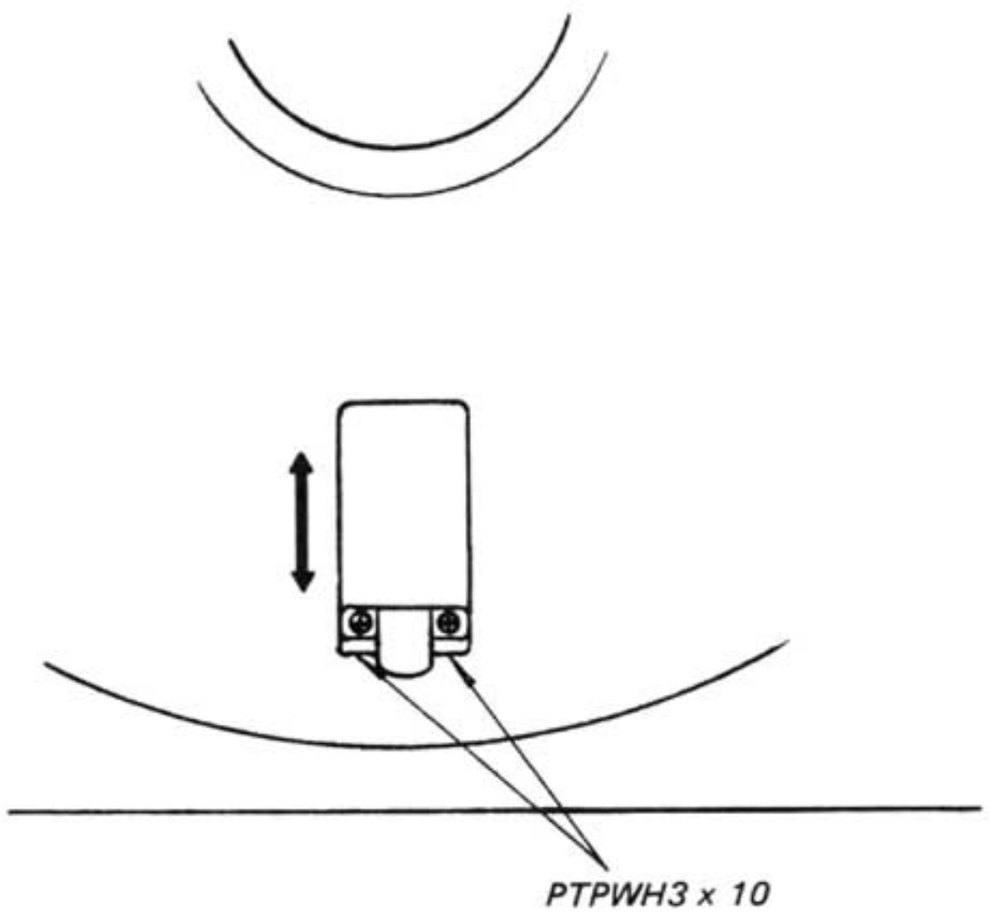

### Automatic Return Position Adjustment
(Turn the power on.)

1. Set the stylus on the groove of the test record.
2. Turn the adjustment screw so that the tonearm starts to return at count of 15 – 17.

| Turning direction | Return-point |
|---|---|
| clockwise | to the groove ↕ to the end of the record |
| counterclockwise | |



*– with the turntable removed –*

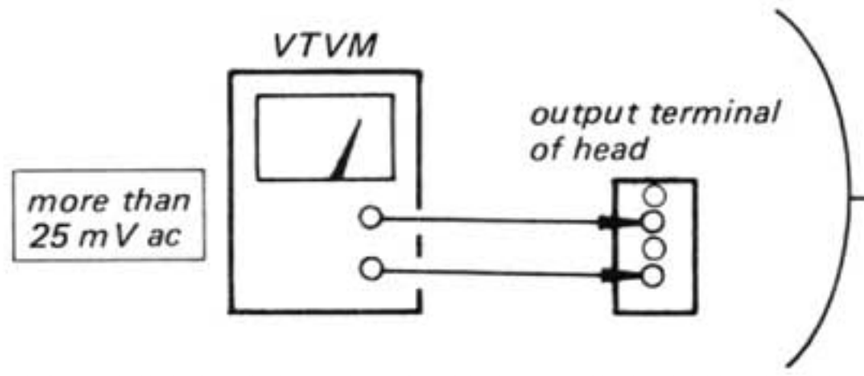



**Speed Detecting Head Output Level Adjustment**

**Setting:**

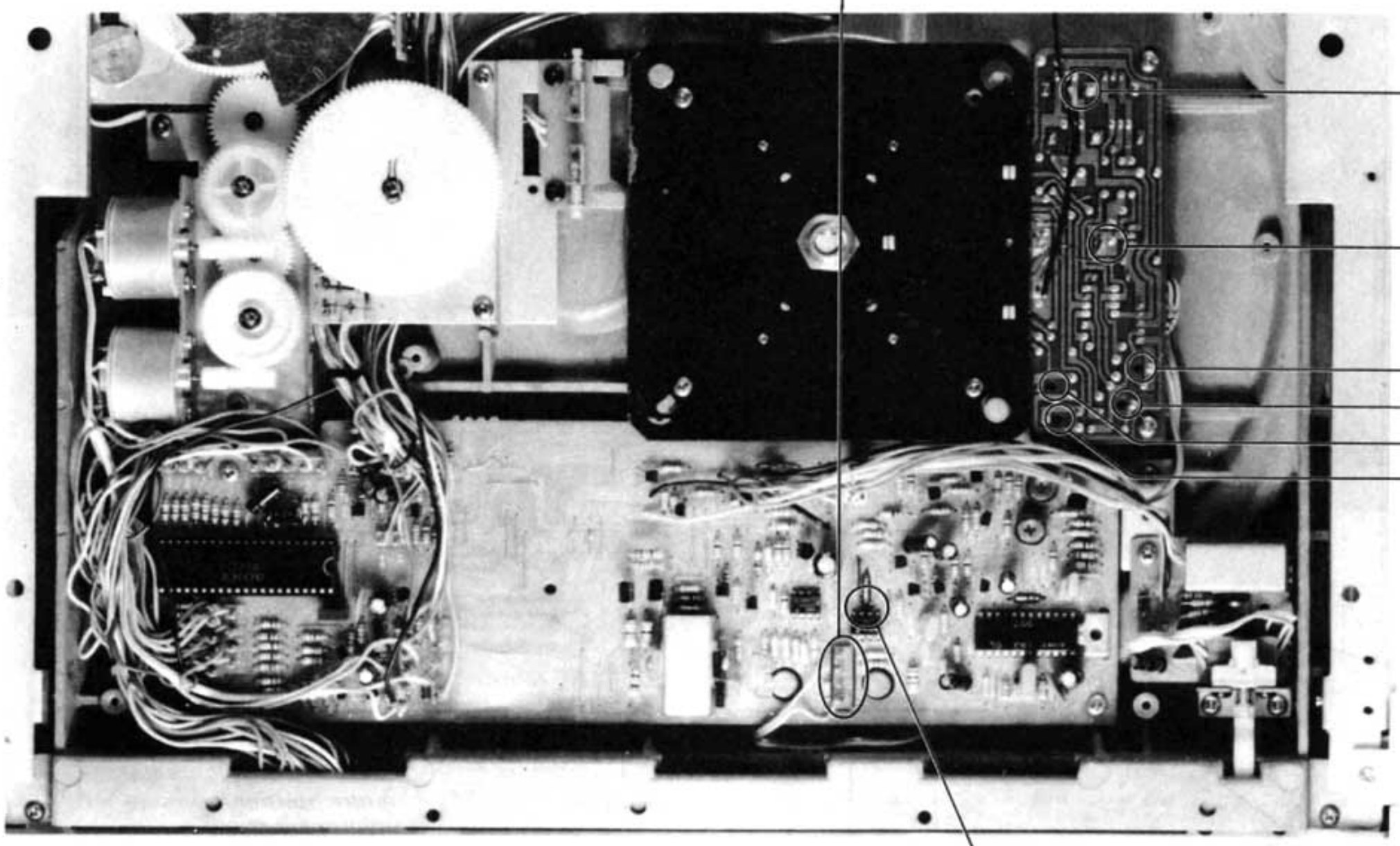
POWER switch: ON

1. Adjust the position of the head by moving it back and forth after loosening the screw (PTPWH 3 x 10) so that the VTVM reading is more than 30 mV ac at 33⅓ rpm.




2. Make sure that the head does not touch the turntable and tighten the screws securely.

**Note:** The clearance between the magnet coated rim and the speed-detecting head should be more than 0.3 mm.



**Gain/Offset Adjustment**

Remove the turntable, turn POWER switch on.

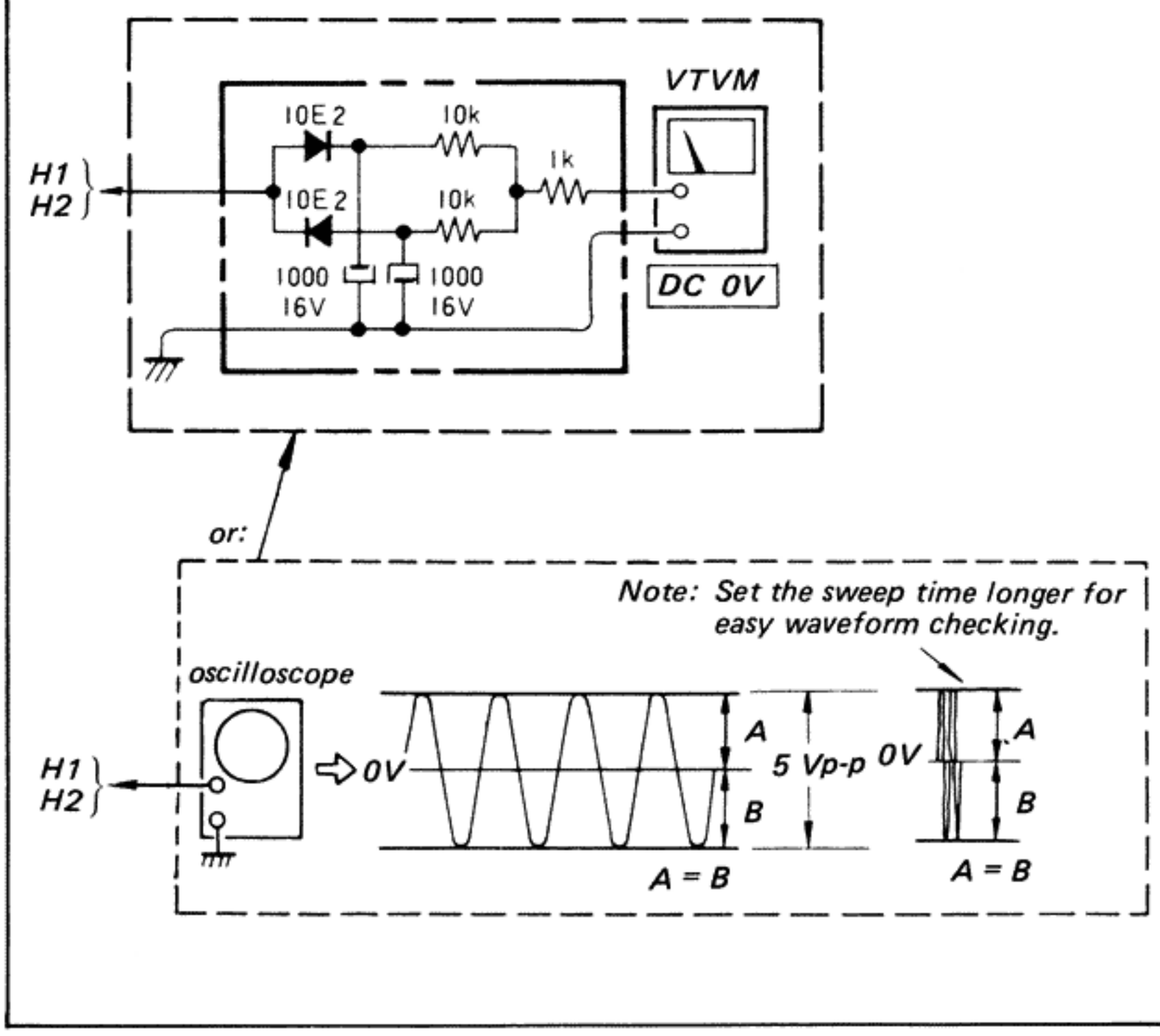
1. Connect dc power supply to IC202 ❷ via a variable resistor (about 100 kΩ). Adjust the variable resistor so that terminal voltage is 2 V.

**Gain adjustment:**

2. Connect an oscilloscope to Q301, 302 (H1) and adjust RV302 (H1) for 5 Vp-p reading on the oscilloscope.
3. Connect an oscilloscope to Q303, 304 (H2) and adjust RV301 (H2) for 5 Vp-p reading on the oscilloscope.

**Offset adjustment:**

4. Connect VTVM or an oscilloscope to Q301, 302 (H1) and adjust RV303 for 0 V dc VTVM reading or for the waveform on the oscilloscope as shown below.
5. Connect VTVM or an oscilloscope to Q303, 304 (H2) and adjust RV304 for 0 V dc VTVM reading or for the waveform on the oscilloscope as shown below.



**Speed Adjustment**

**Setting:**

POWER switch: ON

1. Set the SPEED to 45 rpm.
2. Connect an oscilloscope to IC201 ㉑
3. Adjust RV202 for specified waveform on the oscilloscope as shown below.

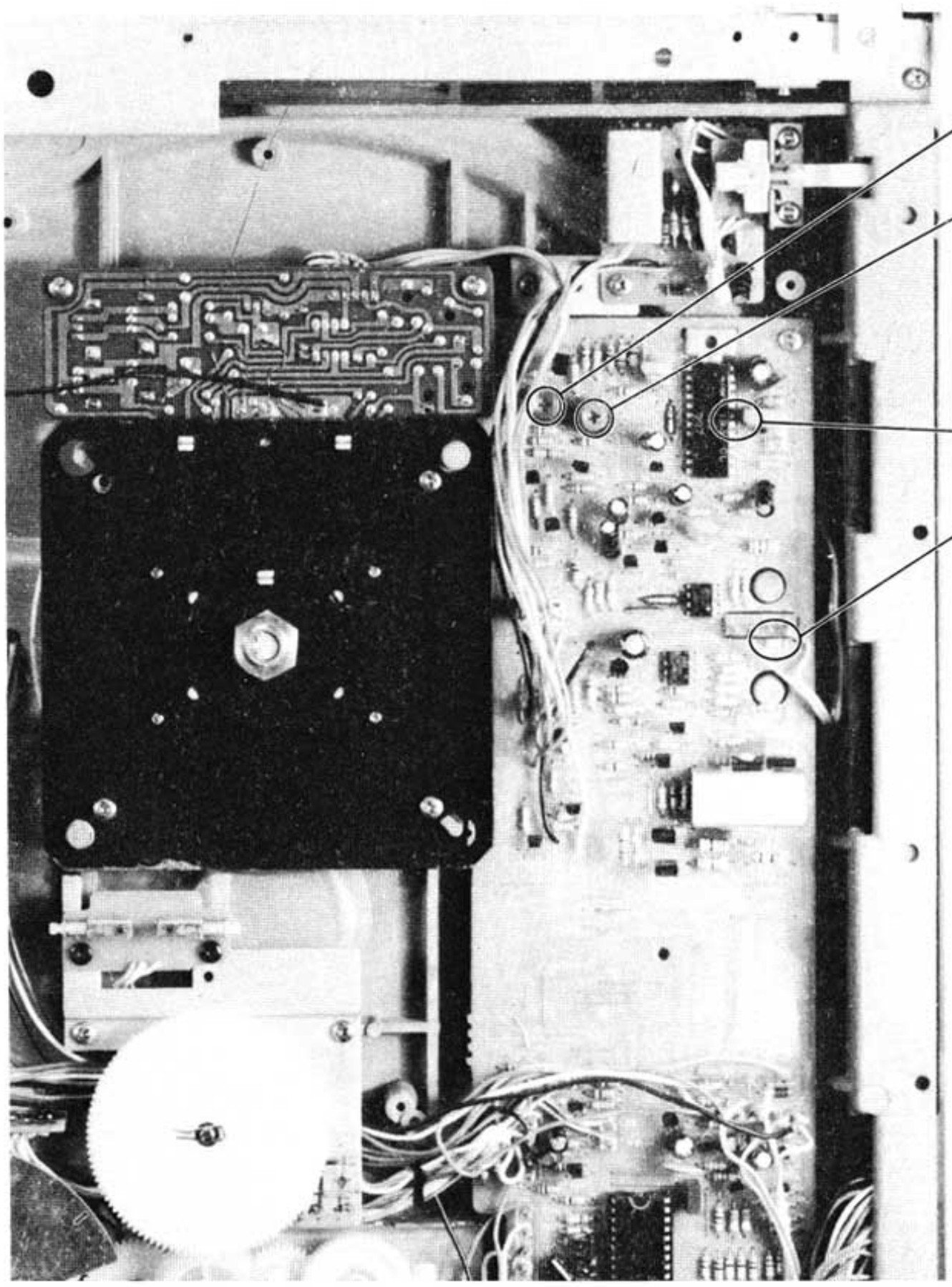
*100 – 300 µsec*

**Note:** The waveform should not appear on the negative side.

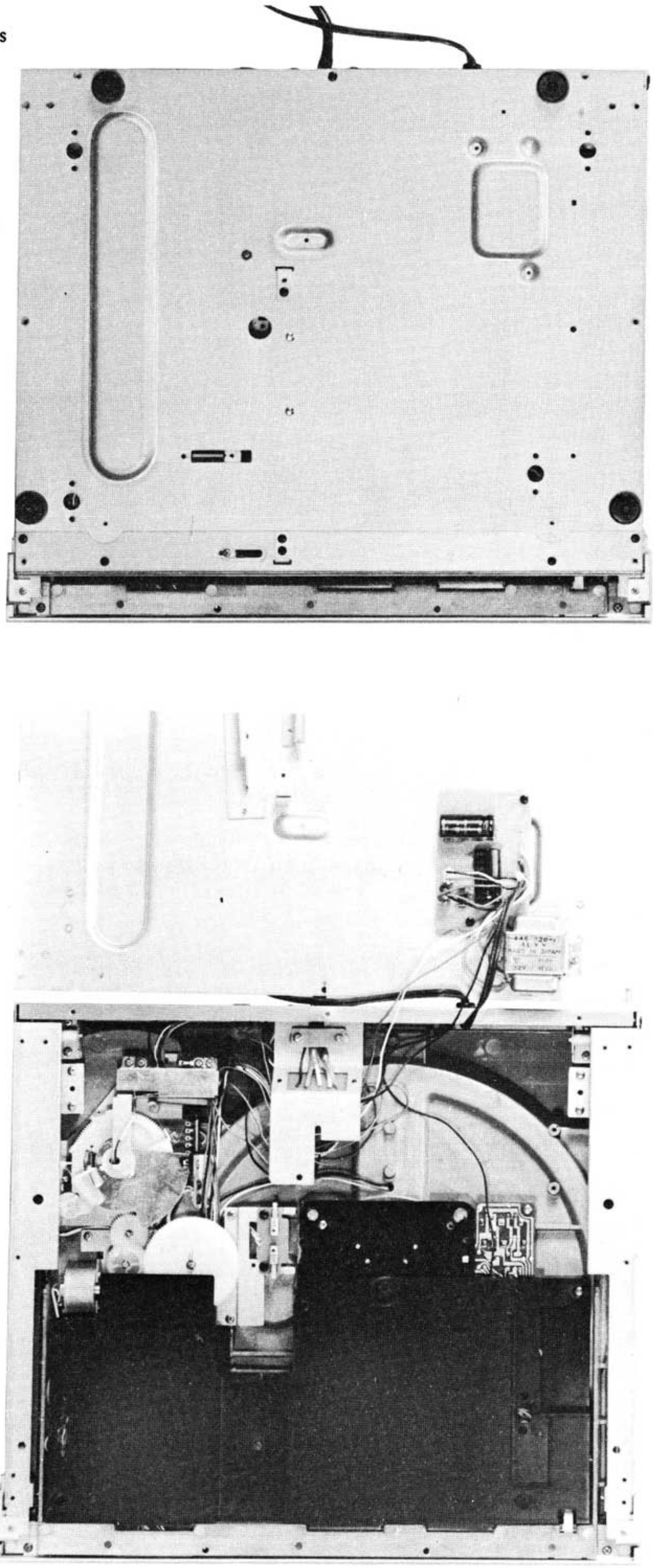
4. Set the SPEED to 33 rpm.
5. Adjust RV201 for specified waveform on the oscilloscope as shown below.

*100 – 300 µsec*

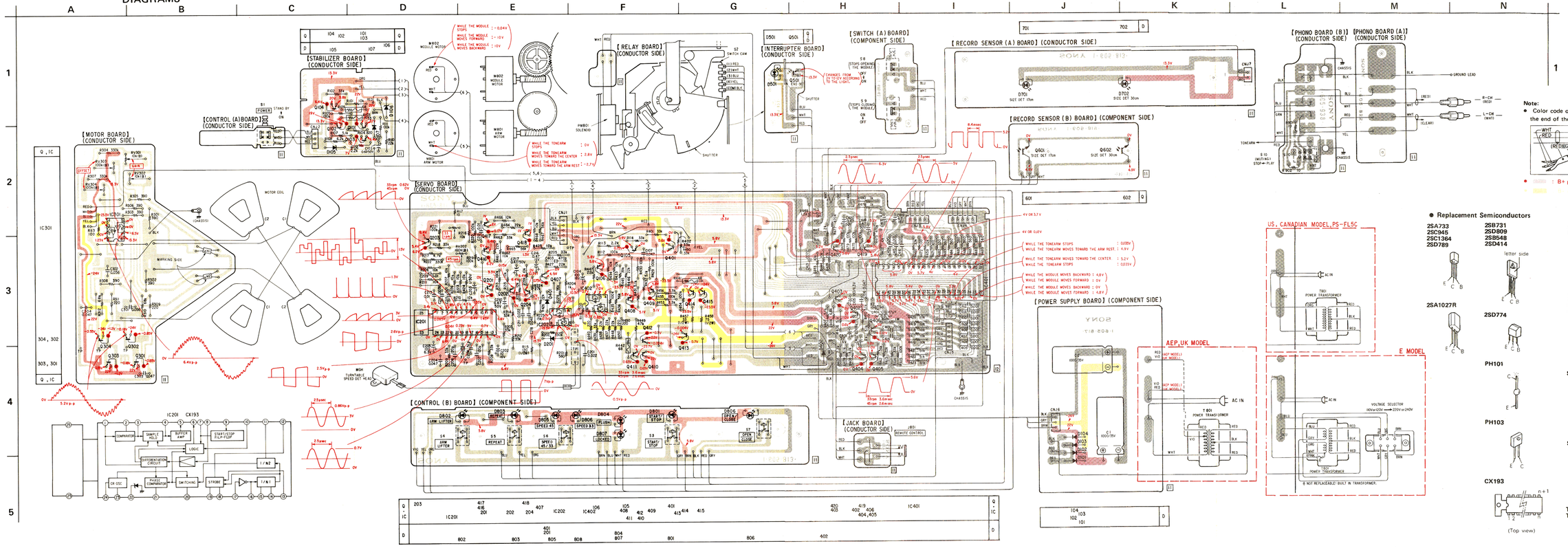
**Note:** The waveform should not appear on the negative side.



- **Reference Photographs**



# MEMO




● Replacement Semiconductors

2SA733
2SC945
2SC1364
2SD789

2SA1027R

2SB731
2SD809
2SB548
2SD414

2SD774

PH101

PH103

CX193

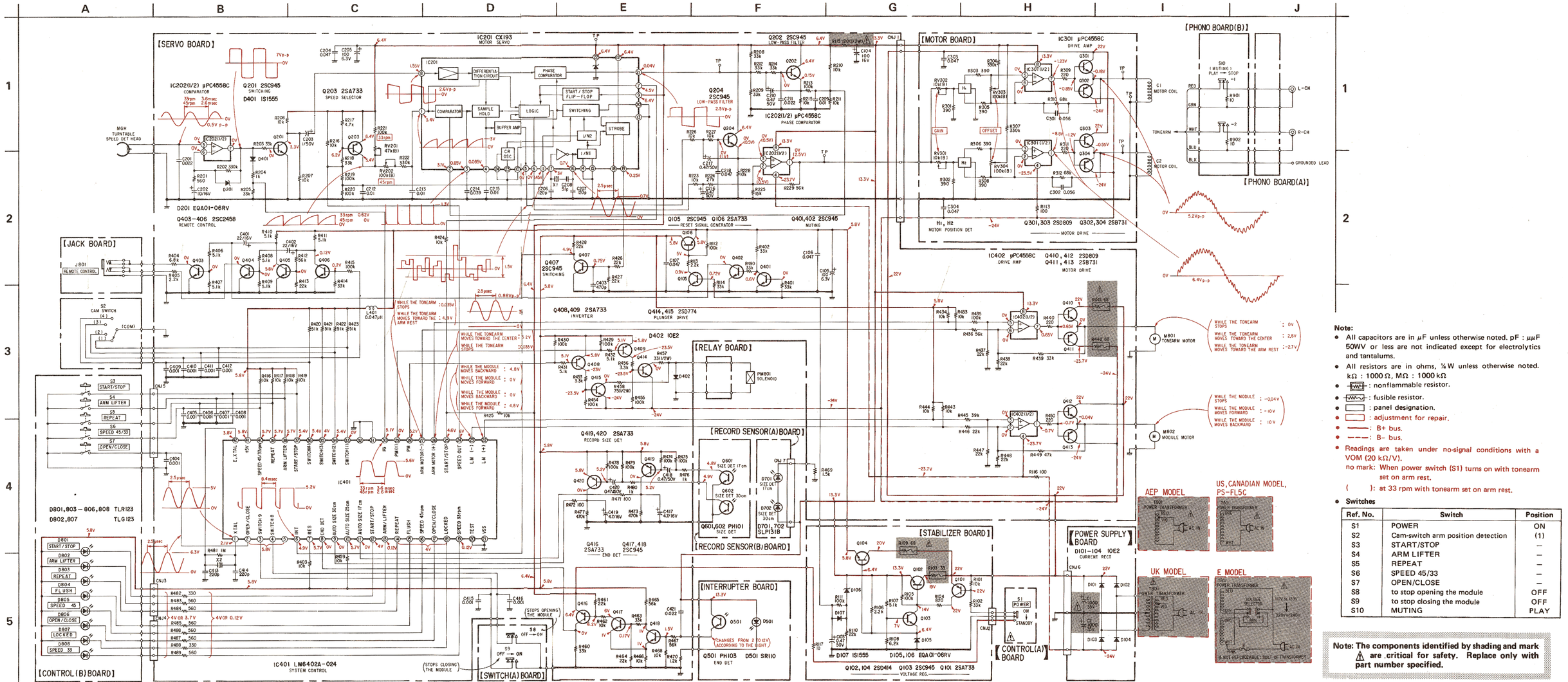
μPC4558C
LM6402A024

1S1555
10E2
EQA01-06
EQA01-06RV

SLP131B

SR110

TLG123
TLR123




**Note:**

- All capacitors are in μF unless otherwise noted. pF : μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repair.
- : B+ bus.
- : B- bus.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  no mark: When power switch (S1) turns on with tonearm set on arm rest.
  ( ): at 33 rpm with tonearm set on arm rest.
- Switches

| Ref. No. | Switch | Position |
|---|---|---|
| S1 | POWER | ON |
| S2 | Cam-switch arm position detection | (1) |
| S3 | START/STOP | — |
| S4 | ARM LIFTER | — |
| S5 | REPEAT | — |
| S6 | SPEED 45/33 | — |
| S7 | OPEN/CLOSE | — |
| S8 | to stop opening the module | OFF |
| S9 | to stop closing the module | OFF |
| S10 | MUTING | PLAY |

**Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.**

# SECTION 5
# EXPLODED VIEWS AND PARTS LIST

A B C D

(2)

1 2 3 4 5


113
523
510
141
527
36
115
143
141
143
161
140
141
144
141
32
108
143
106
140
107
91
141
83
121
105
142
132
97
66
110
122
150
24
518
503
16
509
119
141
182
Black Lead
1.5 m
J801
56
181
73
519
180
532
216
215
109
120
141
104
140
142
66
97
132

# PS-FL5/FL5C


A
B
C
1
2
3
4
5
(3)
174
515
140
103
10
155
60
132
96
11
152
MGH
69
123
524
167
156
13
2
1
35
23
52
53
51
46
225
27
164
129
17
176
155
81
169
22
82
133
8
94
160
59
131
163
136
25
168
501
55
28
31
77
502
159
531
6
138
80
151

A B C D

1 2 3 4 5

(4)


132
11
63
11
12
132
131
61
131
9
37
9
62
132
11
64
11
170
M801
M802
102
151
158
130
141
9
132
11
65
11
151
146
151
99
171
152
66
67
132
68
152
66
152
70
118
152
70
150
512
505
513
504
506
507
7
100
7
516
530
150
152
70
208
202
224
210
223
201
152
100
521
152
70
150

# PS-FL5/FL5C


A
B
C
1
2
3
4
5
(5)
165
139
13
34
38
162
157
131
49
143
14
101
141
529
S10
135
48
166
34
50
39
152
9
5
20
143
45
149
135
44
42
33
76
528
95
141
179
34
S2
43
21
47
PM801
157
131
162
141
151
40
178
520
57
147
151
172
26
29
114
141

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 1 | 2-203-518-31 | SCREW, PIVOT |
| 2 | 2-203-519-00 | NUT |
| 3 ♦ | 3-465-048-00 | SHAFT |
| 4 | 3-486-138-00 | SCREW |
| 5 | 3-537-173-00 | CUSHION, CASSETTE-UP |
| 6 ♦ | 3-567-737-00 | HEAT SINK |
| 7 | 3-572-365-01 | SHEET (A), INSULATING |
| 8 | 3-618-078-00 | RING, RETAINING, CE TYPE |
| 9 | 3-701-439-11 | WASHER |
| 10 | 3-701-441-11 | WASHER |
| 11 | 3-701-441-21 | WASHER |
| 12 | 3-701-443-21 | WASHER, 5 |
| 13 | 3-701-505-00 | SET SCREW, DOUBLE POINT 3X3 |
| 14 | 3-701-822-00 | HOLDER, WIRE |
| 15 | 3-703-396-01 | (UK)....LABEL, CAUTION, MAIN |
| 16 | 3-703-244-00 | (AEP,UK,E)...BUSHING, CORD |
| 16 | 3-701-682-00 | (US,Canadian,FL5C)...STOPPER, CORD |
| 17 | 3-703-454-00 | SCREW, TAPPING |
| 18 | 4-812-554-00 | WASHER |
| 19 | 4-820-330-21 | SCREW, BW, PLUS MINUS |
| 20 | 4-847-035-00 | TUBE, ABSORBER |
| 21 | 4-847-035-21 | TUBE, ABSORBER |
| 22 | 4-847-059-11 | CAP, ADJUSTMENT HOLE |
| 23 | 4-848-650-00 | WASHER, TRANSFORMER |
| 24 | 4-849-559-00 | TUBE, ERASE |
| 25 | 4-852-007-00 | RETAINER (A), THRUST |
| 26 | 4-853-042-00 | WASHER |
| 27 | 4-853-043-00 | SPRING (B), GUIDE |
| 28 | 4-857-642-00 | HOLDER, PC BOARD |
| 29 | 4-858-229-00 | CAM, IFC |
| 30 | ..... | |
| 31 ♦ | 4-858-708-00 | FRAME, MOTOR |
| 32 | 4-861-950-00 | HOLDER, PHONO CORD |
| 33 | 4-862-640-00 | SPRING, COMPRESSION |
| 34 | 4-862-642-00 | SPRING, TENSION |
| 35 | 4-863-604-00 | BEARING, PIVOT |
| 36 | 4-866-397-22 | CUSHION, LED |
| 37 | 4-869-903-00 | GEAR (A), MIDWAY |
| 38 ♦ | 4-869-906-00 | PLATE (B), LOCK |
| 39 | 4-869-911-00 | SPRING, TENSION |
| 40 | 4-869-915-00 | LEVER, BRAKE |
| 41 | ..... | |
| 42 | 4-869-933-00 | LIMITER (A) |
| 43 | 4-869-934-00 | LIMITER (B) |
| 44 | 4-869-935-00 | PLATE, LIMITER |
| 45 ♦ | 4-869-936-00 | SUPPORT, PHONO LEAD |

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 46 | 4-869-946-00 | SHAFT, WEIGHT |
| 47 | 4-869-957-00 | CAM, CONTROL |
| 48 | 4-869-960-00 | RETAINER, THRUST |
| 49 | 4-869-963-00 | PLATE, LOCK (A) |
| 50 | 4-869-965-00 | PLATE, SLIT |
| 51 | 4-869-979-00 | PIPE, ARM |
| 52 | 4-869-980-00 | BUSHING, COMPLIANTE |
| 53 | 4-869-992-11 | JOINT, PIPE |
| 54 | 4-869-995-00 | WORM |
| 55 | 4-870-539-00 | PLATE, GROUND |
| 56 | 4-873-331-00 | HOLDER, JACK |
| 57 | 4-874-250-00 | SPRING |
| 58 ♦ | 4-879-501-00 | PLATE (A), FUNCTION, SWITCH |
| 59 | ..... | |
| 60 | 4-879-509-00 | ROLLER (A) |
| 61 ♦ | 4-879-512-00 | GEAR (B), MIDWAY |
| 62 ♦ | 4-879-513-00 | GEAR (C), MIDWAY |
| 63 | 4-879-514-00 | WHEEL (A), WORM |
| 64 | 4-879-515-00 | WHEEL (B), WORM |
| 65 ♦ | 4-879-516-00 | GEAR, DRIVING |
| 66 | 4-879-520-00 | ROLLER (B) |
| 67 ♦ | 4-879-521-00 | SHAFT, ROLLER (B) |
| 68 ♦ | 4-879-522-00 | BRACKET, ROLLER (B) |
| 69 ♦ | 4-879-523-00 | BRACKET, LIFTER, PANEL |
| 70 ♦ | 4-879-524-00 | PLATE, FIXED |
| 71 ♦ | 4-879-530-00 | PLATE, FUNCTION, SWITCH |
| 72 ♦ | 4-879-531-00 | PLATE, GUIDE |
| 73 ♦ | 4-879-532-00 | BRACKET, PHONO |
| 74 ♦ | 4-879-533-00 | RACK |
| 75 | 4-879-534-00 | SCREW, FIXED |
| 76 ♦ | 4-879-535-00 | BRACKET, END SENSOR |
| 77 | 4-879-536-00 | NUT, BEARING |
| 78 | 4-879-539-00 | BASE, BUTTON, SWITCH |
| 79 ♦ | 4-879-540-00 | BRACKET, SWITCH |
| 80 ♦ | 4-879-541-00 | CAP, CENTER |
| 81 | 4-879-543-00 | CASE, ROD, PUSH |
| 82 | 4-879-544-00 | PLATE, ORNAMENTAL, REST |
| 83 | 4-879-545-00 | PROTECTOR (A) |
| 84 | 4-879-549-00 | BASE (B), BUTTON |
| 85 | 4-879-550-00 | BASE (C), BUTTON |
| 86 | 4-879-551-00 | BASE (D), BUTTON |
| 87 | 4-879-552-00 | BUTTON, REPEAT |
| 88 | 4-879-553-00 | BUTTON, SPEED |
| 89 | 4-879-554-00 | BUTTON, LIFTER |
| 90 | 4-879-555-00 | BUTTON, OPEN |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 91 | 4-879-559-00 | PROTECTOR (B) |
| 92 | 4-879-560-00 | BUTTON, START/STOP |
| 93 | 4-879-556-00 | COVER (A), LED |
| 94 | 4-879-563-00 | SPRING, COMPRESSION |
| 95 | 4-879-564-00 | SPRING, TENSION |
| 96 | 4-879-565-00 | SPRING, TENSION |
| 97 ♦ | 4-879-566-00 | SHAFT (C), ROLLER |
| 98 | 4-879-567-00 | SHEET, PROTECTION, GLASS |
| 99 ♦ | 4-879-568-00 | GUIDE, RACK |
| 100 ♦ | 4-879-569-00 | HEAT SINK |
| 101 ♦ | 4-879-570-00 | CASE, SHIELD |
| 102 | 4-879-571-00 | WORM |
| 103 | 4-879-574-00 | PANEL, FRONT |
| 104 | 4-879-575-00 | ESCUTCHEON (RIGHT), SIDE PLATE |
| 105 | 4-879-576-00 | ESCUTCHEON (LEFT), SIDE PLATE |
| 106 | 4-879-577-00 | PANEL, TOP |
| 107 ♦ | 4-879-578-00 | REINFORCEMENT (A) |
| 108 ♦ | 4-879-579-00 | REINFORCEMENT (B) |
| 109 ♦ | 4-879-580-00 | CAM (RIGHT), FUNCTION, PANEL |
| 110 ♦ | 4-879-581-00 | CAM (LEFT), FUNCTION, PANEL |
| 111 ♦ | 4-879-584-00 | BRACKET, RACK |
| 112 ♦ | 4-879-585-00 | REINFORCEMENT (D) |
| 113 ♦ | 4-879-586-00 | REINFORCEMENT (C) |
| 114 | 4-879-587-00 | KNOB, IFC |
| 115 | 4-879-589-00 | COVER, SENSOR, SIZE |
| 116 | 4-879-590-00 | GLASS, FRONT |
| 117 | 4-879-591-00 | PLATE, TOP |
| 118 ♦ | 4-879-592-01 | COVER |
| 119 ♦ | 4-879-593-00 | (US,Canadian,FL5C)..PLATE, REAR |
| 119 ♦ | 4-879-593-11 | (AEP,UK).....PLATE, REAR |
| 119 ♦ | 4-879-593-21 | (E).....PLATE, REAR |
| 120 ♦ | 4-879-594-00 | PLATE (RIGHT), SIDE |
| 121 ♦ | 4-879-595-00 | PLATE (LEFT), SIDE |
| 122 ♦ | 4-879-598-00 | COVER, PANEL |
| 123 ♦ | 4-879-600-00 | FRAME |
| 124 | 4-879-602-00 | BUTTON, POWER |
| 125 | 4-879-603-00 | PLATE, BOTTOM |
| 126 | 4-879-615-11 | LABEL, CAUTION, SERVICE |
| 127 | ..... | |
| 128 | ..... | |
| 129 | 7-621-734-09 | SET-SCT, HEX. 2.6X3 |
| 130 | 7-621-775-00 | SCREW +B 2.6X3 |
| 131 | 7-624-104-04 | STOP RING 2.0, TYPE -E |
| 132 | 7-624-106-04 | STOP RING 3.0, TYPE -E |
| 133 | 7-624-133-84 | STOP RING 14, TYPE-CE |
| 134 | 7-624-190-81 | STOP RING 2, TYPE-CS |
| 135 | 7-624-197-31 | STOP RING 16, TYPE-C |

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 136 | 7-671-155-01 | STEEL BALL 3.0 |
| 137 | 7-682-147-01 | SCREW +P 3X6 |
| 138 | 7-682-147-13 | SCREW +P 3X6 |
| 139 | 7-682-150-13 | SCREW +P 3X12 |
| 140 | 7-682-245-04 | SCREW +K 3X4 |
| 141 | 7-682-545-09 | SCREW +B 3X4 |
| 142 | 7-682-546-04 | SCREW +B 3X5 |
| 143 | 7-682-547-09 | SCREW +B 3X6 |
| 144 | 7-682-548-04 | SCREW +B 3X8 |
| 145 ♦ | 7-682-551-09 | SCREW +B 3X14 |
| 146 | 7-682-553-09 | SCREW +B 3X20 |
| 147 | 7-684-023-04 | N 3, TYPE 2 |
| 148 | 7-684-220-02 | NUT 3, HEXAGON CAP |
| 149 | 7-685-533-21 | SCREW +BTP 2.6X6 TYPE2 SLIT |
| 150 | 7-685-645-71 | SCREW +BVTP 3X6 TYPE2 SLIT |
| 151 | 7-685-646-29 | SCREW +BVTP 3X8 TYPE2 SLIT |
| 152 | 7-685-647-71 | SCREW +BVTP 3X10 TYPE2 SLIT |
| 153 | 7-685-648-21 | SCREW +BVTP 3X12 TYPE2 SLIT |
| 154 | 7-685-772-04 | SCREW +PTT 1.7X2 TYPE1 |
| 155 | 7-685-783-01 | SCREW +PTT 2X6 (S) |
| 156 | 7-685-784-01 | SCREW +PTT 2X8 (S) |
| 157 | 7-685-799-74 | SCREW +PTT 1.7X3 |
| 158 | 7-685-871-01 | SCREW +BVTT 3X6 (S) |
| 159 | 7-685-872-01 | SCREW +BVTT 3X8 (S) |
| 160 | 7-688-003-11 | W 3, MIDDLE |
| 161 | 9-911-841-XX | CUSHION, RUBBER |
| 162 | 9-911-850-XX | FELT, BRAKE |
| 163 | A-4608-204-A | MAGNET ASSY |
| 164 | A-4637-053-A | PLATE ASSY, LIFTER |
| 165 | X-4869-906-0 | DRUM ASSY, BRAKE |
| 166 | X-4869-908-0 | LEVER ASSY, LEAD-IN |
| 167 ♦ | X-4879-501-0 | BRACKET ASSY, ROLLER (A) |
| 168 | X-4879-503-2 | BEARING ASSY, MOTOR |
| 169 | X-4879-505-0 | REST ASSY, ARM |
| 170 ♦ | X-4879-506-0 | PIN ASSY, GUIDE |
| 171 ♦ | X-4879-508-0 | CHASSIS ASSY, MOTOR FITTING |
| 172 ♦ | X-4879-509-0 | CHASSIS ASSY, MECHANISM |
| 173 | X-4879-510-0 | LIFTER (RIGHT) ASSY, PANEL |
| 174 | X-4879-511-0 | LIFTER (LEFT) ASSY, PANEL |
| 175 | X-4879-512-0 | FOOT ASSY, M |
| 176 | X-4879-513-1 | BOSS ASSY, ARM |
| 177 | X-4879-514-2 | PANEL ASSY |
| 178 | 0-056-028-00 | WASHER |
| 179 | 7-671-152-01 | STENLESS BALL |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

**The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.**

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

## GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 180 | 4-879-605-00 | (AEP).....LABEL, MODEL NUMBER |
| 180 | 4-879-619-00 | (UK).....LABEL, MODEL NUMBER |
| 180 | 4-879-621-00 | (US,Canadian,FL5C)...LABEL, MODEL NUMBER |
| 180 | 4-879-622-00 | (E).....LABEL, MODEL NUMBER |
| 181 | 3-703-249-01 | (E)....SCREW +PTTWH 3X6 |
| 182 | 3-703-043-21 | (US,Canadian,UK)...LABEL, MAIN CAUTION |
| 183 | 3-703-082-21 | (US,FL5C).....LABEL, CAUTION |

## ACCESSORY & PACKING MATERIAL

| No. | Part No. | Description |
|---|---|---|
| 201 | 1-555-463-00 | CONNECTOR, WITH LEAD |
| 202 | 2-229-507-00 | WASHER |
| 203 | 3-701-540-02 | (AEP)....LABEL, TACK |
| 204 | 3-701-613-00 | BAG, POLYETHYLENE |
| 205 | 3-701-630-00 | BAG, POLYETHYLENE |
| 206 | 3-701-634-00 | BAG, POLYETHYLENE |
| 207 | 3-701-806-00 | ADAPTOR, 45, (E) |
| 208 | 3-783-713-11 | (UK,E).....MANUAL, INSTRUCTION |
| 208 | 3-783-713-21 | (US,FL5C)....MANUAL, INSTRUCTION |
| 208 | 3-783-713-31 | (Canadian)...MANUAL, INSTRUCTION |
| 208 | 3-783-713-41 | (AEP).....MANUAL, INSTRUCTION |
| 209 | 4-815-654-00 | (AEP,UK,E)...SCREW, CARTRIDGE |
| 210 | 4-815-655-01 | NUT |
| 211 | 4-862-043-11 | CUSHION, ARM |
| 212 | 4-869-959-00 | PLATE, LIGHT INTERCEPTION |
| 213 | 4-869-962-00 | ADJUSTOR, DP |
| 214 | 4-869-977-00 | CASE, ACCESSORY |
| 215 | 4-879-596-00 | TURNTABLE |
| 216 | 4-879-597-01 | SHEET, TURNTABLE |
| 217 | 4-879-606-00 | STOPPER, L |
| 218 | 4-879-608-00 | CUSHION, LOWER |
| 219 | 4-879-609-00 | CUSHION, UPPER |
| 220 | 4-879-610-00 | HOLDER, TT |
| 221 | 4-879-612-00 | (AEP,UK,E)...INDIVIDUAL CARTON |
| 222 | 4-879-620-00 | BAG, PROTECTION |
| 223 | A-4505-016-A | CARTRIDGE |
| 223 | 1-549-105-00 | (FL5C)...CARTRIDGE COMPLETE ASSY |
| 224 | X-4869-912-0 | SHELL ASSY, HEAD |
| 225 | X-4869-914-2 | WEIGHT ASSY, MAIN |
| 226 | X-4879-502-0 | PLATE ASSY, LOCK, TRANSPORT |
| 227 | 4-808-459-21 | SCREW (B), MOTOR LOCK |
| 228 | 4-808-459-61 | SCREW (B), MOTOR LOCK |
| 229 | 4-879-618-00 | PLATE, PROTECTION |
| 230 | 4-879-607-00 | (US,Canadian)...INDIVIDUAL CARTON |
| 231 | 3-795-124-31 | (Canadian).....INSTRUCTION (FRENCH) |
| 232 | X-4869-915-1 | (US, Canadian)..SCREW ASSY, FITTING |

## ELECTRICAL PARTS

| Ref.No. | Part No. | Description |
|---|---|---|
| 501 | 1-462-161-00 | COIL, MOTOR |
| 502 | ♦;1-508-878-00 | BASE POST |
| 503 | ⚠.1-534-817-XX | (AEP)...CORD, POWER |
| 503 | ⚠.1-551-884-00 | (UK)....CORD, POWER |
| 503 | ⚠.1-534-986-XX | (US,Canadian,FL5C)...CORD, POWER |
| 503 | ⚠.1-551-472-00 | (E).....CORD, POWER; WITH PARALLEL BLADE PLUG |
| 503 | ⚠.1-555-734-00 | (E).....CORD, POWER; WITH EURO-PLUG |
| 504 | ♦;1-535-115-00 | TERMINAL |
| 505 | ♦;1-535-116-00 | TERMINAL |
| 506 | ♦;1-535-117-00 | TERMINAL |
| 507 | ♦;1-535-118-00 | TERMINAL |
| 508 | ♦;1-535-142-00 | (AEP,UK,E,FL5C).....BASE POST 19MM (10MM PITCH) |
| 508 | ♦;1-535-141-00 | (US,Canadian)BASE POST 19MM(10MM PITCH) |
| 509 | 1-551-063-21 | CORD,PHONO (WITH CONNECTOR) |
| 510 | ♦;1-560-555-00 | PIN, CONNECTOR 2P |
| 511 | ♦;1-560-602-00 | PIN, CONNECTOR 3P |
| 512 | ♦;1-560-603-00 | PIN, CONNECTOR 4P |
| 513 | ♦;1-560-604-00 | PIN, CONNECTOR 5P |
| 514 | ..... | |
| 515 | 1-561-551-00 | CONNECTOR, NECK CYLINDER (M) |
| 516 | ♦;1-605-811-00 | PC BOARD, SERVO |
| 517 | ♦;1-605-812-00 | PC BOARD, CONTROL (A) |
| 518 | ♦;1-605-813-00 | PC BOARD, CONTROL (B) |
| 519 | ♦;1-605-814-00 | PC BOARD, JACK |
| 520 | ♦;1-605-815-00 | PC BOARD, TRANSLATION |
| 521 | ♦;1-605-816-00 | PC BOARD, STABILITY |
| 522 | ♦;1-605-817-00 | PC BOARD, POWER |
| 523 | ♦;1-605-818-00 | PC BOARD, RECORD SENSOR (A) |
| 524 | ♦;1-605-819-00 | PC BOARD, RECORD SENSOR (B) |
| 525 | ..... | |
| 526 | ♦;1-605-821-00 | PC BOARD, SWITCH (A) |
| 527 | ♦;1-605-822-00 | PC BOARD, PHONO (1) |
| 528 | ♦;1-605-823-00 | PC BOARD, INTERRUPTER |
| 529 | ♦;1-605-938-00 | PC BOARD, PHONO (B) |
| 530 | ♦;A-4619-176-A | MOUNTED PCB, AMPLIFIER, SERVO |
| 531 | ♦;A-4646-083-A | MOUNTED PCB, MOTOR |
| 532 | ⚠.1-552-535-00 | (E)....VOLTAGE SELECTOR |
| C1 | ⚠.1-123-508-00 | ELECT 1000MF 20% 35V |
| C2 | ⚠.1-123-508-00 | ELECT 1000MF 20% 35V |
| D101 | 8-719-200-02 | DIODE 10E-2 |
| D102 | 8-719-200-02 | DIODE 10E-2 |
| D103 | 8-719-200-02 | DIODE 10E-2 |
| D104 | 8-719-200-02 | DIODE 10E-2 |
| D105 | 8-719-996-06 | DIODE EQA01-06 |
| D106 | 8-719-996-06 | DIODE EQA01-06 |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

| Ref.No. | Part No. | Description |
|---|---|---|
| D107 | 8-719-815-55 | DIODE 1S1555 |
| D201 | 8-719-996-06 | DIODE EQA01-06 |
| D401 | 8-719-815-55 | DIODE 1S1555 |
| D402 | 8-719-200-02 | DIODE 10E-2 |
| D501 | 8-719-101-11 | DIODE SR110 |
| D701 | 8-719-901-31 | DIODE SLP131B |
| D702 | 8-719-901-31 | DIODE SLP131B |
| D801 | 8-719-812-33 | DIODE TLG123 |
| D802 | 8-719-812-31 | DIODE TLR123 |
| D803 | 8-719-812-31 | DIODE TLR123 |
| D804 | 8-719-812-31 | DIODE TLR123 |
| D805 | 8-719-812-31 | DIODE TLR123 |
| D806 | 8-719-812-31 | DIODE TLR123 |
| D807 | 8-719-812-33 | DIODE TLG123 |
| D808 | 8-719-812-31 | DIODE TLR123 |
| H1 | 8-719-903-00 | DIODE HL-300C |
| H2 | 8-719-903-00 | DIODE HL-300C |
| IC201 | 8-751-930-00 | IC CX-193 |
| IC202 | 8-759-155-58 | IC UPC4558C |
| IC301 | 8-759-155-58 | IC UPC4558C |
| IC401 | 8-759-820-24 | IC LM6402A024 |
| IC401 | 8-759-800-08 | IC LM6402A044 |
| IC402 | 8-759-155-58 | IC UPC4558C |
| J301 | 1-507-688-21 | JACK (STEREO PLUG) |
| L401 | 1-408-096-00 | MICRO INDUCTOR 470UH |
| M801 | 1-541-163-00 | MOTOR |
| M802 | 1-541-163-00 | MOTOR |
| MGH | 1-543-167-00 | HEAD (TURN DETECTION) |
| PM801 | 1-454-297-00 | SOLENOID, PLUNGER |
| Q101 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q102 | 8-729-141-43 | TRANSISTOR 2SD414 |
| Q103 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q104 | 8-729-141-43 | TRANSISTOR 2SD414 |
| Q105 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q106 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q201 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q202 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q203 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q204 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q301 | 8-729-180-93 | TRANSISTOR 2SD809 |
| Q302 | 8-729-173-13 | TRANSISTOR 2SB731 |
| Q303 | 8-729-180-93 | TRANSISTOR 2SD809 |
| Q304 | 8-729-173-13 | TRANSISTOR 2SB731 |
| Q401 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q402 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q403 | 8-729-663-47 | TRANSISTOR 2SC1364 |

ELECTRICAL PARTS

| Ref.No. | Part No. | Description |
|---|---|---|
| Q404 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q405 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q406 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q407 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q408 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q409 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q410 | 8-729-180-93 | TRANSISTOR 2SD809 |
| Q411 | 8-729-173-13 | TRANSISTOR 2SB731 |
| Q412 | 8-729-180-93 | TRANSISTOR 2SD809 |
| Q413 | 8-729-173-13 | TRANSISTOR 2SB731 |
| Q414 | 8-729-177-43 | TRANSISTOR 2SD774 |
| Q415 | 8-729-177-43 | TRANSISTOR 2SD774 |
| Q416 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q417 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q418 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q419 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q420 | 8-729-612-77 | TRANSISTOR 2SA1027R |
| Q501 | 8-729-101-13 | TRANSISTOR PH103 |
| Q601 | 8-729-101-01 | TRANSISTOR PH101 |
| Q602 | 8-729-101-01 | TRANSISTOR PH101 |
| R103 ⚠ | 1-212-869-00 | FUSIBLE 33 5% 1/4W F |
| R109 ⚠ | 1-212-877-51 | FUSIBLE 68 5% 1/4W F |
| R115 ⚠ | 1-244-851-00 | CARBON 120 5% 1/2W |
| R441 ⚠ | 1-212-877-51 | FUSIBLE 68 5% 1/4W F |
| R442 ⚠ | 1-212-877-51 | FUSIBLE 68 5% 1/4W F |
| RV201 | 1-224-254-XX | RES, ADJ, METAL GLAZE 47K |
| RV202 | 1-224-255-XX | RES, ADJ, METAL GLAZE 100K |
| RV301 | 1-226-236-00 | RES, ADJ, CARBON 10K |
| RV302 | 1-226-236-00 | RES, ADJ, CARBON 10K |
| RV303 | 1-226-239-00 | RES, ADJ, CARBON 100K |
| RV304 | 1-226-239-00 | RES, ADJ, CARBON 100K |
| S1 ⚠ | 1-553-909-00 | SWITCH, PUSH |
| S2 | 1-553-320-00 | SWITCH |
| S3 | 1-553-856-00 | SWITCH, KEY BOARD |
| S4 | 1-553-856-00 | SWITCH, KEY BOARD |
| S5 | 1-553-856-00 | SWITCH, KEY BOARD |
| S6 | 1-553-856-00 | SWITCH, KEY BOARD |
| S7 | 1-553-856-00 | SWITCH, KEY BOARD |
| S8 | 1-553-855-00 | SWITCH, PUSH |
| S9 | 1-553-855-00 | SWITCH, PUSH |
| S10 | 1-553-321-00 | SWITCH, PUSH |
| T801 ⚠ | 1-446-851-21 | (E).....TRANSFORMER, POWER |
| T801 ⚠ | 1-447-124-00 | (AEP,UK).....TRANSFORMER, POWER |
| T801 ⚠ | 1-447-125-00 | (US,Canadian,FL5C)..TRANSFORMER, POWER |
| X1 | 1-527-380-21 | OSCILLATOR, CRYSTAL |
| X2 | 1-527-532-00 | OSCILLATOR, CERAMIC |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

## ELECTROLYTIC CAPACITORS

| CAP. (μF) | RATING → : Use the high voltage rated one. | | | | | |
|---|---|---|---|---|---|---|
| | 6.3 VOLT. | 10 VOLT. | 16 VOLT. | 25 VOLT. | 35 VOLT. | 50 VOLT. |
| | PART No. | PART No. | PART No. | PART No. | PART No. | PART No. |
| 0.47 | | | | | → | 1-121-726-00 |
| 1.0 | | | | | → | 1-121-391-00 |
| 2.2 | | | | | → | 1-121-450-00 |
| 3.3 | → | → | → | 1-121-392-00 | → | 1-121-393-00 |
| 4.7 | → | → | → | 1-121-395-00 | → | 1-121-396-00 |
| 10 | → | → | 1-121-651-00 | 1-121-398-00 | → | 1-121-738-00 |
| 22 | → | → | 1-121-479-00 | 1-121-480-00 | 1-121-662-00 | 1-121-152-00 |
| 33 | → | → | 1-121-403-00 | 1-121-404-00 | 1-121-652-00 | 1-121-405-00 |
| 47 | → | 1-121-352-00 | 1-121-409-00 | 1-121-410-00 | 1-121-653-00 | 1-121-411-00 |
| 100 | → | 1-121-414-00 | 1-121-415-00 | 1-121-416-00 | 1-121-357-00 | 1-121-417-00 |
| 220 | 1-121-419-00 | 1-121-420-00 | 1-121-421-00 | 1-121-422-00 | 1-121-261-00 | 1-121-423-00 |
| 330 | 1-121-751-00 | 1-121-805-00 | 1-121-521-00 | 1-121-654-00 | 1-121-655-00 | 1-121-656-00 |
| 470 | 1-121-424-00 | 1-121-425-00 | 1-121-426-00 | 1-121-733-00 | 1-121-361-00 | 1-121-810-00 |
| 1000 | – | 1-121-736-00 | 1-121-245-00 | 1-121-657-00 | 1-121-388-00 | 1-123-061-00 |
| 2200 | 1-121-658-00 | 1-121-659-00 | 1-121-660-00 | 1-123-067-00 | 1-121-984-00 | – |
| 3300 | 1-121-661-00 | 1-123-075-00 | 1-123-071-00 | – | – | – |

| CAP. (μF) | 100 VOLT. | 160 VOLT. | 250 VOLT. | 350 VOLT. |
|---|---|---|---|---|
| | PART No. | PART No. | PART No. | PART No. |
| 0.47 | – | – | – | – |
| 1.0 | 1-123-249-00 | 1-123-252-00 | 1-123-003-00 | 1-121-168-00 |
| 2.2 | 1-123-250-00 | 1-123-026-00 | – | 1-123-028-00 |
| 3.3 | 1-121-995-00 | – | 1-123-004-00 | 1-123-006-00 |
| 4.7 | 1-123-255-00 | 1-121-246-00 | 1-121-759-00 | 1-123-007-00 |
| 10 | 1-121-126-00 | 1-121-999-00 | 1-123-254-00 | 1-123-008-00 |
| 22 | 1-121-996-00 | 1-123-253-00 | 1-123-005-00 | 1-123-022-00 |
| 33 | 1-121-997-00 | 1-121-757-00 | – | – |
| 47 | 1-123-251-00 | 1-121-919-00 | – | – |
| 100 | 1-123-084-00 | – | – | – |

## CERAMIC CAPACITORS

| CAP. (pF) | RATING 50 VOLT. PART No. | CAP. (pF) | 50 VOLT. PART No. | CAP. (pF) | 50 VOLT. PART No. | CAP. (μF) | 50 VOLT. PART No. |
|---|---|---|---|---|---|---|---|
| 0.5 | 1-101-837-00 | 22 | 1-102-959-00 | 150 | 1-101-361-00 | 0.001 | 1-102-074-00 |
| 0.75 | 1-101-586-00 | 24 | 1-102-960-00 | 160 | 1-101-367-00 | 0.0012 | 1-102-118-00 |
| 1.0 | 1-102-934-00 | 27 | 1-102-961-00 | 180 | 1-102-976-00 | 0.0015 | 1-102-119-00 |
| 1.5 | 1-101-576-00 | 30 | 1-102-962-00 | 200 | 1-102-977-00 | 0.0018 | 1-102-120-00 |
| 2.0 | 1-102-935-00 | 33 | 1-102-963-00 | 220 | 1-102-978-00 | 0.0022 | 1-102-121-00 |
| 3 | 1-102-936-00 | 36 | 1-102-964-00 | 240 | 1-102-979-00 | 0.0027 | 1-102-122-00 |
| 4 | 1-102-937-00 | 39 | 1-102-965-00 | 270 | 1-102-980-00 | 0.0033 | 1-102-123-00 |
| 5 | 1-102-942-00 | 43 | 1-102-966-00 | 300 | 1-102-981-00 | 0.0039 | 1-102-124-00 |
| 6 | 1-102-943-00 | 47 | 1-101-880-00 | 330 | 1-102-820-00 | 0.0047 | 1-102-125-00 |
| 7 | 1-102-944-00 | 51 | 1-101-882-00 | 360 | 1-102-821-00 | 0.0056 | 1-102-126-00 |
| 8 | 1-102-945-00 | 56 | 1-101-884-00 | 390 | 1-102-822-00 | 0.0068 | 1-102-127-00 |
| 9 | 1-102-946-00 | 62 | 1-101-886-00 | 430 | 1-102-823-00 | 0.0082 | 1-102-128-00 |
| 10 | 1-102-947-00 | 68 | 1-101-888-00 | 470 | 1-102-824-00 | 0.01 | 1-102-129-00 |
| 11 | 1-102-948-00 | 75 | 1-101-890-00 | 510 | 1-101-059-00 | 0.022 | 1-101-005-00 |
| 12 | 1-102-949-00 | 82 | 1-102-971-00 | 560 | 1-102-115-00 | 0.047 | 1-101-006-00 |
| 13 | 1-102-950-00 | 91 | 1-102-972-00 | 680 | 1-102-116-00 | | |
| 15 | 1-102-951-00 | 100 | 1-102-973-00 | 820 | 1-102-117-00 | | |
| 16 | 1-102-952-00 | 110 | 1-102-815-00 | | | | |
| 18 | 1-102-953-00 | 120 | 1-102-816-00 | | | | |
| 20 | 1-102-958-00 | 130 | 1-101-081-00 | | | | |

0.001μF = 1,000pF

## CERAMIC (SEMICONDUCTOR) CAPACITORS

| CAP. (μF) | RATING → : Use the high voltage rated one. 25 VOLT. PART No. | 50 VOLT. PART No. | CAP. (μF) | 25 VOLT. PART No. | 50 VOLT. PART No. |
|---|---|---|---|---|---|
| 0.001 | → | 1-161-039-00 | 0.018 | 1-161-016-00 | 1-161-054-00 |
| 0.0012 | → | 1-161-040-00 | 0.022 | 1-161-017-00 | 1-161-055-00 |
| 0.0015 | | 1-161-041-00 | 0.027 | 1-161-018-00 | 1-161-056-00 |
| 0.0018 | | 1-161-042-00 | 0.033 | 1-161-019-00 | 1-161-057-00 |
| 0.0022 | | 1-161-043-00 | 0.039 | 1-161-010-00 | 1-161-058-00 |
| 0.0027 | → | 1-161-044-00 | 0.047 | 1-161-021-00 | 1-161-059-00 |
| 0.0033 | → | 1-161-045-00 | 0.056 | → | 1-161-060-00 |
| 0.0039 | → | 1-161-046-00 | 0.068 | → | 1-161-061-00 |
| 0.0047 | → | 1-161-047-00 | 0.082 | 1-161-024-00 | 1-161-062-00 |
| 0.0056 | → | 1-161-048-00 | 0.1 | 1-161-025-00 | 1-161-063-00 |
| 0.0068 | → | 1-161-049-00 | | | |
| 0.0082 | 1-161-012-00 | 1-161-050-00 | | | |
| 0.01 | 1-161-013-00 | 1-161-051-00 | | | |
| 0.012 | → | 1-161-052-00 | | | |
| 0.015 | 1-161-015-00 | 1-161-053-00 | | | |

## MYLAR CAPACITORS

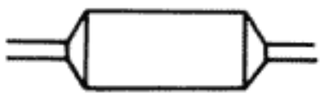
| CAP. (μF) | RATING | | | CAP. (μF) | RATING | | | CAP. (μF) | RATING | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 VOLT. | 100 VOLT. | 200 VOLT. | | 50 VOLT. | 100 VOLT. | 200 VOLT. | | 50 VOLT. | 100 VOLT. | 200 VOLT. |
| | PART No. | PART No. | PART No. | | PART No. | PART No. | PART No. | | PART No. | PART No. | PART No. |
| 0.001 | 1-108-227-00 | 1-108-365-00 | 1-108-409-00 | 0.01 | 1-108-239-00 | 1-108-377-00 | 1-108-421-00 | 0.1 | 1-108-251-00 | 1-108-389-00 | 1-108-433-00 |
| 0.0012 | 1-108-351-00 | 1-108-366-00 | 1-108-410-00 | 0.012 | 1-108-357-00 | 1-108-378-00 | 1-108-422-00 | 0.12 | 1-108-363-00 | 1-108-390-00 | 1-108-434-00 |
| 0.0015 | 1-108-228-00 | 1-108-367-00 | 1-108-411-00 | 0.015 | 1-108-240-00 | 1-108-379-00 | 1-108-423-00 | 0.15 | 1-108-252-00 | 1-108-391-00 | 1-108-435-00 |
| 0.0018 | 1-108-352-00 | 1-108-368-00 | 1-108-412-00 | 0.018 | 1-108-358-00 | 1-108-380-00 | 1-108-424-00 | 0.18 | 1-108-364-00 | 1-108-392-00 | 1-108-436-00 |
| 0.0022 | 1-108-230-00 | 1-108-369-00 | 1-108-413-00 | 0.022 | 1-108-242-00 | 1-108-381-00 | 1-108-425-00 | 0.22 | 1-108-254-00 | 1-108-393-00 | 1-108-437-00 |
| 0.0027 | 1-108-353-00 | 1-108-370-00 | 1-108-414-00 | 0.027 | 1-108-359-00 | 1-108-382-00 | 1-108-426-00 | 0.27 | 1-108-854-00 | – | – |
| 0.0033 | 1-108-232-00 | 1-108-371-00 | 1-108-415-00 | 0.033 | 1-108-244-00 | 1-108-383-00 | 1-108-427-00 | 0.33 | 1-108-855-00 | – | – |
| 0.0039 | 1-108-354-00 | 1-108-372-00 | 1-108-416-00 | 0.039 | 1-108-360-00 | 1-108-384-00 | 1-108-428-00 | 0.39 | 1-108-856-00 | – | – |
| 0.0047 | 1-108-234-00 | 1-108-373-00 | 1-108-417-00 | 0.047 | 1-108-246-00 | 1-108-385-00 | 1-108-429-00 | 0.47 | 1-108-857-00 | – | – |
| 0.0056 | 1-108-355-00 | 1-108-374-00 | 1-108-418-00 | 0.056 | 1-108-361-00 | 1-108-386-00 | 1-108-430-00 | | | | |
| 0.0068 | 1-108-237-00 | 1-108-375-00 | 1-108-419-00 | 0.068 | 1-108-249-00 | 1-108-387-00 | 1-108-431-00 | | | | |
| 0.0082 | 1-108-356-00 | 1-108-376-00 | 1-108-420-00 | 0.082 | 1-108-362-00 | 1-108-388-00 | 1-108-432-00 | | | | |

## TANTALUM CAPACITORS

| CAP. (μF) | RATING | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3.15 VOLT. | 6.3 VOLT. | 10 VOLT. | 16 VOLT. | 20 VOLT. | 25 VOLT. | 35 VOLT. |
| | PART No. | PART No. | PART No. | PART No. | PART No. | PART No. | PART No. |
| 0.01 | | | | | → | → | 1-131-396-00 |
| 0.015 | | | | | | → | 1-131-397-00 |
| 0.022 | | | | | | → | 1-131-398-00 |
| 0.033 | | | | | | → | 1-131-399-00 |
| 0.047 | | | | | | → | 1-131-400-00 |
| 0.068 | | | | | → | → | 1-131-401-00 |
| 0.1 | | | | | → | → | 1-131-402-00 |
| 0.15 | | | | | → | → | 1-131-403-00 |
| 0.22 | | | | | → | → | 1-131-404-00 |
| 0.33 | | | | | → | 1-131-409-00 | 1-131-405-00 |
| 0.47 | – | – | – | – | 1-131-412-00 | → | 1-131-406-00 |
| 0.68 | – | – | – | 1-131-415-00 | → | 1-131-410-00 | 1-131-407-00 |
| 1.0 | – | – | 1-131-418-00 | – | 1-131-413-00 | → | 1-131-408-00 |
| 1.5 | – | 1-131-421-00 | – | 1-131-416-00 | → | 1-131-411-00 | 1-131-348-00 |
| 2.2 | 1-131-424-00 | – | 1-131-419-00 | – | 1-131-414-00 | 1-131-355-00 | 1-131-349-00 |
| 3.3 | – | 1-131-422-00 | – | 1-131-417-00 | 1-131-362-00 | 1-131-356-00 | 1-131-350-00 |
| 4.7 | 1-131-425-00 | – | 1-131-420-00 | 1-131-369-00 | 1-131-363-00 | 1-131-357-00 | 1-131-351-00 |
| 6.8 | – | 1-131-423-00 | 1-131-376-00 | 1-131-370-00 | 1-131-364-00 | 1-131-358-00 | 1-131-352-00 |
| 10 | 1-131-426-00 | 1-131-383-00 | 1-131-377-00 | 1-131-371-00 | 1-131-365-00 | 1-131-359-00 | 1-131-353-00 |
| 15 | 1-131-390-00 | 1-131-384-00 | 1-131-378-00 | 1-131-372-00 | 1-131-366-00 | 1-131-360-00 | – |
| 22 | 1-131-391-00 | 1-131-385-00 | 1-131-379-00 | 1-131-373-00 | 1-131-367-00 | | |
| 33 | 1-131-392-00 | 1-131-386-00 | 1-131-380-00 | 1-131-374-00 | | | |
| 47 | 1-131-393-00 | 1-131-387-00 | 1-131-381-00 | – | | | |
| 68 | 1-131-394-00 | 1-131-388-00 | – | – | | | |
| 100 | 1-131-395-00 | – | – | – | | | |

→ : Use the high voltage rated one.

## TANTALUM CAPACITORS



| CAP. (μF) | RATING | | | | | |
|---|---|---|---|---|---|---|
| | 3 VOLT. | 6.3 VOLT. | 10 VOLT. | 16 VOLT. | 20 VOLT. | 35 VOLT. |
| | PART No. | PART No. | PART No. | PART No. | PART No. | PART No. |
| 0.033 | | | | | | 1-131-273-00 |
| 0.047 | | | | | | 1-131-274-00 |
| 0.068 | | | | | | 1-131-275-00 |
| 0.1 | | | | | | 1-131-276-00 |
| 0.15 | | | | | | 1-131-277-00 |
| 0.22 | | | – | – | 1-131-262-00 | 1-131-278-00 |
| 0.33 | | | – | – | 1-131-263-00 | 1-131-279-00 |
| 0.47 | | | 1-131-169-00 | – | 1-131-264-00 | 1-131-280-00 |
| 0.68 | | | – | 1-131-258-00 | 1-131-265-00 | 1-131-281-00 |
| 1.0 | | | 1-131-254-00 | – | 1-131-266-00 | 1-131-282-00 |
| 1.5 | | 1-131-250-00 | – | – | 1-131-267-00 | 1-131-283-00 |
| 2.2 | | – | – | 1-131-259-00 | 1-131-268-00 | 1-131-284-00 |
| 3.3 | | – | 1-131-255-00 | – | 1-131-269-00 | – |
| 4.7 | | 1-131-251-00 | 1-131-171-00 | – | 1-131-270-00 | – |
| 6.8 | | – | – | 1-131-260-00 | 1-131-271-00 | – |
| 10 | – | – | 1-131-256-00 | – | 1-131-272-00 | – |
| 15 | – | 1-131-252-00 | – | 1-131-261-00 | | |
| 22 | – | – | 1-131-257-00 | – | | |
| 33 | 1-131-176-00 | 1-131-253-00 | 1-131-173-00 | – | | |
| 47 | 1-131-288-00 | 1-131-174-00 | – | – | | |
| 100 | 1-131-177-00 | | | | | |

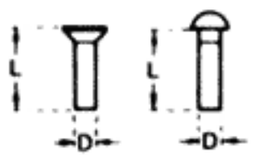
## 1/4 WATT CARBON RESISTORS

| Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 1-246-401-00 | 10 | 1-246-425-00 | 100 | 1-246-449-00 | 1.0k | 1-246-473-00 | 10k | 1-246-497-00 | 100k | 1-246-521-00 | 1.0M | 1-246-545-00 |
| 1.1 | 1-246-402-00 | 11 | 1-246-426-00 | 110 | 1-246-450-00 | 1.1k | 1-246-474-00 | 11k | 1-246-498-00 | 110k | 1-246-522-00 | 1.1M | 1-210-814-00 |
| 1.2 | 1-246-403-00 | 12 | 1-246-427-00 | 120 | 1-246-451-00 | 1.2k | 1-246-475-00 | 12k | 1-246-499-00 | 120k | 1-246-523-00 | 1.2M | 1-210-815-00 |
| 1.3 | 1-246-404-00 | 13 | 1-246-428-00 | 130 | 1-246-452-00 | 1.3k | 1-246-476-00 | 13k | 1-246-500-00 | 130k | 1-246-524-00 | 1.3M | 1-210-816-00 |
| 1.5 | 1-246-405-00 | 15 | 1-246-429-00 | 150 | 1-246-453-00 | 1.5k | 1-246-477-00 | 15k | 1-246-501-00 | 150k | 1-246-525-00 | 1.5M | 1-210-817-00 |
| 1.6 | 1-246-406-00 | 16 | 1-246-430-00 | 160 | 1-246-454-00 | 1.6k | 1-246-478-00 | 16k | 1-246-502-00 | 160k | 1-246-526-00 | 1.6M | 1-210-818-00 |
| 1.8 | 1-246-407-00 | 18 | 1-246-431-00 | 180 | 1-246-455-00 | 1.8k | 1-246-479-00 | 18k | 1-246-503-00 | 180k | 1-246-527-00 | 1.8M | 1-210-819-00 |
| 2.0 | 1-246-408-00 | 20 | 1-246-432-00 | 200 | 1-246-456-00 | 2.0k | 1-246-480-00 | 20k | 1-246-504-00 | 200k | 1-246-528-00 | 2.0M | 1-210-820-00 |
| 2.2 | 1-246-409-00 | 22 | 1-246-433-00 | 220 | 1-246-457-00 | 2.2k | 1-246-481-00 | 22k | 1-246-505-00 | 220k | 1-246-529-00 | 2.2M | 1-210-821-00 |
| 2.4 | 1-246-410-00 | 24 | 1-246-434-00 | 240 | 1-246-458-00 | 2.4k | 1-246-482-00 | 24k | 1-246-506-00 | 240k | 1-246-530-00 | 2.4M | 1-244-754-00 |
| 2.7 | 1-246-411-00 | 27 | 1-246-435-00 | 270 | 1-246-459-00 | 2.7k | 1-246-483-00 | 27k | 1-246-507-00 | 270k | 1-246-531-00 | 2.7M | 1-244-755-00 |
| 3.0 | 1-246-412-00 | 30 | 1-246-436-00 | 300 | 1-246-460-00 | 3.0k | 1-246-484-00 | 30k | 1-246-508-00 | 300k | 1-246-532-00 | 3.0M | 1-244-756-00 |
| 3.3 | 1-246-413-00 | 33 | 1-246-437-00 | 330 | 1-246-461-00 | 3.3k | 1-246-485-00 | 33k | 1-246-509-00 | 330k | 1-246-533-00 | 3.3M | 1-244-757-00 |
| 3.6 | 1-246-414-00 | 36 | 1-246-438-00 | 360 | 1-246-462-00 | 3.6k | 1-246-486-00 | 36k | 1-246-510-00 | 360k | 1-246-534-00 | 3.6M | 1-244-758-00 |
| 3.9 | 1-246-415-00 | 39 | 1-246-439-00 | 390 | 1-246-463-00 | 3.9k | 1-246-487-00 | 39k | 1-246-511-00 | 390k | 1-246-535-00 | 3.9M | 1-244-759-00 |
| 4.3 | 1-246-416-00 | 43 | 1-246-440-00 | 430 | 1-246-464-00 | 4.3k | 1-246-488-00 | 43k | 1-246-512-00 | 430k | 1-246-536-00 | 4.3M | 1-244-760-00 |
| 4.7 | 1-246-417-00 | 47 | 1-246-441-00 | 470 | 1-246-465-00 | 4.7k | 1-246-489-00 | 47k | 1-246-513-00 | 470k | 1-246-537-00 | 4.7M | 1-244-761-00 |
| 5.1 | 1-246-418-00 | 51 | 1-246-442-00 | 510 | 1-246-466-00 | 5.1k | 1-246-490-00 | 51k | 1-246-514-00 | 510k | 1-246-538-00 | 5.1M | 1-244-762-00 |
| 5.6 | 1-246-419-00 | 56 | 1-246-443-00 | 560 | 1-246-467-00 | 5.6k | 1-246-491-00 | 56k | 1-246-515-00 | 560k | 1-246-539-00 | | |
| 6.2 | 1-246-420-00 | 62 | 1-246-444-00 | 620 | 1-246-468-00 | 6.2k | 1-246-492-00 | 62k | 1-246-516-00 | 620k | 1-246-540-00 | | |
| 6.8 | 1-246-421-00 | 68 | 1-246-445-00 | 680 | 1-246-469-00 | 6.8k | 1-246-493-00 | 68k | 1-246-517-00 | 680k | 1-246-541-00 | | |
| 7.5 | 1-246-422-00 | 75 | 1-246-446-00 | 750 | 1-246-470-00 | 7.5k | 1-246-494-00 | 75k | 1-246-518-00 | 750k | 1-246-542-00 | | |
| 8.2 | 1-246-423-00 | 82 | 1-246-447-00 | 820 | 1-246-471-00 | 8.2k | 1-246-495-00 | 82k | 1-246-519-00 | 820k | 1-246-543-00 | | |
| 9.1 | 1-246-424-00 | 91 | 1-246-448-00 | 910 | 1-246-472-00 | 9.1k | 1-246-496-00 | 91k | 1-246-520-00 | 910k | 1-246-544-00 | | |

## HARDWARE NOMENCLATURE

**Screw:**

– P 3 x 10
- *L: Length in mm*
- *D: Diameter in mm*
- *Type of head*
- *Indicated slotted-head only. Unless otherwise indicated, it means cross-recessed head (Phillips type).*




**Nut, Washer, Retaining ring:**

N 3
- *Diameter of usable screw or shaft*
- *Reference designation*

| Reference Designation | Shape | Description | Remarks |
|---|---|---|---|
| **SCREWS** | | | |
| P | | pan-head screw | binding-head (B) screw for replacement |
| PWH | | pan-head screw with washer face | binding-head (B) screw and flat washer for replacement |
| PS<br>PSP | | pan-head screw with spring washer | binding-head (B) screw and spring washer for replacement |
| PSW<br>PSPW | | pan-head screw with spring and flat washers | binding-head (B) screw and spring and flat washers for replacement |
| R | | round-head screw | binding-head (B) screw for replacement |
| K | | flat-countersunk-head screw | |
| RK | | oval-countersunk-head screw | |
| B | | binding-head screw | |
| T | | truss-head screw | binding-head (B) screw for replacement |
| F | | flat-fillister-head screw | |
| RF | | fillister-head screw | |
| BV | | braizer-head screw | |

| Reference Designation | Shape | Description | Remarks |
|---|---|---|---|
| **SELF-TAPPING SCREWS** | | | |
| TA | | self-tapping screw | ex: TA, P 3 x 10 |
| PTP | | pan-head self-tapping screw | binding-head self-tapping (TA, B) screw for replacement |
| PTPWH | | pan-head self-tapping screw with washer face | binding-head self tapping (TA, B) screw and flat washer for replacement |
| PTTWH | | pan-head thread-rolling screw with washer face | binding-head (B) screw and flat washer for replacement |
| **SET SCREWS** | | | |
| SC | | set screw | |
| SC | | hexagon-socket set screw | ex: SC 2.6 x 4, hexagon socket |
| **NUT** | | | |
| N | | nut | |
| **WASHERS** | | | |
| W | | flat washer | |
| SW | | spring washer | |
| LW | | internal-tooth lock washer | ex: LW3, internal |
| LW | | external-tooth lock washer | ex: LW3, external |
| **RETAINING RINGS** | | | |
| E | | retaining ring | |
| G | | grip-type retaining ring | |

# TROUBLE CHECKS

The following trouble checks will help you correct most common problems encountered with a turntable system. Should any problem persist after you have made these checks, consult your nearest Sony service facility.
Before proceeding with these trouble checks, first refer to the connections on page 10 and the operating procedures on page 11.

| TROUBLES | CAUSES | WHAT TO DO |
|---|---|---|
| The tonearm does not lower on the record but returns to the arm rest. | Transparent record | For 30 cm (12 in) records, place the rubber mat by turning half a circle or play records manually. For 17 cm (7 in) records, place the supplied sheet underneath a record. |
| The tonearm always lowers on the point for 30 cm records. | A rubber mat other than the one supplied being used. | Use the supplied rubber mat. |
| | Incorrect placement of the supplied rubber mat | Align the holes in the rubber mat with the holes of the platter. |
| Impaired tone quality | Improper tonearm balance or tracking-force | Adjust the tonearm, referring to page 7. |
| | Dusty stylus | Clean the stylus with a soft brush from back to front. |
| | Worn stylus | The stylus life is approx. 400 hours. Replace with a new stylus. |
| Auto return does not operate at the end of play. | A record with shallow return grooves being played by a cartridge with low tracking force | Apply more tracking-force. |
| No audio from one channel | Loose connection of phono cord | Connect the cord firmly. |
| Steady low-pitched humming sound | Loose attachment of the cartridge shell to the tonearm | Fix the shell to the tonearm firmly. |
| | Ground wire is not connected to the amplifier. | Connect the ground wire to the amplifier. |
| Groove skipping ; tonearm skating; tonearm not advancing. | Improper tracking force | Apply proper tracking-force. (See page 9.) |
| | Turntable not level | Place the turntable on a level surface. |
| | Defective record | |
| Loud rumble or low-frequency howl * | The turntable is subjected to external vibration. | Place the turntable on a solid surface free from external vibration. |
| | The turntable is placed too near the speaker. | Locate the turntable as far away from the speaker as possible. |

* This is called "acoustic feedback" and is caused when vibrations from the speakers are transmitted through the air or via solid objects (such as the shelves, the cabinet, the floor, etc.) to the turntable, where it is picked up by the stylus, amplified and reproduced through the speakers once again.

9-950-803-11

Sony Corporation
1981

81J0558-1
Printed in Japan