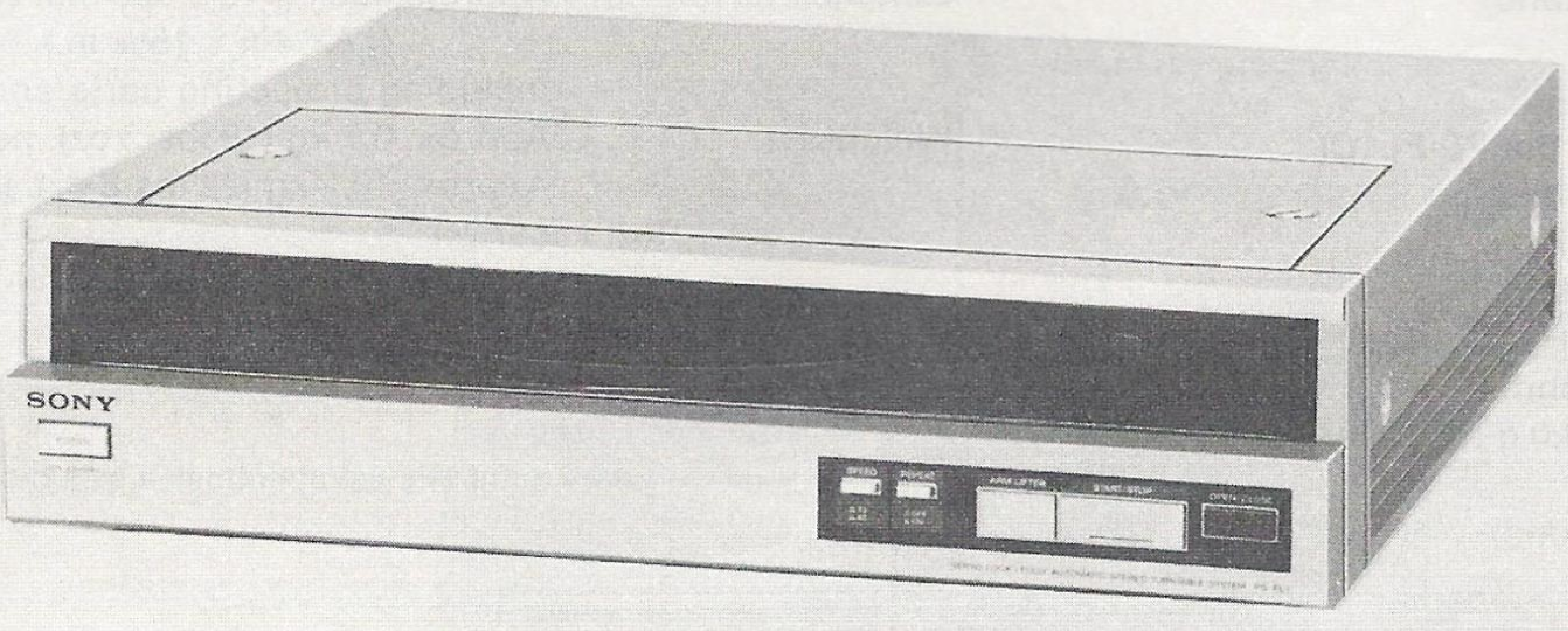
PS-FL1/FL1C

PS-FL1:

US Model
AEP Model
UK Model
E Model

PS-FL1C:

US Model



The PS-FL1 (US model) is not supplied with a cartridge, while the PS-FL1 (AEP, UK, E model) is supplied with a XL-150 cartridge and the PS-FL1C is supplied with a VL-5 cartridge.

STEREO TURNTABLE SYSTEM

SPECIFICATIONS

Turntable

Platter	30 cm (12 in.), aluminum-alloy diecast
Motor	Linear torque BSL (brushless and slotless) motor
Drive system	Direct drive
Control system	FG servo control system
Speed	$33^1/_3$ rpm, 45 rpm
Wow and flutter	0.03% (WRMS)*, 0.035% (WRMS) ±0.045% (DIN)
Signal-to-noise ratio	75 dB (DIN-B)
Automatic system	Lead-in, return, reject, repeat, record size selection

* 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.

Tonearm

Type	Statically balanced
Pivot-to-stylus length	216.5 mm ($8^5/_8$ in.)
Overall arm length	280 mm ($11^1/_{12}$ in.)
Overhang	16.5 mm ($^5/_8$ in.)
Tracking error	+3°, −1°
Tracking force adjustment range	0 - 3 g
Cartridge weight range (including cartridge shell)	7.5 - 12 g

— Continued on page 2 —

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

SONY®

SERVICE MANUAL

Cartridge XL-150 (supplied only with the PS-FL1: AEP, UK, E Model)

Type	Moving magnet type
Frequency response	10 Hz to 25 kHz
Channel separation	20 dB at 1 kHz
Output voltage	3 mV at 1 kHz, 5 cm/sec.
Load impedance	50 to 100 kilohms
Tracking force	1.3 to 2.3 g (1.8 g recommended)
Stylus	Sony ND-150G (0.6 mil diamond)
Weight	8.8 g

Cartridge VL-5 (supplied only with the PS-FL1C)

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.
Load impedance	50 to 100 kilohms
Tracking force	1.5 to 2.5 g (2.0 g recommended)
Stylus	Sony ND-5G (0.6 mil diamond)
Weight	5.0 g

General

Power requirements	AEP mode:	220 V ac, 50/60 Hz
	UK model:	240 V ac, 50/60 Hz
	US model:	120 V ac, 60 Hz
	E model:	110 – 120 or 220 – 240 V ac adjustable 50/60 Hz
Power consumption	10 W	
Dimensions	Approx. 430 × 110 × 385 mm (w/h/d) (17 × 4 3/8 × 15 1/8 in.) including projecting parts and controls	
Weight	Approx. 8.7 kg (19 lbs 3 oz), net Approx. 10.2 kg (22 lbs 8 oz), in shipping carton	

FEATURES

Unique modular turntable system
When you touche the OPEN/CLOSE button the turntable module will smoothly slide out. Other audio components can be positioned on top of the turntable cabinet.

A microprocessor controls three motors
The movement of the turntable, the tonearm and the turntable module is controlled by a microcomputer. When you press the START/STOP button, the module will close, the turntable will rotate and the tonearm will lower onto the record.

Fully automatic system
With the module closed, automatic record play and stylus up/down are operated by the "feather-touch" function button on the front panel. The record size is automatically set by a photo sensor system. If no record is on the turntable, the tonearm will not descend but will automatically return to the arm rest. A muting system activates when the tonearm is lifted and deactivates after the tonearm lowers onto a record so there is no need to turn the amplifier volume down every time a stylus is placed on a record.

Liner torque BSL motor
Direct drive system with Sony's unique BSL (brushless and slotless) motor which has an extremely low noise level and whose smoothness virtually eliminates wow and fluter. Its high torque assuree a quick start to 33 1/3 rpm after only a half revolution.

Tonearm return mechanism triggered by optical sensor
An optical sensor detects the record return point. No mechanical pressure is applied to the stylus so the tonearm can use a very light tracking force.

Synchronized operation with the Sony cassette decks
When the tonearm lowers to the lead-in groove of a record, the cassette deck stand-by mode is released and the record mode assumed.
When play finishes, the cassette deck is automatically set first in the record muting mode, then in the pause mode. This synchronized operation is possible with Sony cassette decks equipped with a four-pin remote control jack which is connected with a Sony RM-65 synchro remote control unit.

Wireless remote control operation
Using the optional RM-44 system remote controller, various operations— power on/off, start/stop of record play and tonearm up/down can be remotely controlled.

MODEL IDENTIFICATION
Specification Label

SONY® MODEL NO. PS–FL1

STEREO TURNTABLE SYSTEM

SERIAL NO.
MADE IN JAPAN

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

Handling Precautions for MOS IC (IC105)

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.)

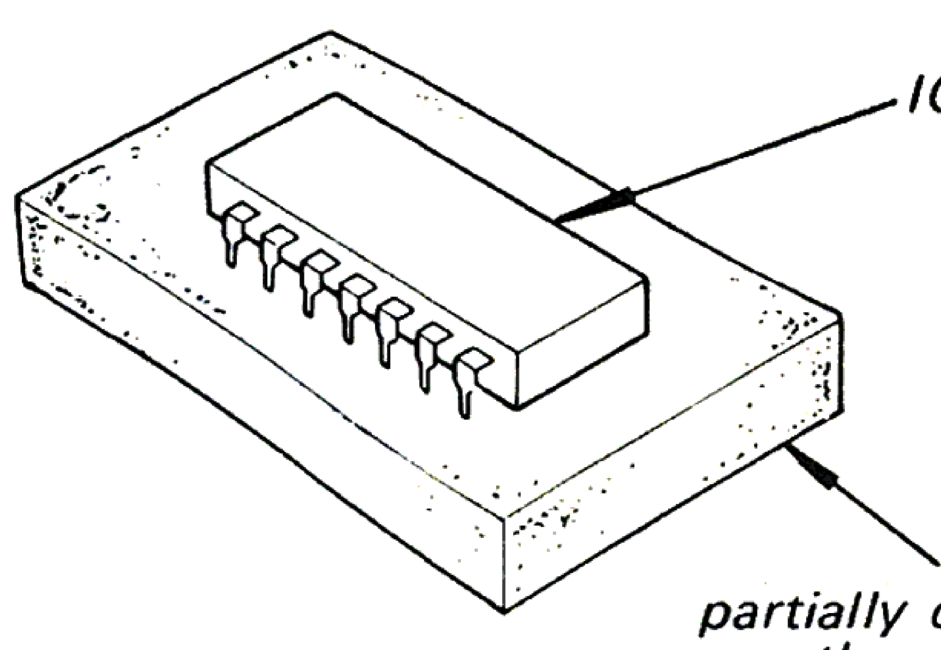


Fig. A

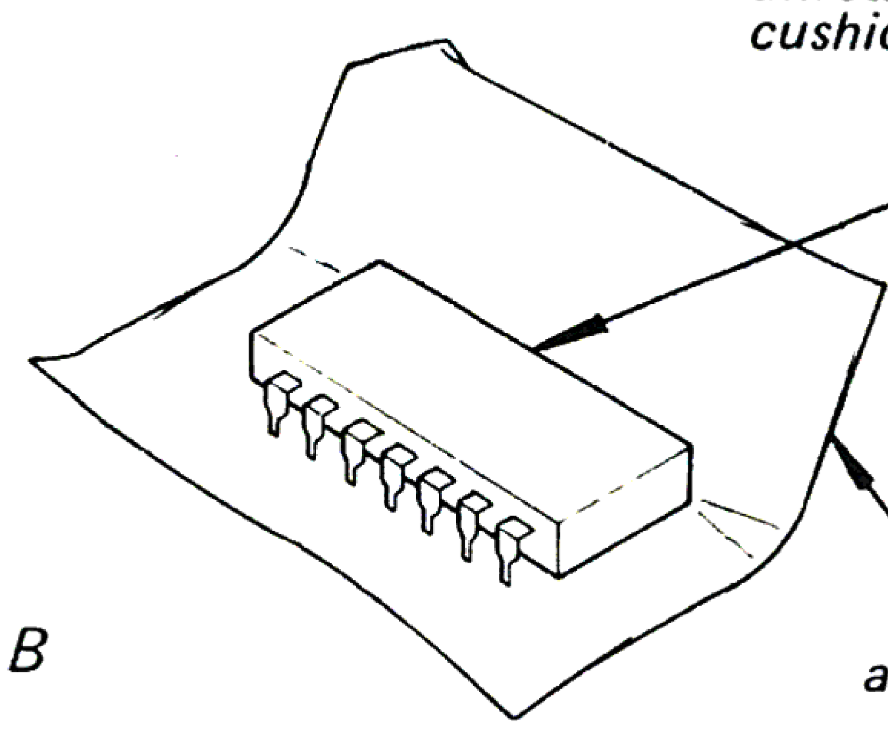


Fig. B

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.

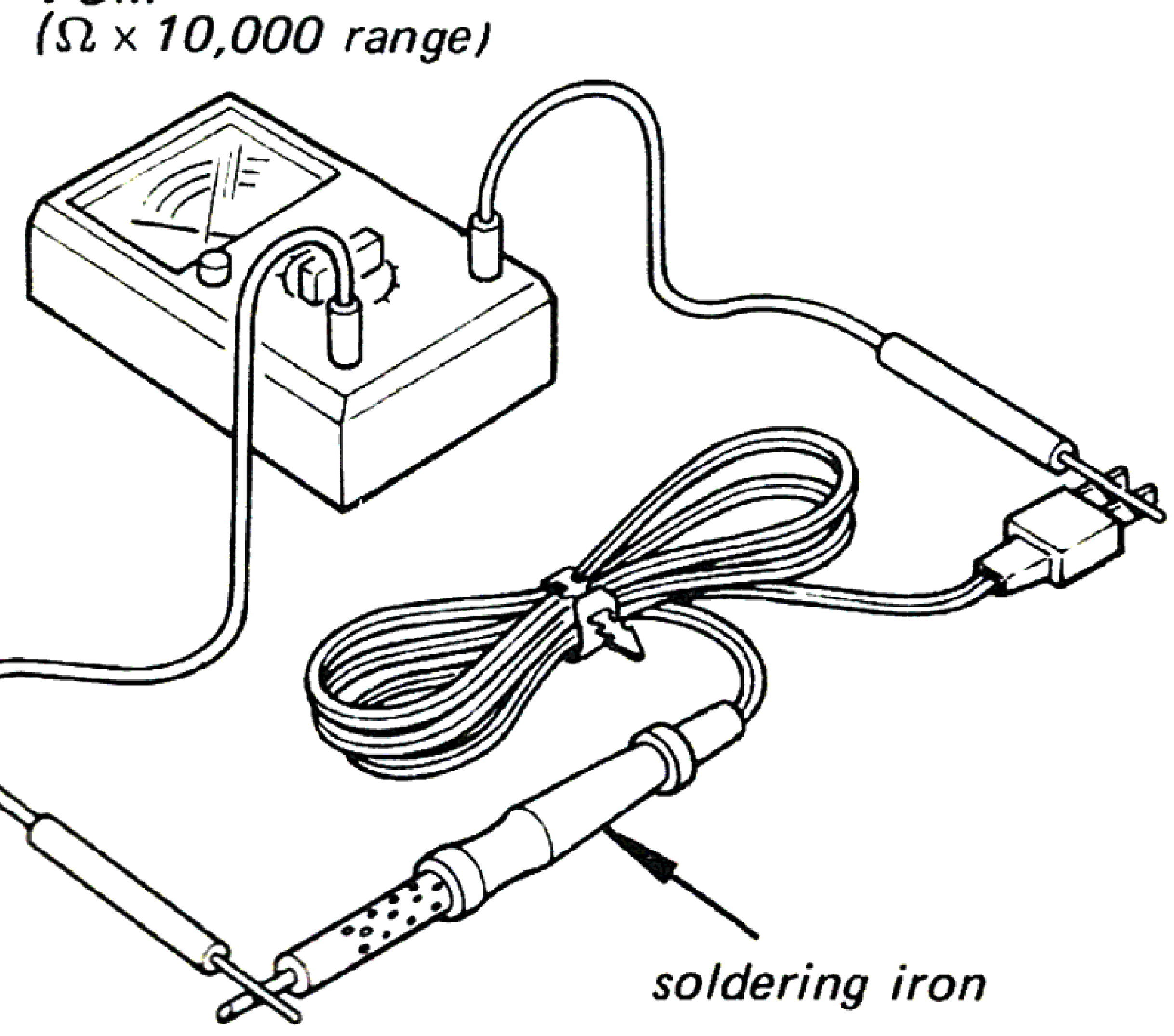


Fig. C

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.

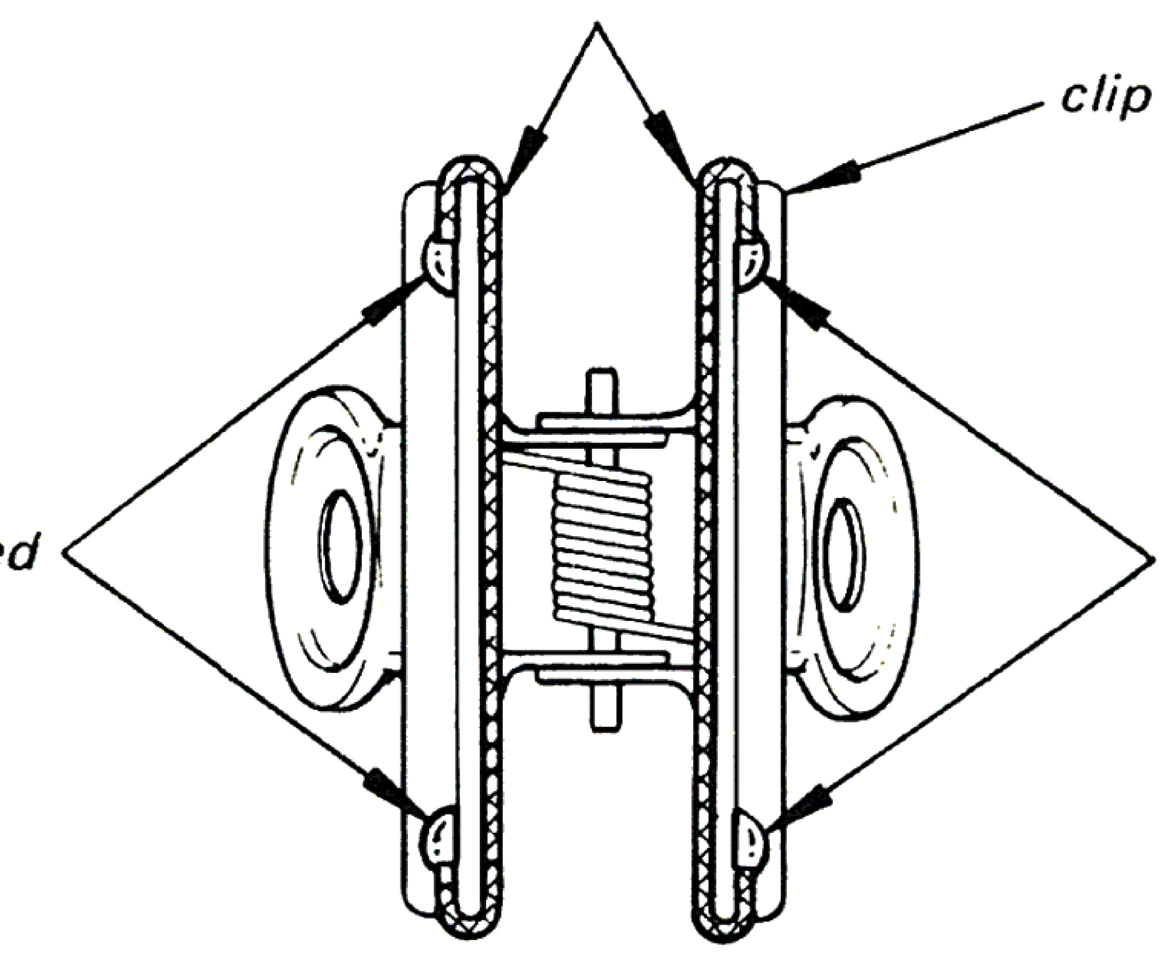


Fig. D Make sure that there is no solder on the inside.

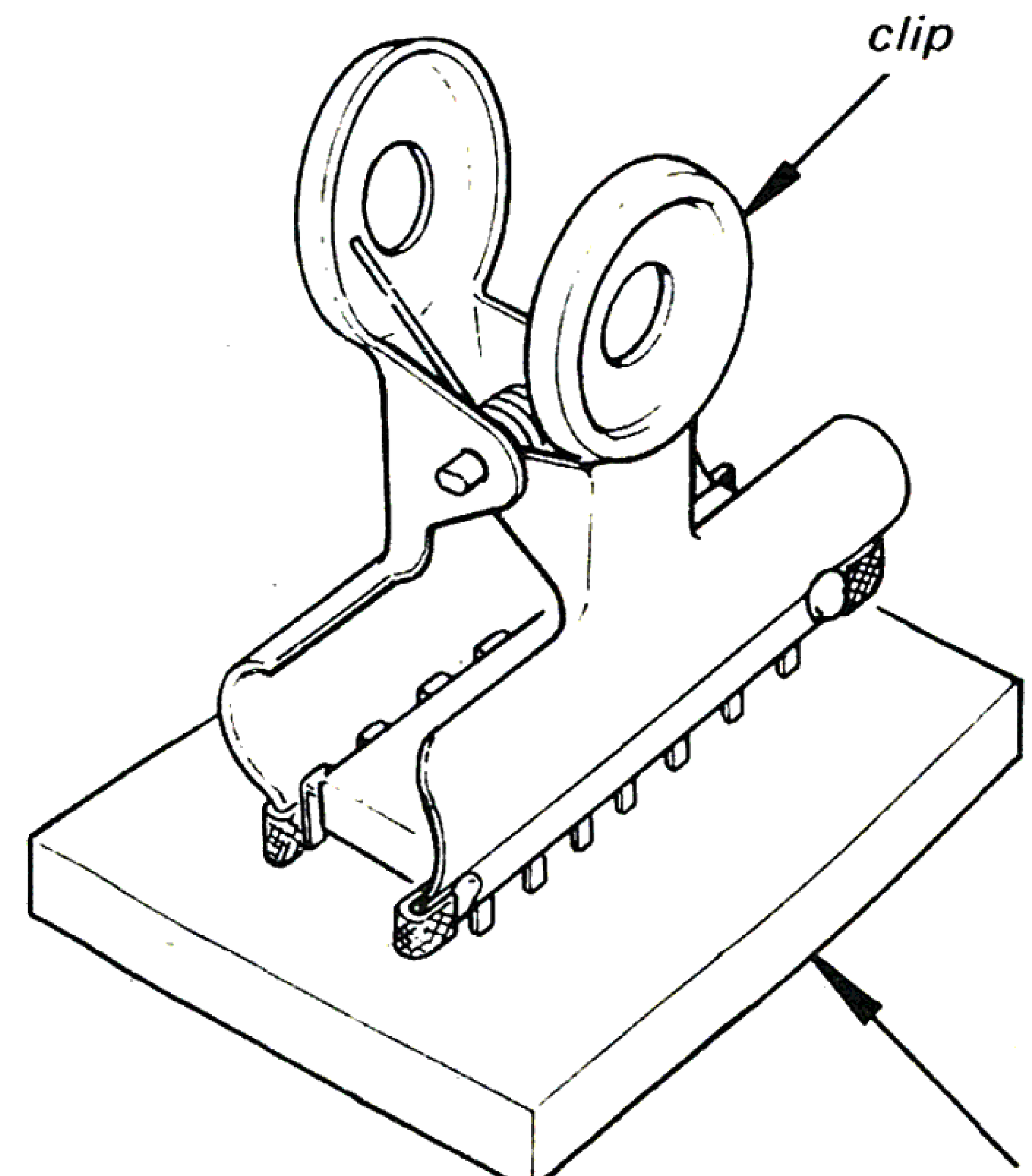


Fig. E

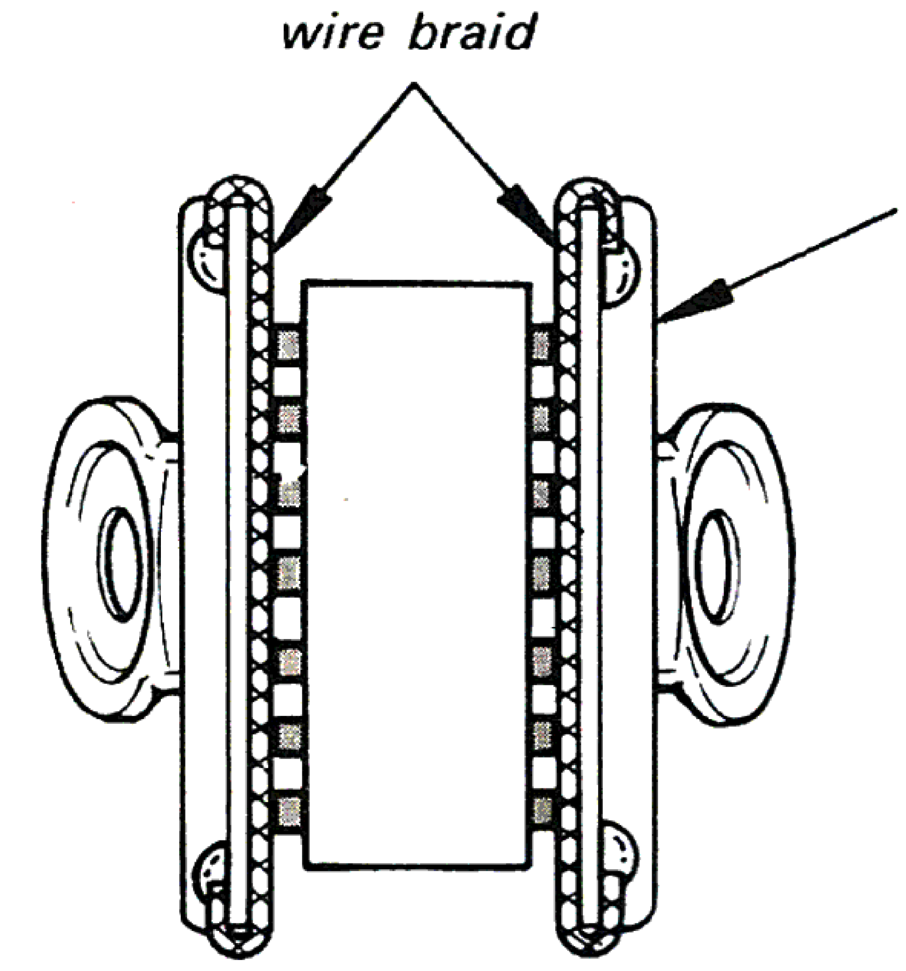


Fig. F Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- 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.

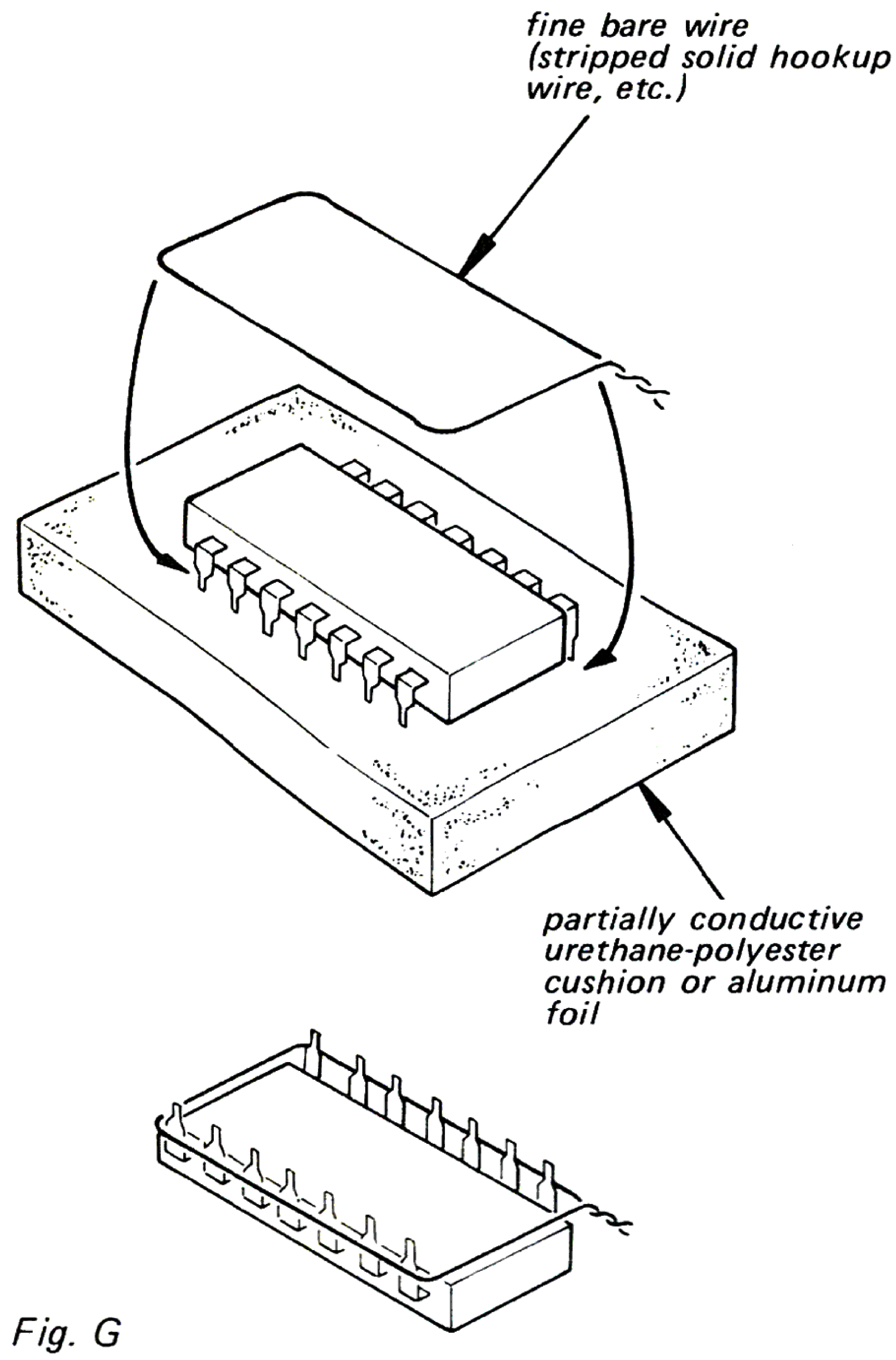


Fig. G

- 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.

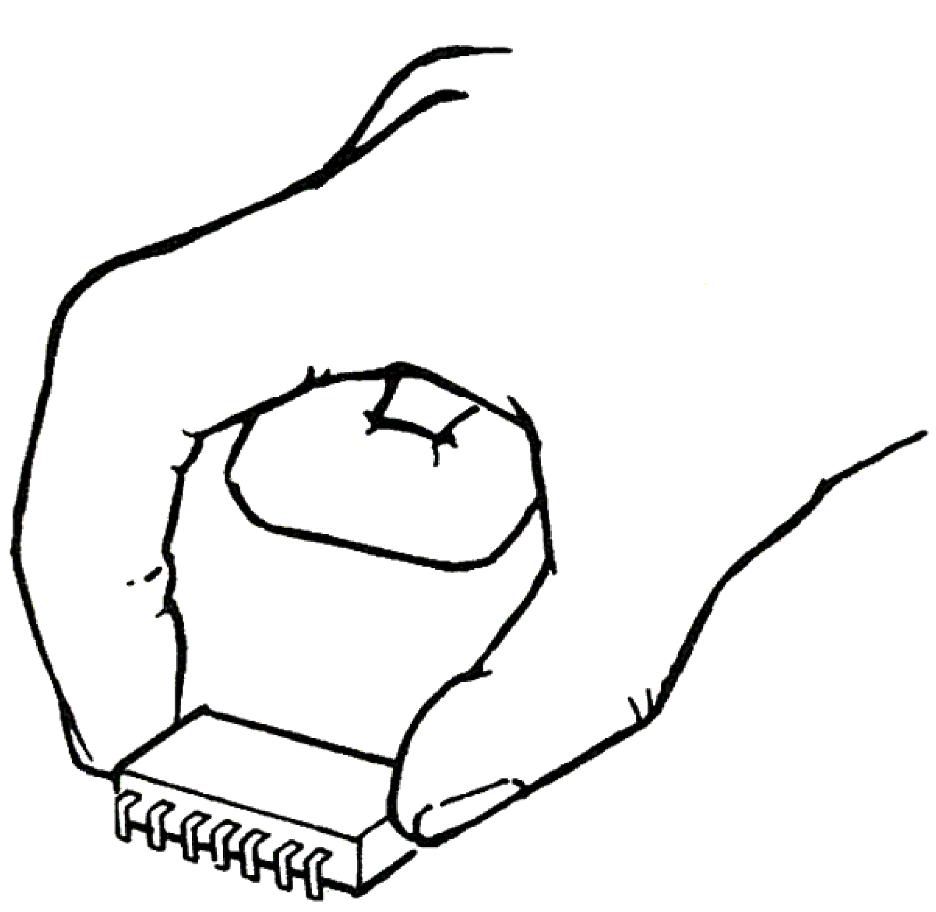


Fig. H

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:

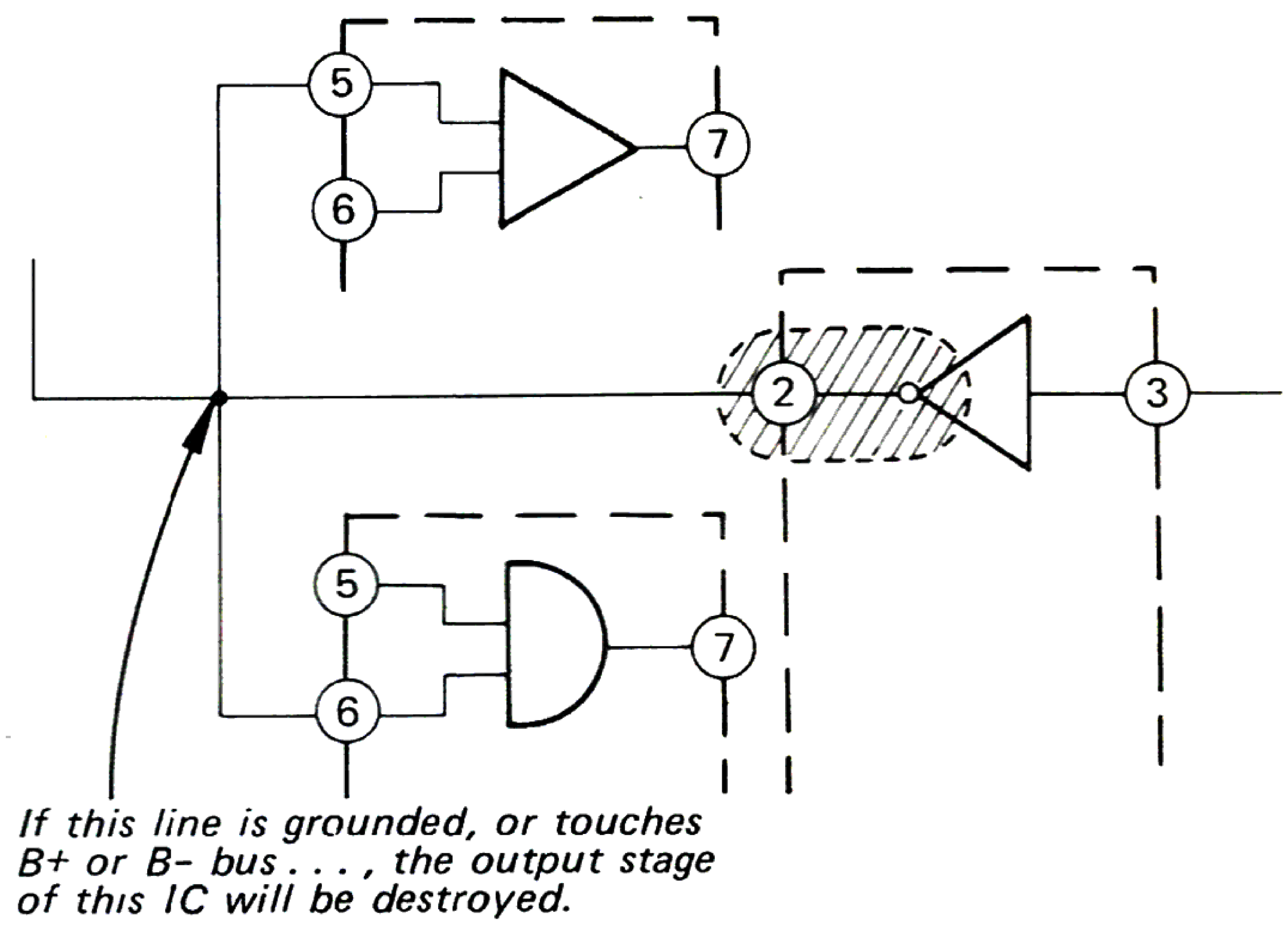
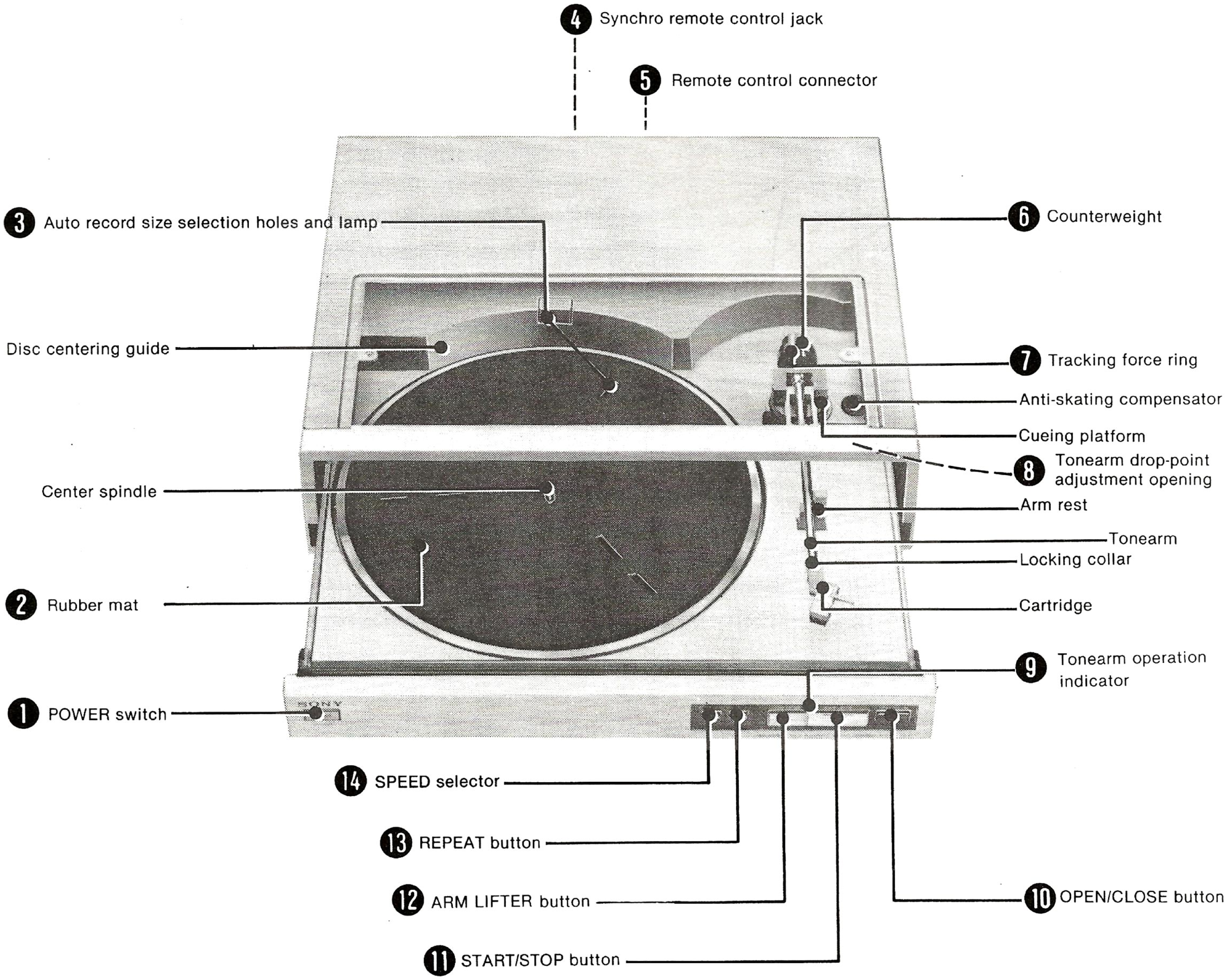


Fig. I

LOCATION AND FUNCTION OF CONTROLS

The photo below shows the assembled turntable.



TURNTABLE ASSEMBLY

❶ POWER switch
Press to turn on the turntable. To turn the turntable off, press it again.

❷ Rubber mat
Place the rubber mat so that the holes for auto record size selection on the rubber mat and on the platter are matched correctly.

❸ Auto record size selection holes and lamp
Record size is automatically selected by a beam transmitted from a lamp through the holes on the rubber mat and the platter to the photo detector underneath the platter. When no record is on the platter, the tonearm will not lower onto the turntable.

❹ Synchro remote control jack
Synchronized recording from disc to tape is possible on specified Sony cassette decks by using the optional RM-65 synchro remote control unit.

❺ Remote control connector
Connect the optional RM-44 system remote controller to this connector. (See page 13.)

❻ Counterweight
Balance the tonearm and apply the required tracking force by adjusting the position of the counterweight.

❼ Tracking force ring
The tracking force scale is engraved on this ring in 0.1 gram increments.

❽ Tonearm drop-point adjustment opening
Turn the screw in this opening to adjust the tonearm drop-point for automatic record play.

❾ Tonearm operation indicator
The indicator flickers indicating that the tonearm is moving for automatic operation. The indicator goes out when the tonearm returns to the arm rest.

❿ OPEN/CLOSE button
With one touch of this button the turntable module automatically opens for loading a record. With another touch the module automatically closes.

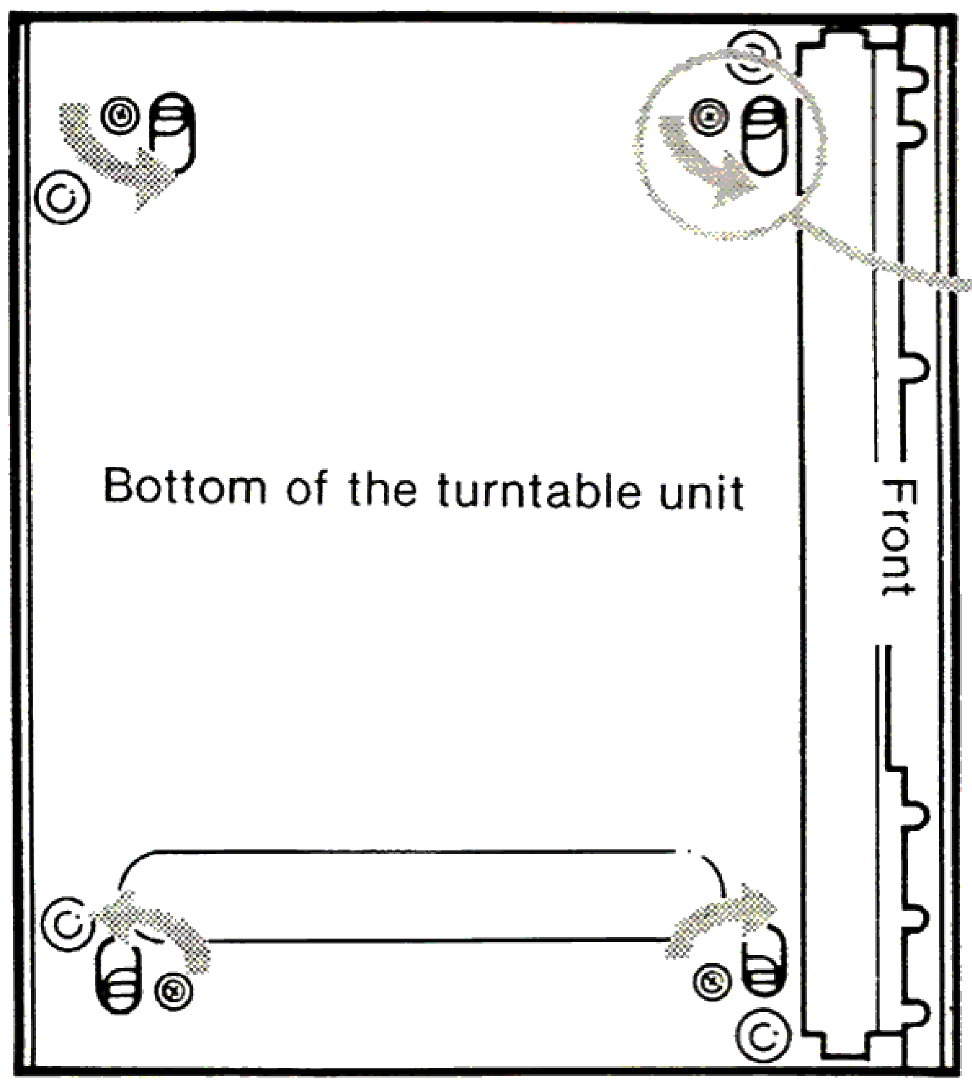
⓫ START/STOP button
Press to start the record playing. To stop during play, press it again.

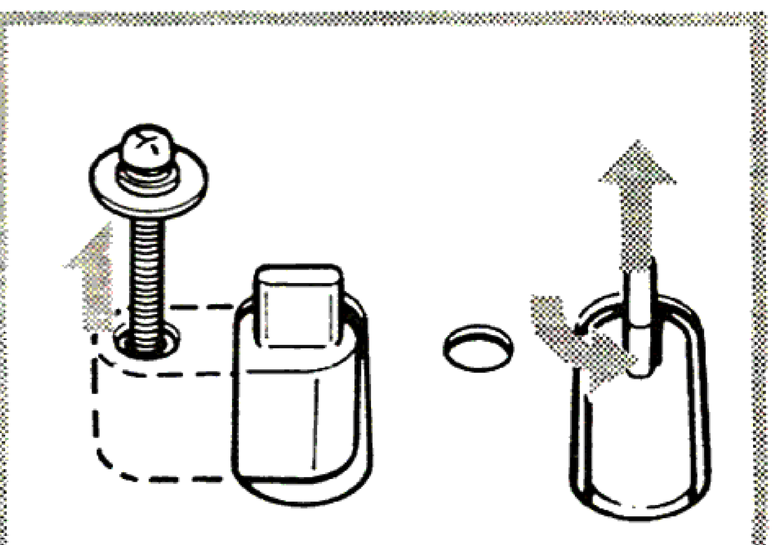
⓬ ARM LIFTER button
This button lifts and lowers the tonearm. When the tonearm is lowered, the turntable starts rotating.

⓭ REPEAT button
Depress this button to repeat play. Repeat play continues until this button is pressed to release it. If the START/STOP button is pressed during repeat play, the tonearm returns to the arm rest and the turntable stops rotating.

⓮ SPEED selector
Depress this button when a 45 rpm record is to be played (▬).
Press to release it for a 33⅓ rpm record (□).

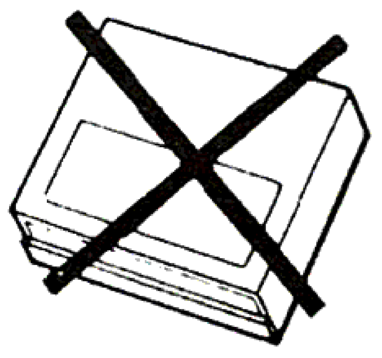
❶ Remove the four transit screws with red heads and stoppers. Save these screws and stoppers, since they will be required when repacking.





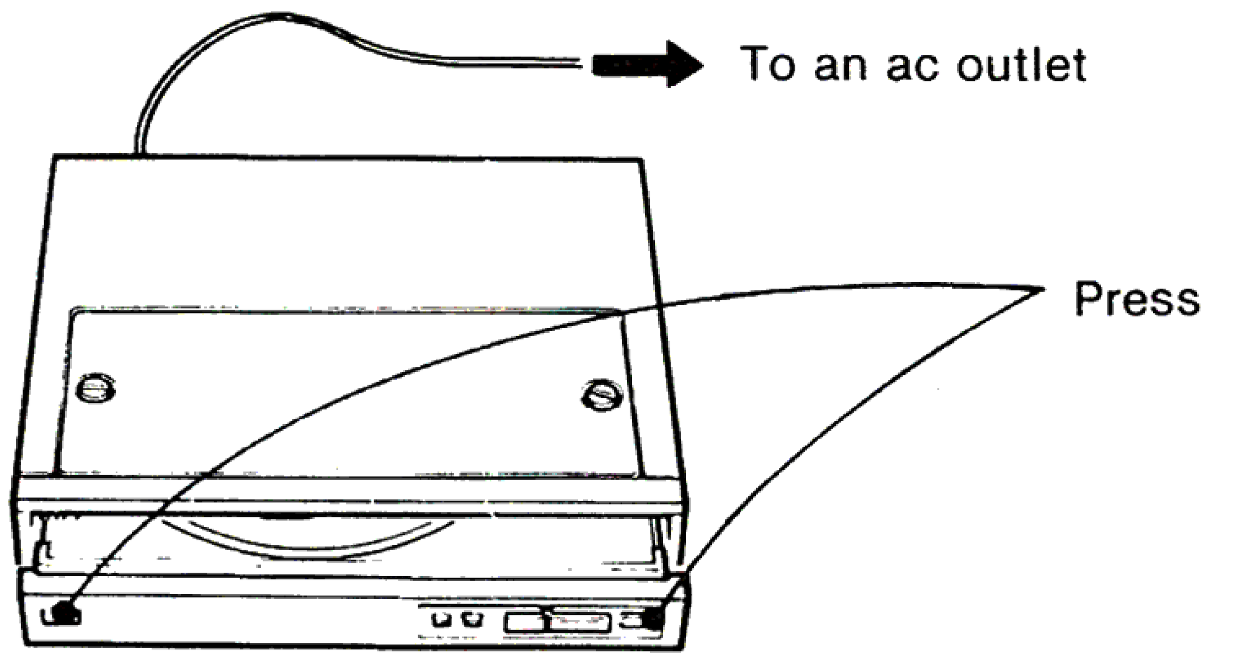
1 Remove the four trainsit screws.
2 Turn each stopper in the direction of the correspon-ding arrows illustrated on the left.

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.

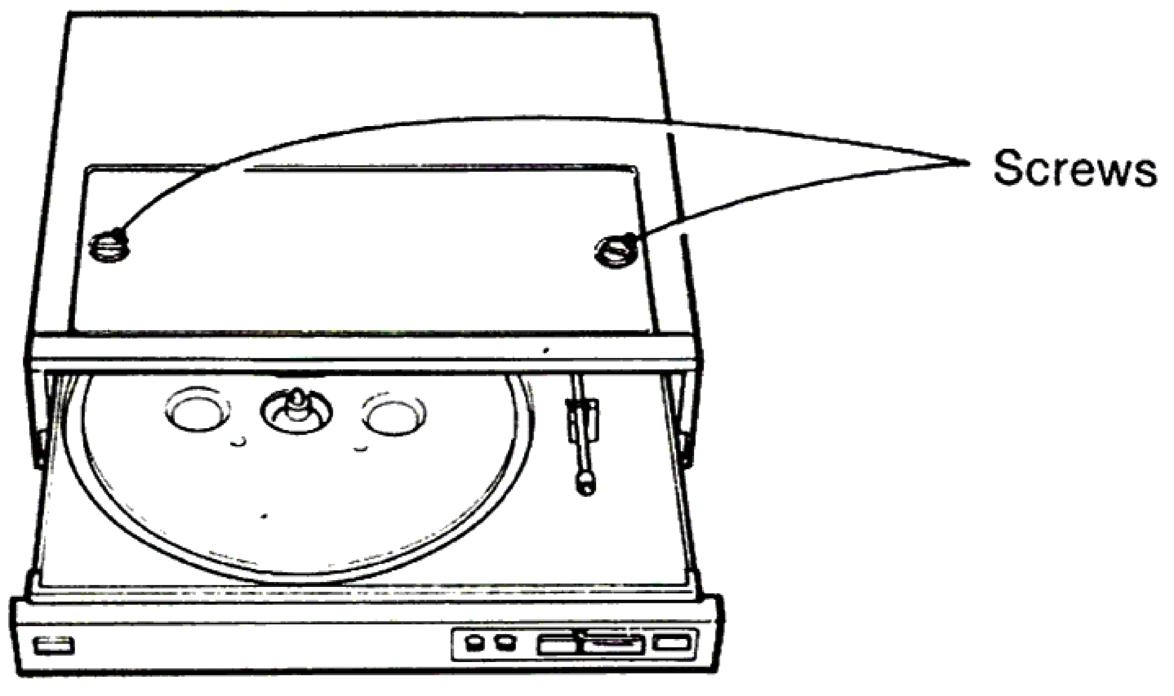


❷ Remove all packing material and wipe off the cabinet.
Save the packing box and materials for possible future use.

❸ Connect the power cord to an ac outlet, press the POWER button and press the OPEN/CLOSE button. The module will open.

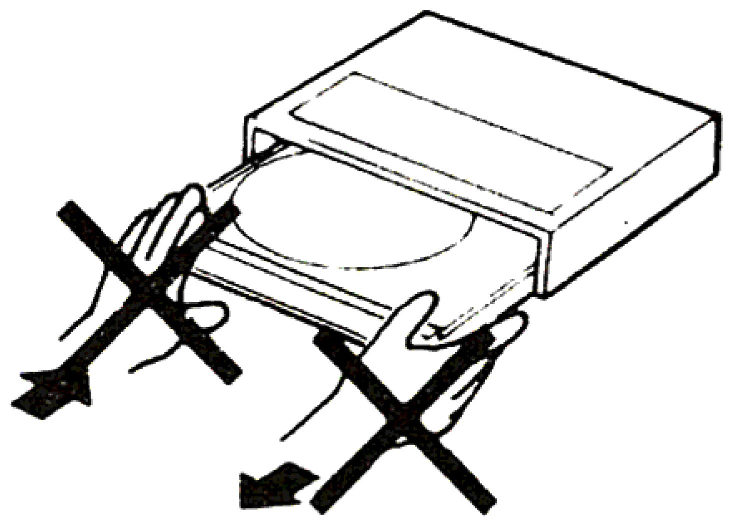


❹ Unscrew the two screws using a coin or a screwdriver and remove the top plate.

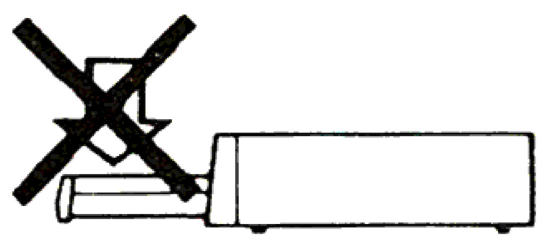


Notes on the module

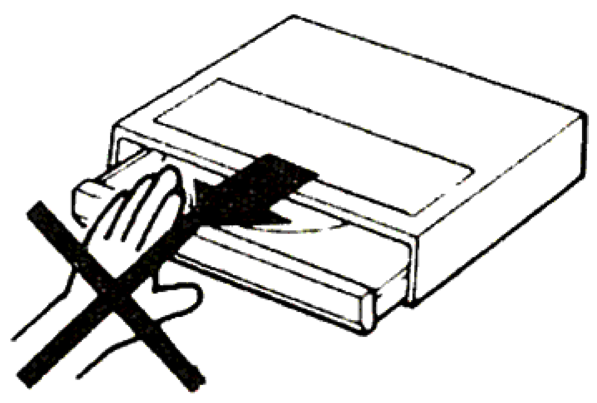
The OPEN/CLOSE button does not activate when the power is turned off. Never push or pull the module forcibly.



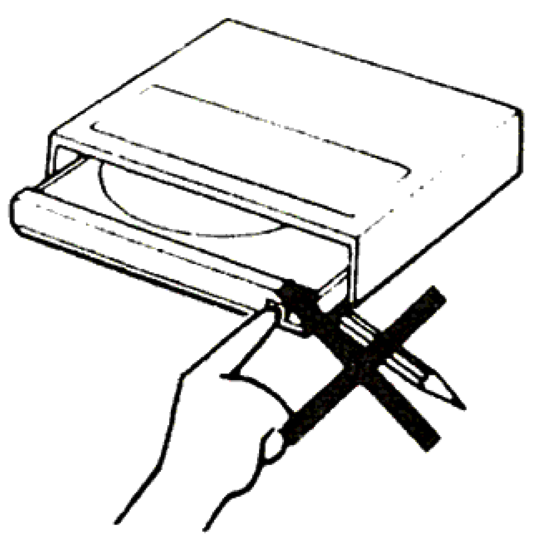
Do not push down on the module.



Do not stop the module when it is moving.



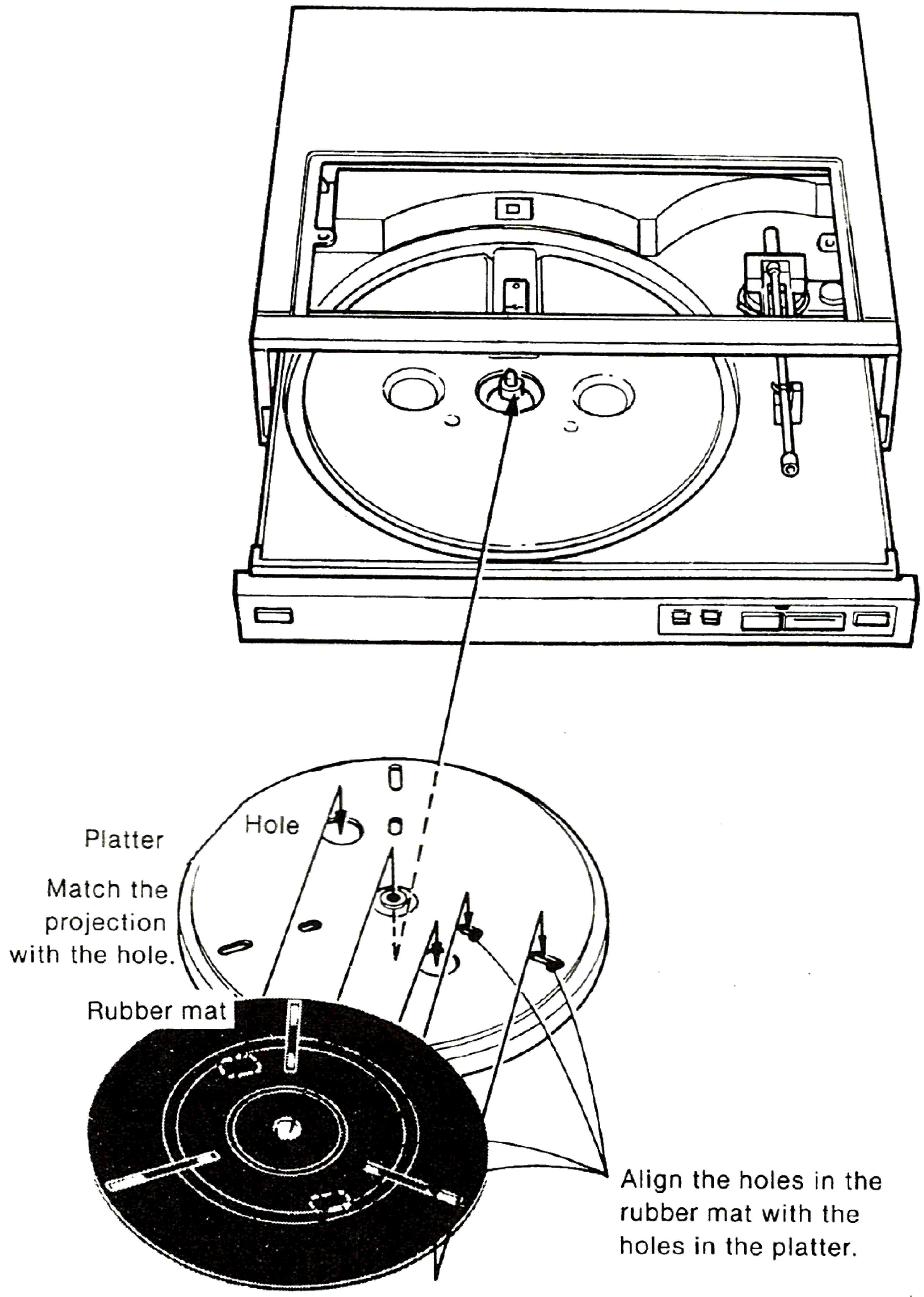
Be careful that no foreign object is caught between the module and the cabinet.



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 10 seconds, the module will automatically move to the opposite direction.

❺ 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.

❻ Place the rubber mat on the platter, aligning the holes in the rubber mat and the holes in the platter.



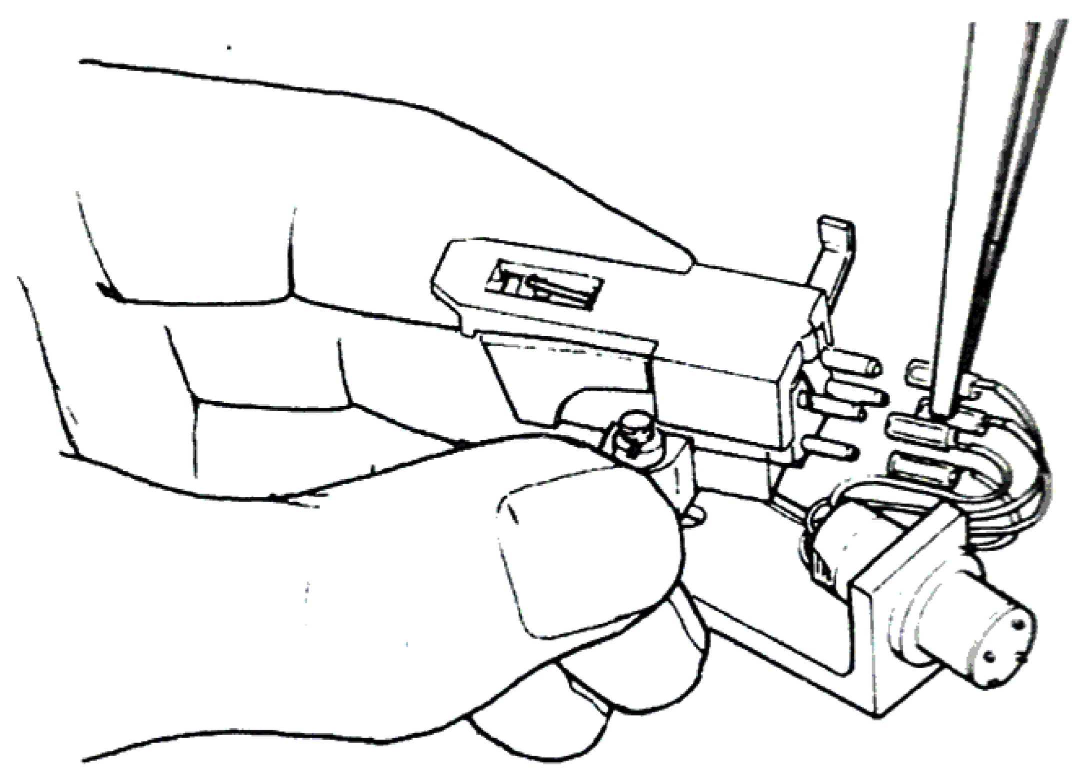
CARTRIDGE INSTALLATION

> **Notice on the PS-FL1C**
> The supplied cartridge has been installed on the cartridge shell at the factory. The following procedure is not necessary unless you replace the cartirdge.

Any cartridge weighing from 2.5 to 7 grams can be mounted onto the supplied cartridge shell.

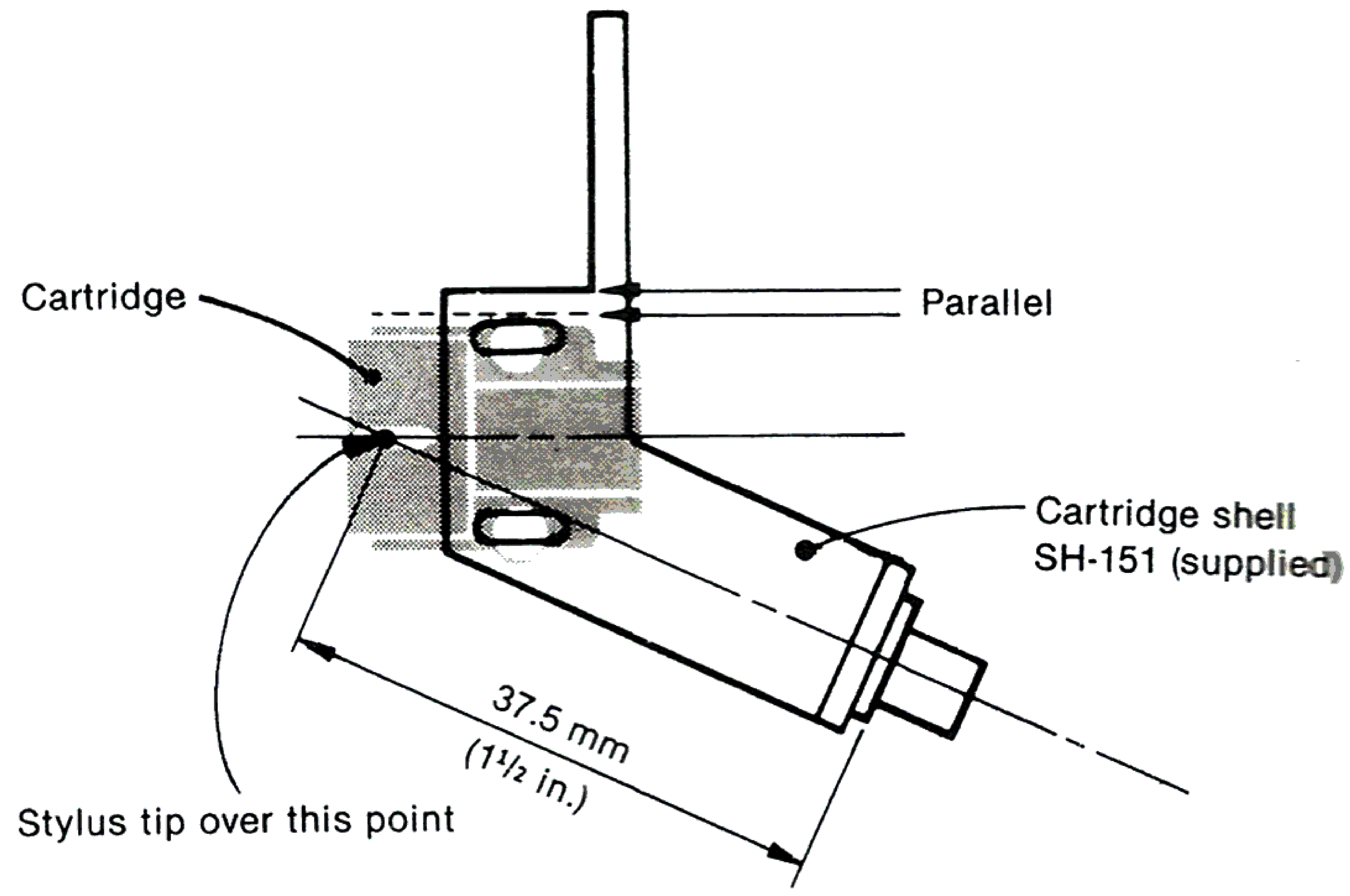
❶ Connect the lead wires of the shell to the corresponding pins on the cartridge.

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)



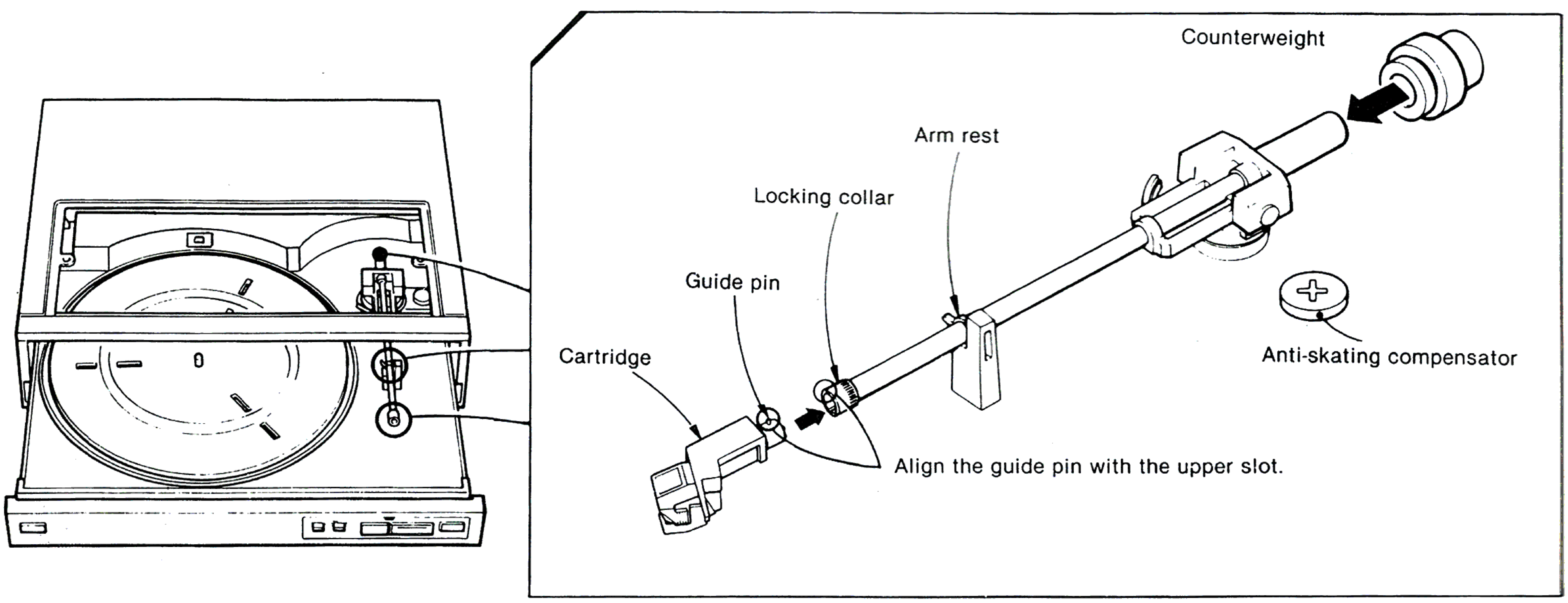
❷ Temporarily install the cartridge into the shell with the supplied mounting screws as illustrated.

❸ Place the cartridge shell exactly over the diagram below and adjust the position of the cartridge so that the stylus tip is just over the point where the lines cross. Then tighten the screws down.



TONEARM ASSEMBLY

❶ Secure the tonearm to the arm rest.
❷ Plug the cartridge shell into the tonearm and turn the locking collar counterclockwise until the shell is firmly locked.
❸ Insert the counterweight and turn it in the direction of the arrow.



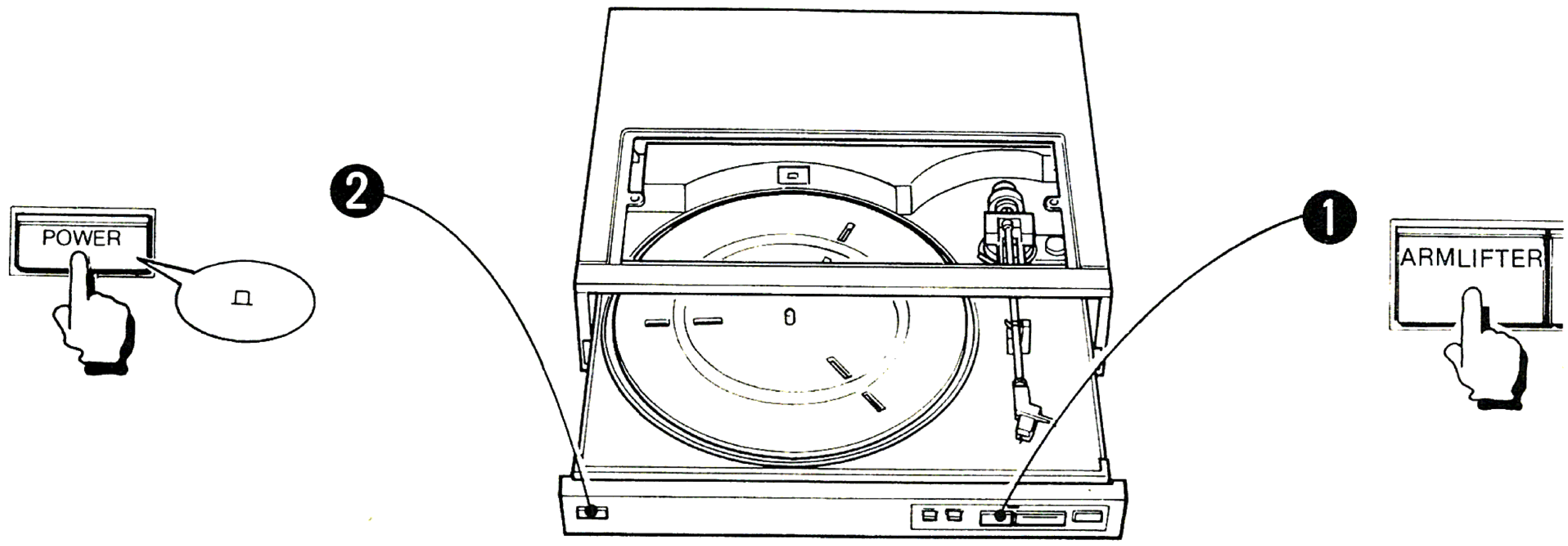
Note
The cartirdge supplied with this turntable is unified with the shell. To use a different cartridge, refer to page 15.

TONEARM ADJUSTMENT

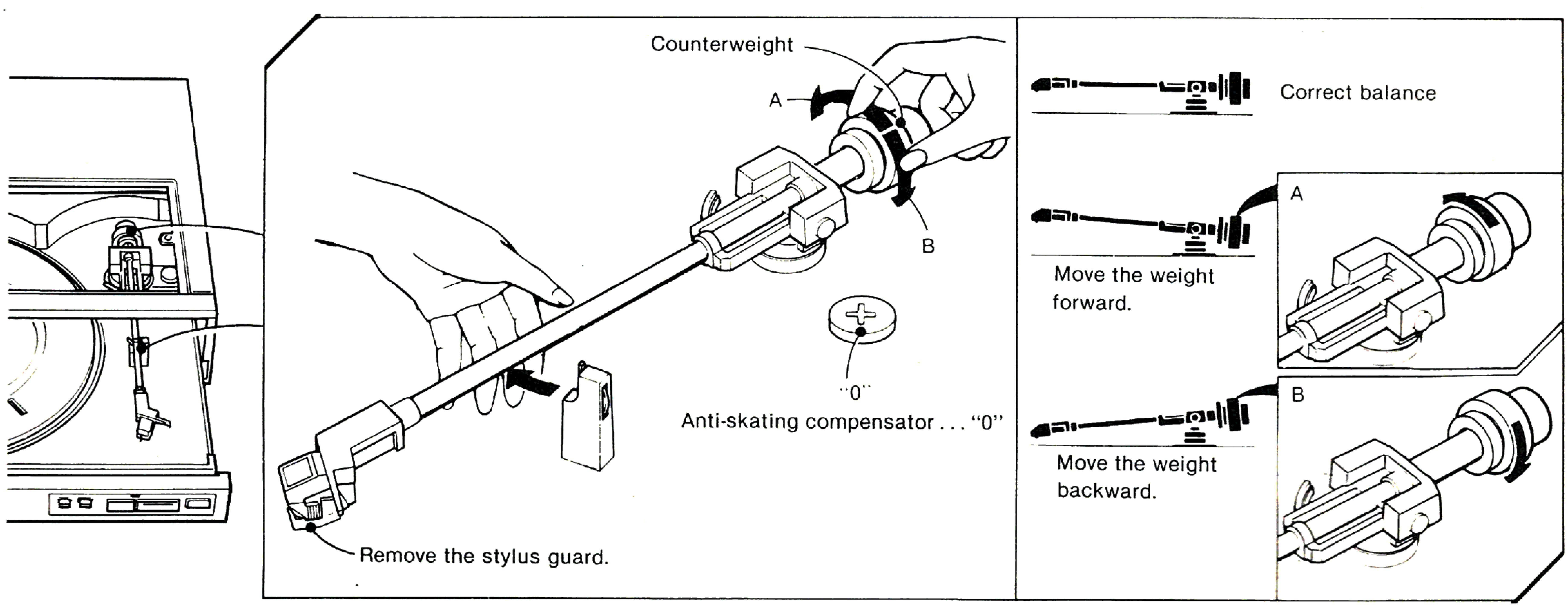
The turntable must be on a level surface while the tonearm is being adjusted.
Be careful not to damage the stylus tip while making adjustments.

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 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.

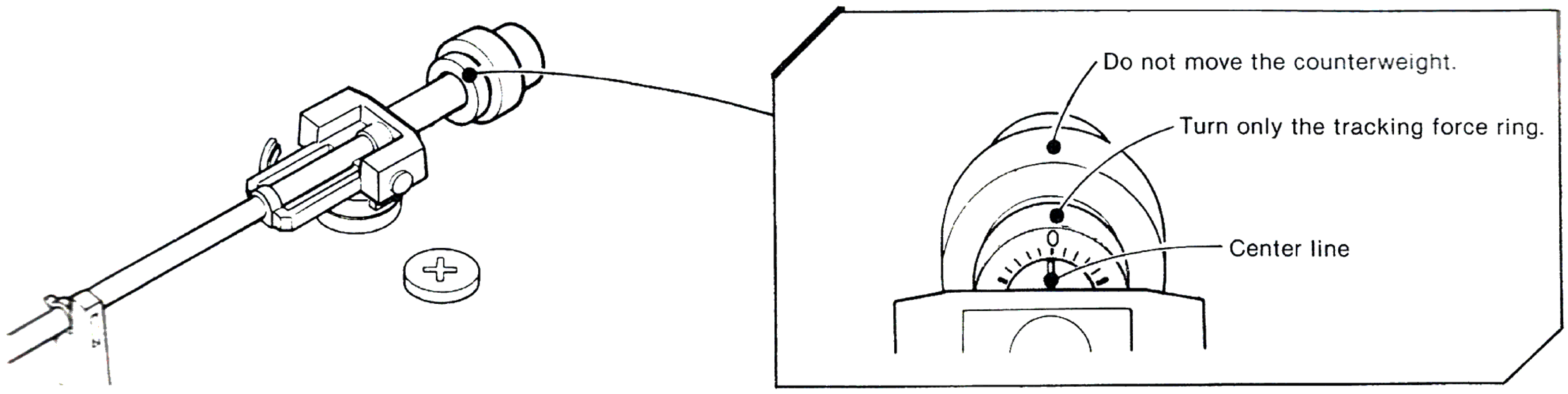


❷ Set the anti-skating compensator to "0".
❸ Remove the stylus guard and release the tonearm from the arm rest.
❹ Adjust the position of the counterweight by turning it. Release the tonearm gently and check the balance. Repeat this step until the arm is balanced.



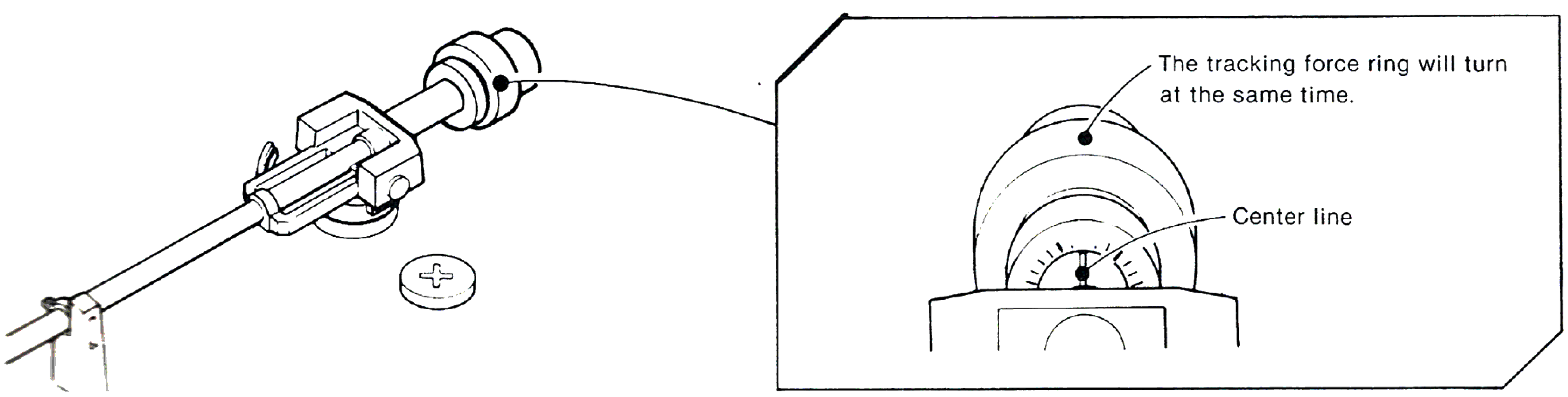
❺ After the tonearm is balanced, replace the stylus guard and secure the tonearm to the arm rest.

❺ **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.



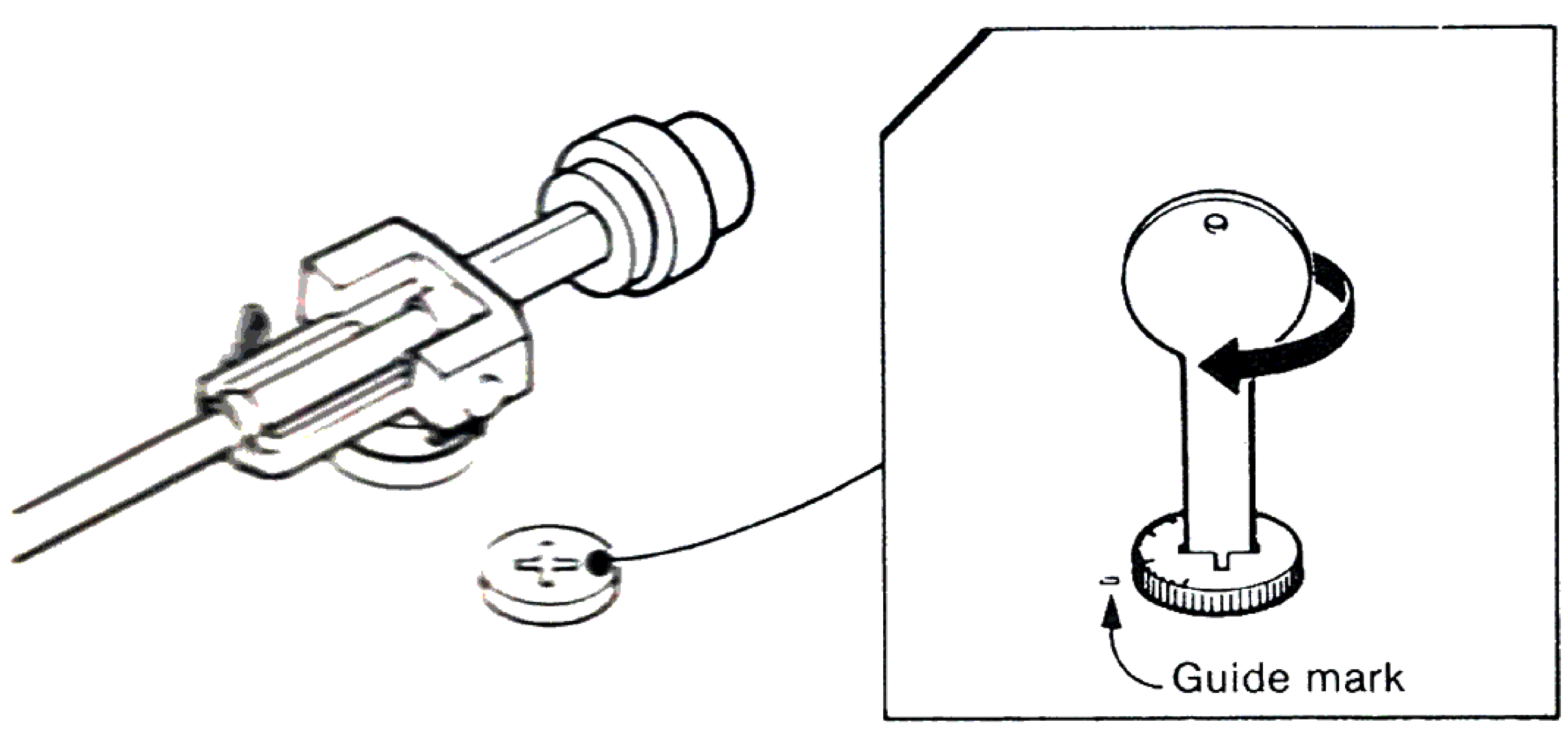
TRACKING FORCE *1 ADJUSTMENT

The recommended tracking force for the supplied cartridge is 1.8 grams. Turn the counterweight in the direction of the arrow in the illustration so that the recommended tracking force value is aligned with the center line on the tonearm.



ANTI-SKATING *2 COMPENSATION

Turn the anti-skating compensator so that the guide mark is aligned with the selected tracking force value.



Turn the anti-skating compensator so that the guide mark is aligned with the selected tracking force value.

AFTER THE TONEARM ADJUSTMENT

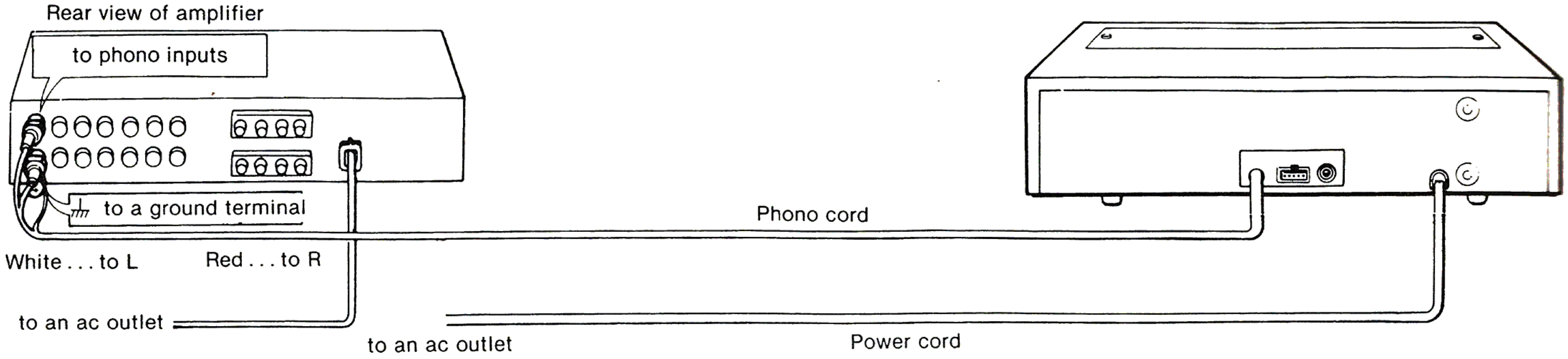
When the tonearm adjustment is completed, replace the top plate so that the rubber cushion comes front and secure it with the screws.

***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.

CONNECTIONS

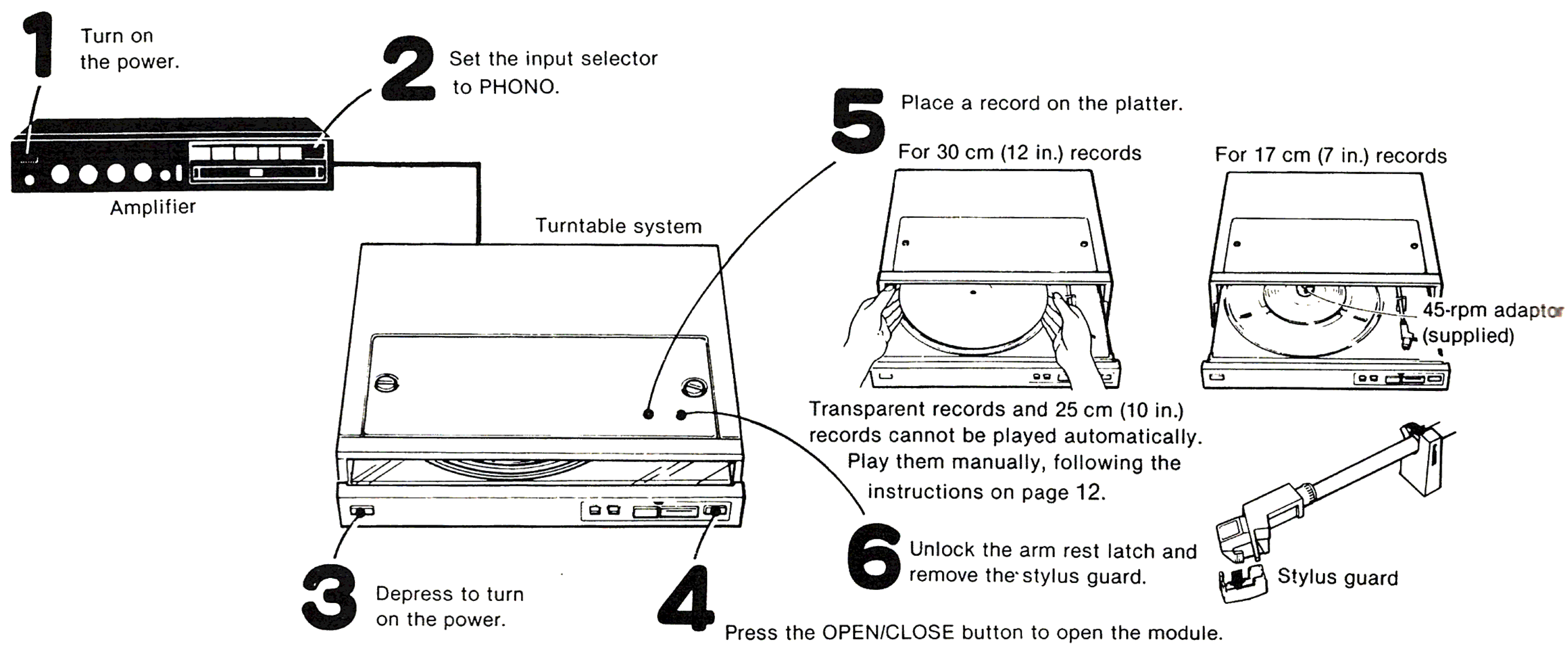
- Turn off the amplifier before making connections.
- Be sure to insert the cable connectors firmly into the jacks. Loose connections may cause hum and noise.
- Connect the red plug of the connecting cord to the right-channel jack [R] of the amplifier and the white plug to the left-channel jack [L]. Otherwise, the right and left channels will be reversed.
- Leave a little slack in the connecting cord to allow for inadvertent shock or vibration.



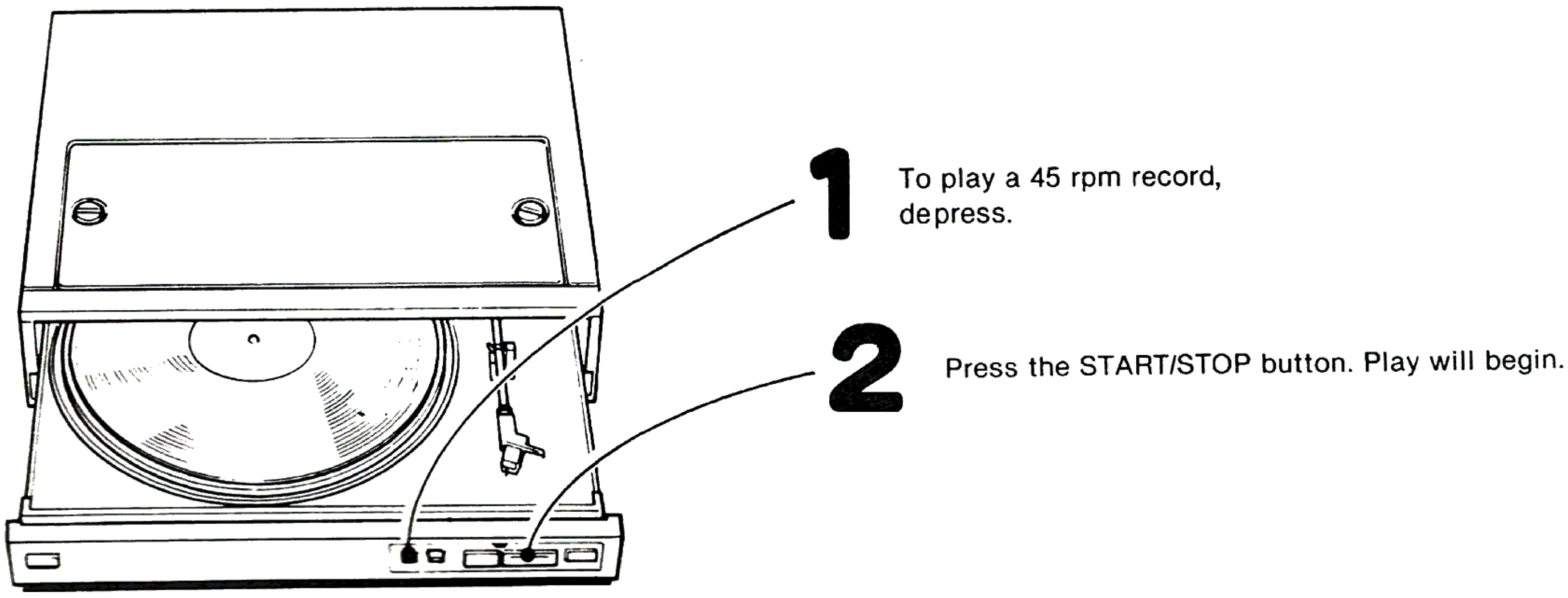
RECORD PLAYING

PREPARATION

- Place a record on the platter. For 17 cm (7 inch) records, put the supplied 45-rpm adaptor over the center spindle.
- Lower the amplifier volume and set the input selector to PHONO.



AUTO PLAY



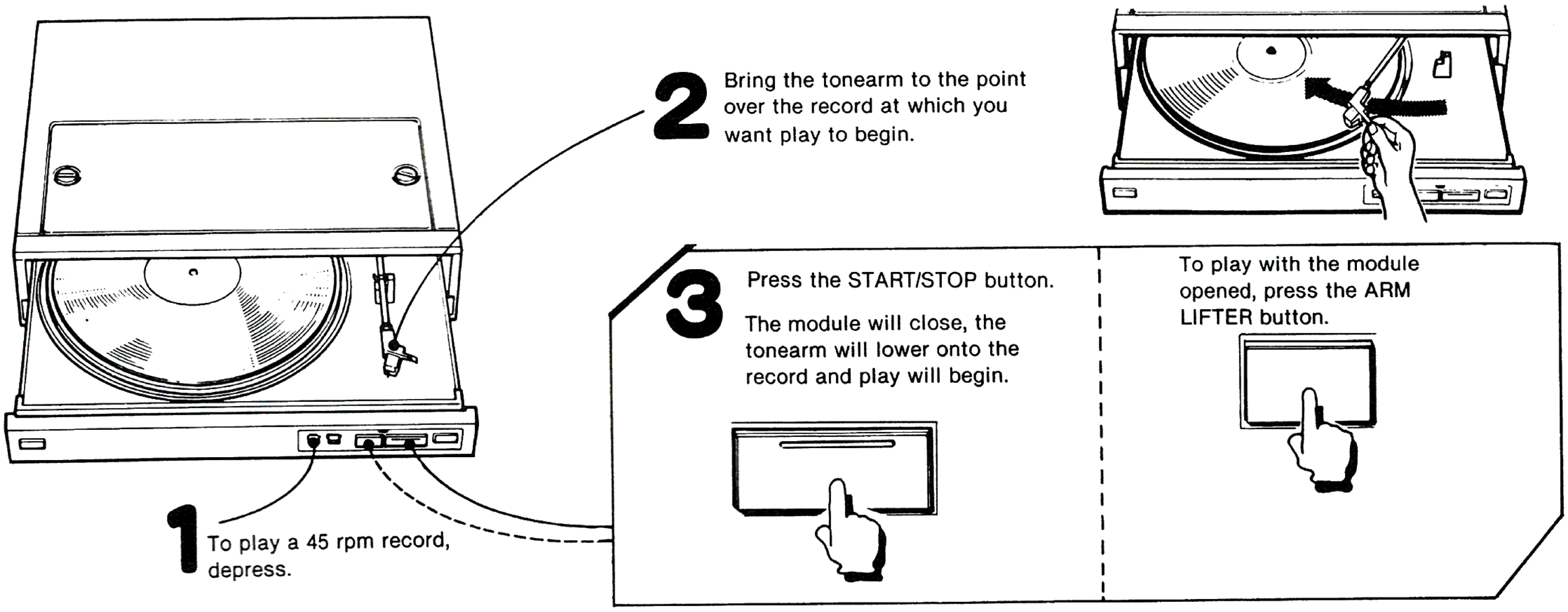
The auto record size selection function automatically adjusts to either 30 cm (12 inch) or 17 cm (7 inch) records.

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 cannot be played automatically. To play these records, bring the tonearm onto a record and then start the playing, following the instructions in "Manual play".
- Turn off the POWER switch after the tonearm returns to the arm rest. If the POWER switch 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:

TO BEGIN RECORD PLAY AT A PARTICULAR POINT—Manual play



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.)

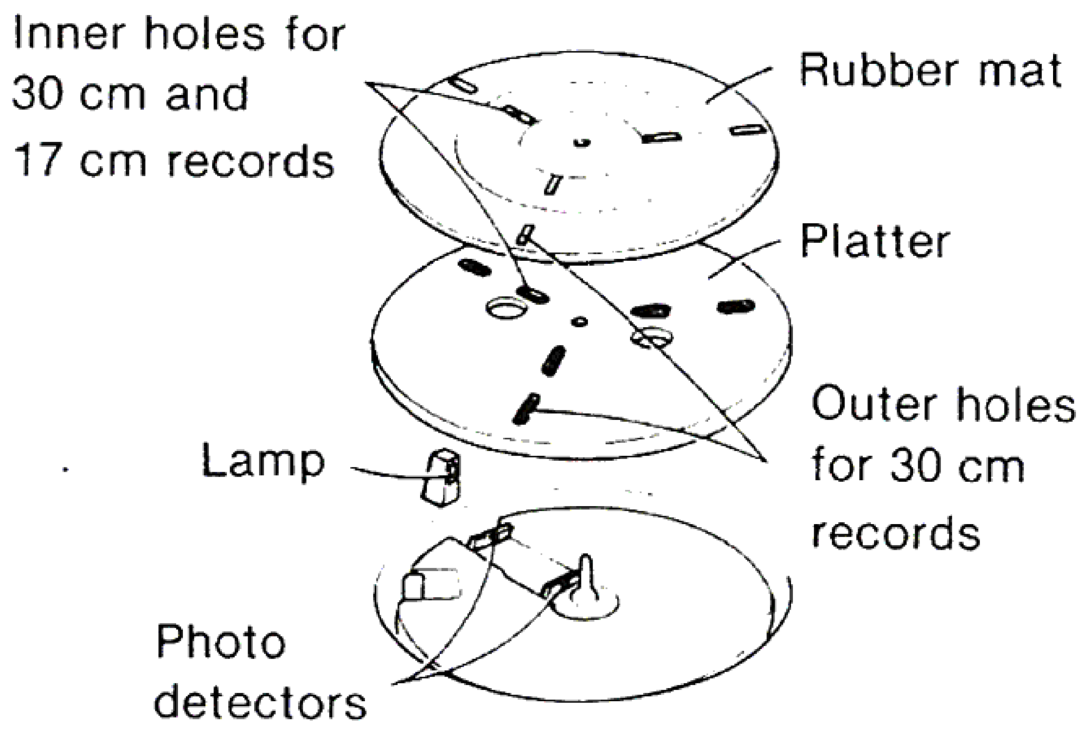
You can stop play by pressing the START/STOP button instead of the OPEN/CLOSE button. In this case, the module will not open.

TO REPEAT PLAY

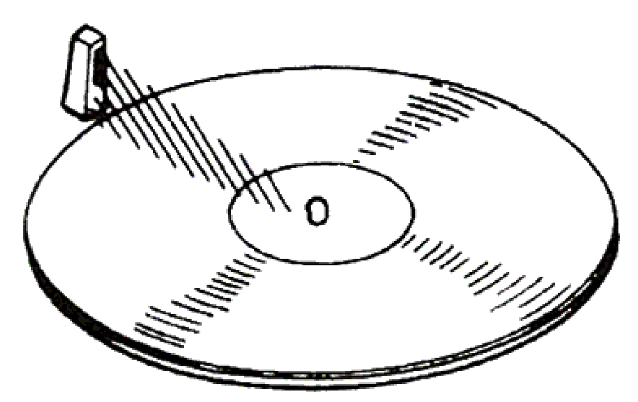
Depress the REPEAT button either before or after starting play. The tonearm continues repeat play unless the button is pressed again to turn off the repeat function. To stop during repeat play, press to release the REPEAT button, and press the START/STOP button.

HOW THE AUTO RECORD SIZE SELECTION WORKS

When the START/STOP button is pressed, the tonearm goes automatically into the lead-in groove, whether the record is 30 cm or 17 cm. A beam from the lamp is transmitted through the holes on the rubber mat and the platter to the photo detectors which activate the auto record size selection.

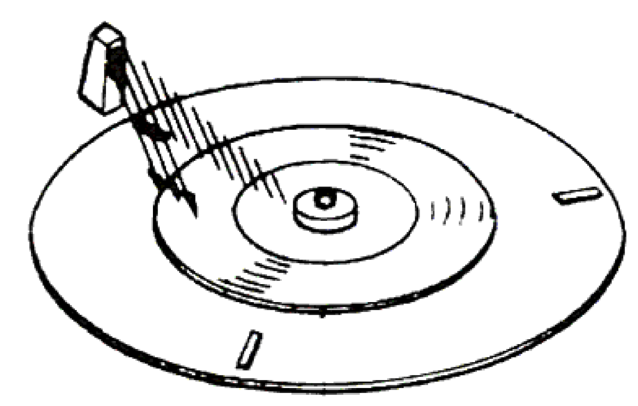


When a 30 cm record is to be played,



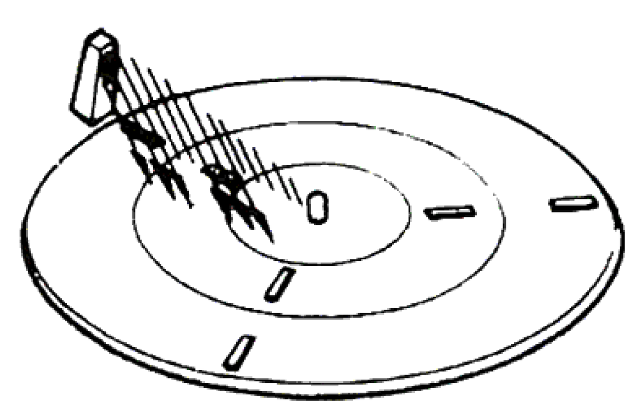
both inner and outer holes are covered so no beam is transmitted to the photo detector.

When a 17 cm record is to be played,



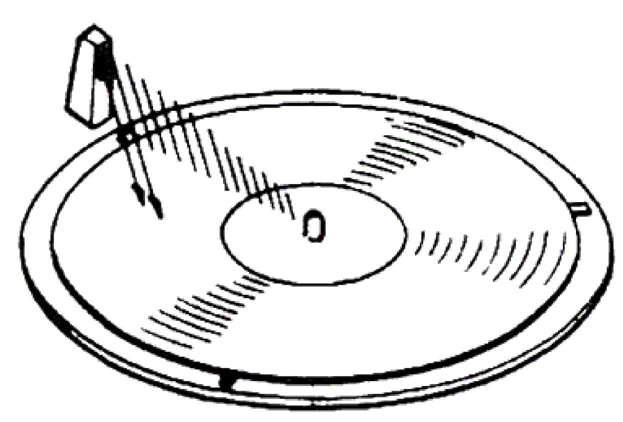
the inner holes are covered so a beam is transmitted through the outer holes to the photo detector.

When there is no record on the platter,



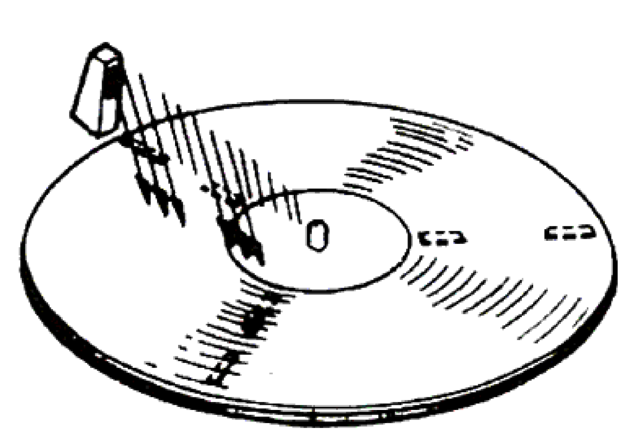
a beam is transmitted through both the inner and outer holes to the photo detectors. Even if the START/STOP button is accidentally pressed, the tonearm does not lower.

When a 25 cm record is to be played,



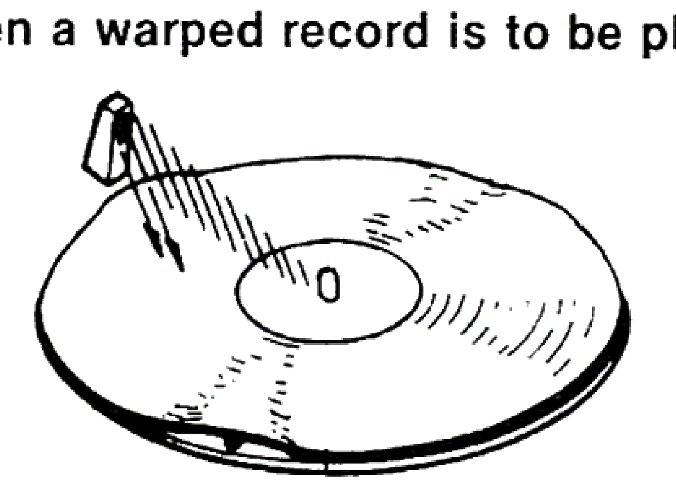
the tonearm lowers to the same point if a 30 cm record were on the platter, since both the inner and outer holes are covered. To play a 25 cm record, proceed as in "TO BEGIN RECORD PLAY AT A PARTICULAR POINT."

When a transparent record is to be played,



a beam passes through both the inner and outer holes to the detectors so the tonearm does not lower onto the record. To play a transparent record, bring the tonearm onto the record and press the OPEN/CLOSE button, then 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.

When a warped record is to be played,



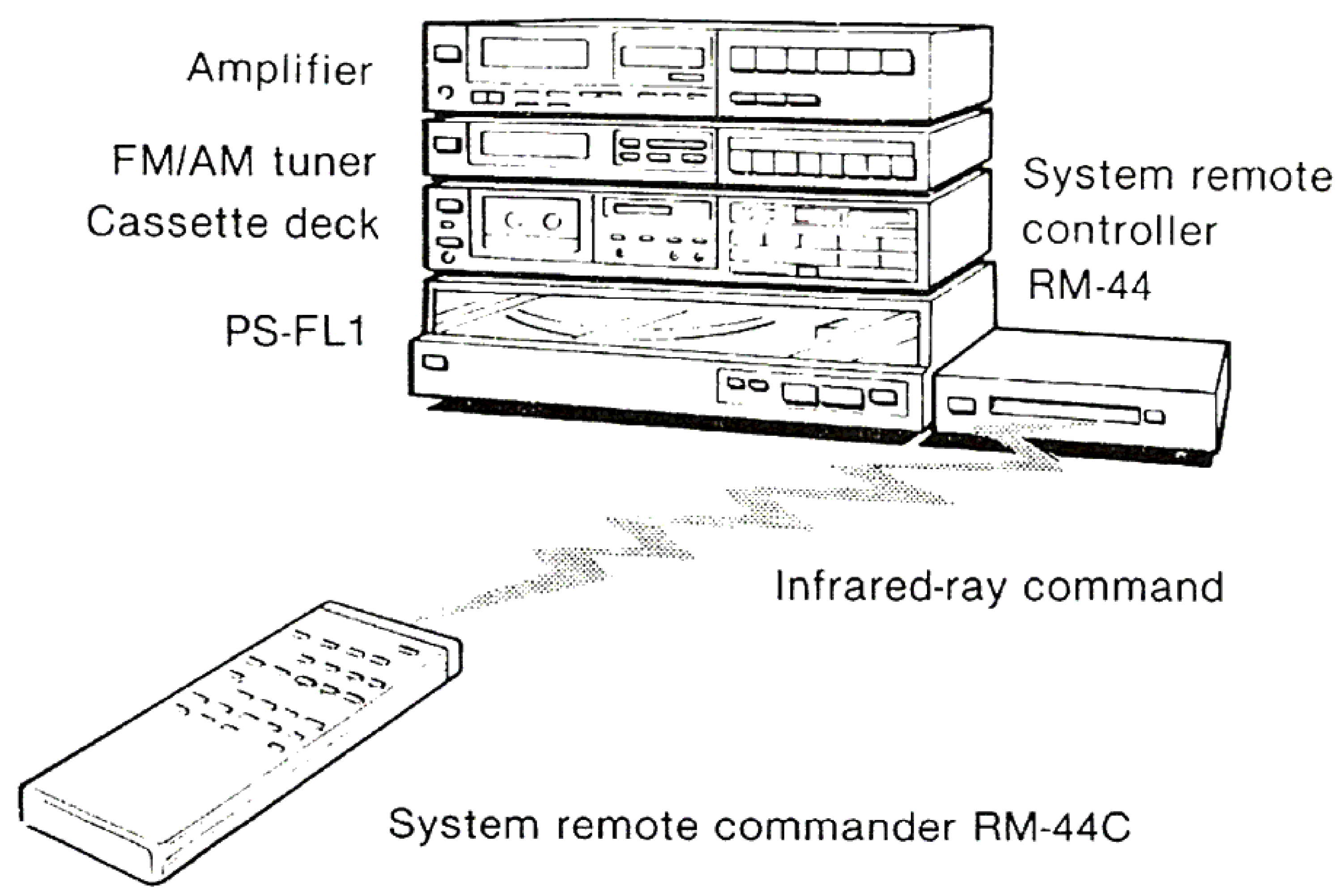
if the record is badly warped, a beam may pass through the holes to the detector and cause a malfunction of the auto record size selection.

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.

REMOTE CONTROL OPERATION WITH AN OPTIONAL REMOTE CONTROLLER

The optional RM-44 system remote controller controls the following functions of the turntable: power on/off, start/stop of the record play, tonearm up/down and synchronized operation with the Sony cassette decks using the optional RM-65 synchro remote control unit. This remote controller, with its infrared ray sensor, can control connected components by a infrared ray transmitted from the RM-44C remote commander supplied with the system remote controller. For connections and operations, refer to the system remote controller's instruction manual.



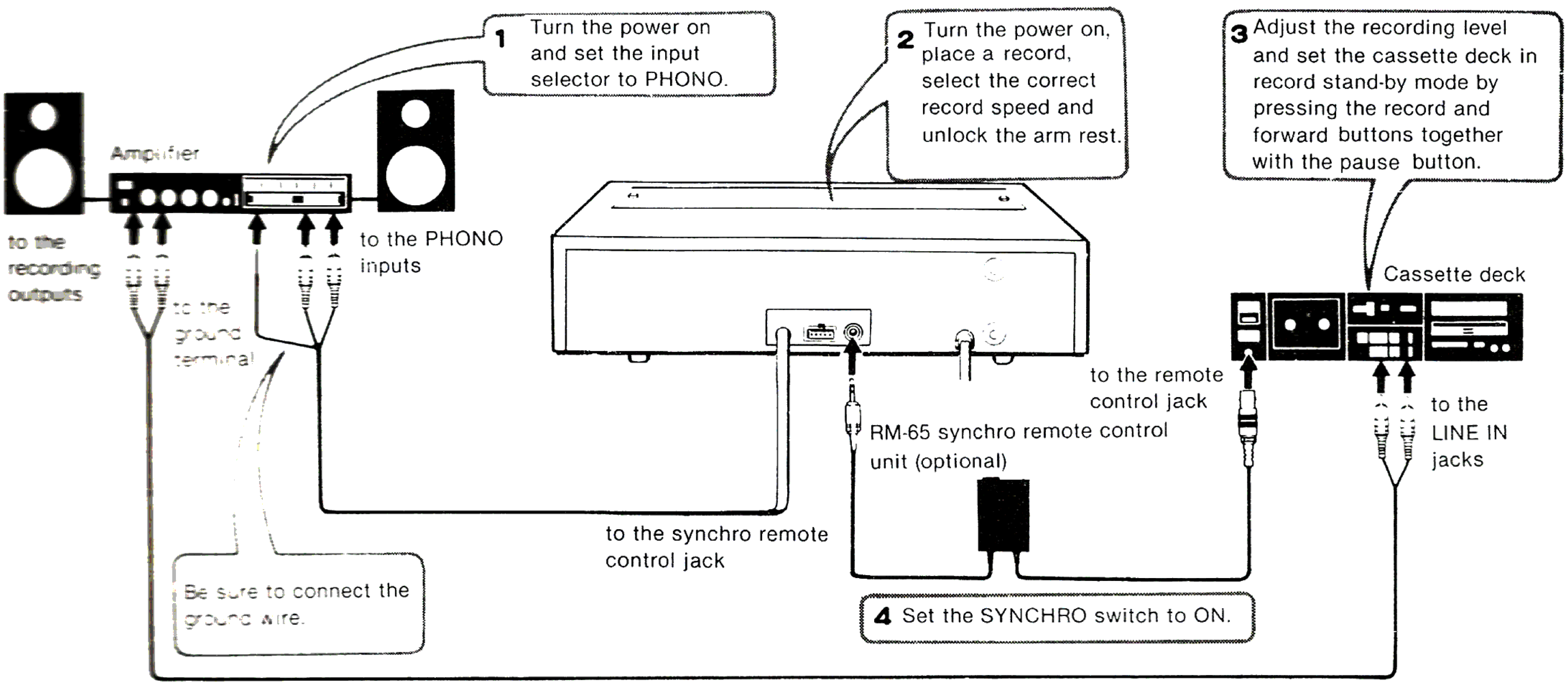
SYNCHRONIZED PLAY OF THE TURNTABLE AND A CASSETTE DECK

—with an RM-65 synchro remote control unit connected

Record recording starts only when the START/STOP or ARMLIFTER button is pressed. When the tonearm lowers onto the record, the cassette deck goes into the record mode and, when the START/STOP button is pressed again and the tonearm is lifted up, the deck goes into the auto record muting mode for four seconds, then into the pause mode.

Cassette decks 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



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 onto the record, the pause mode is released and recording begins.
To lift up the tonearm to move to a different point on a record...	Press the ARM LIFTER button.	When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed.
To record from a point some way into the record...	Bring the tonearm over the desired point and press the START/STOP or ARM LIFTER button.	When the tonearm lowers onto 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.

Note: Be sure to set the SYNCHRO switch of the RM-65 to OFF when you do not want to use the synchronized play function.

TONEARM DROP-POINT ADJUSTMENT

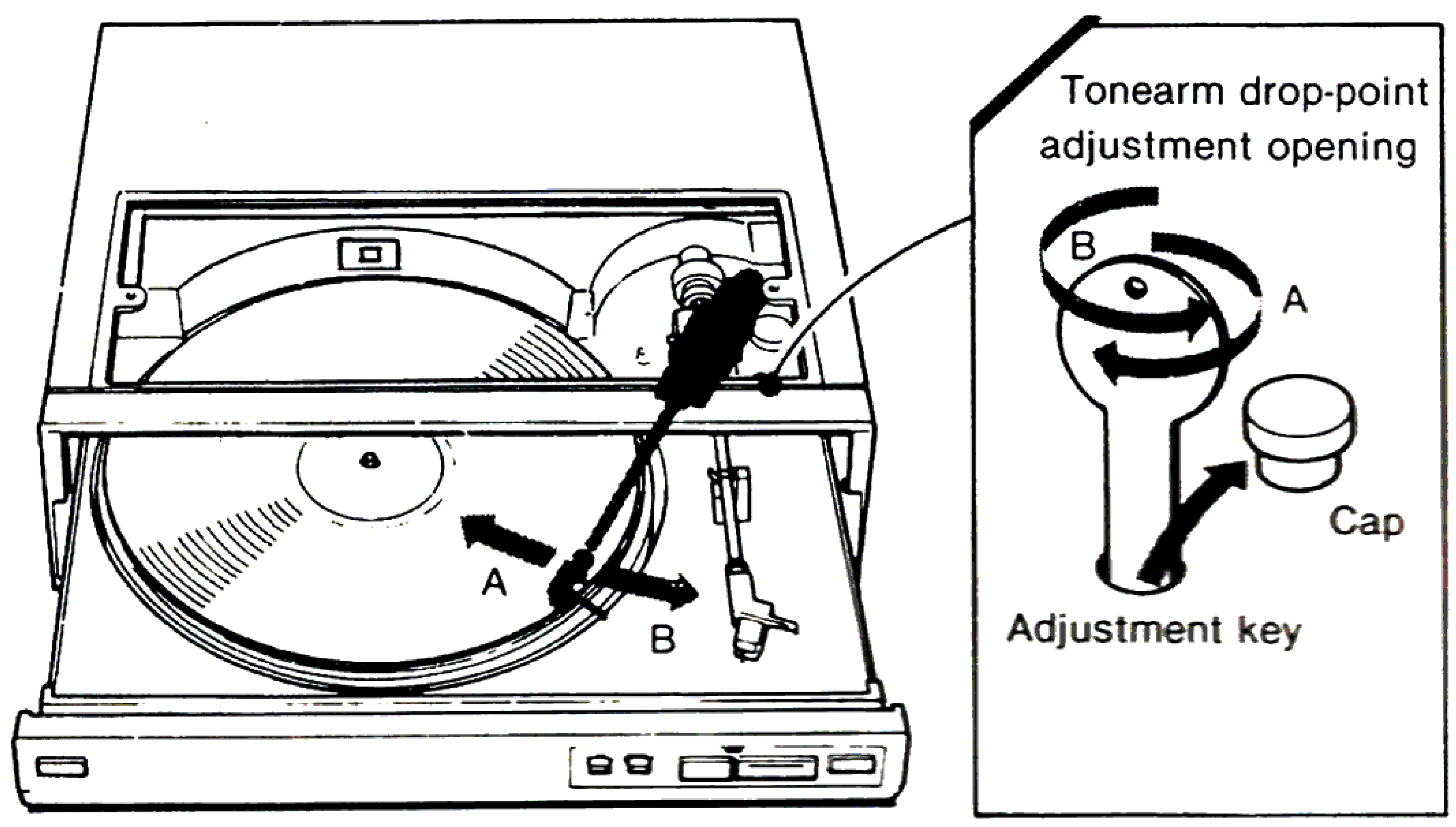
The tonearm's drop-point during auto play has been adjusted at the factory. If this needs to be readjusted, proceed as follows.

❶ Press the OPEN/CLOSE button to open the module, then unscrew the two screws and remove the top plate.

❷ Remove the 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 at 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.



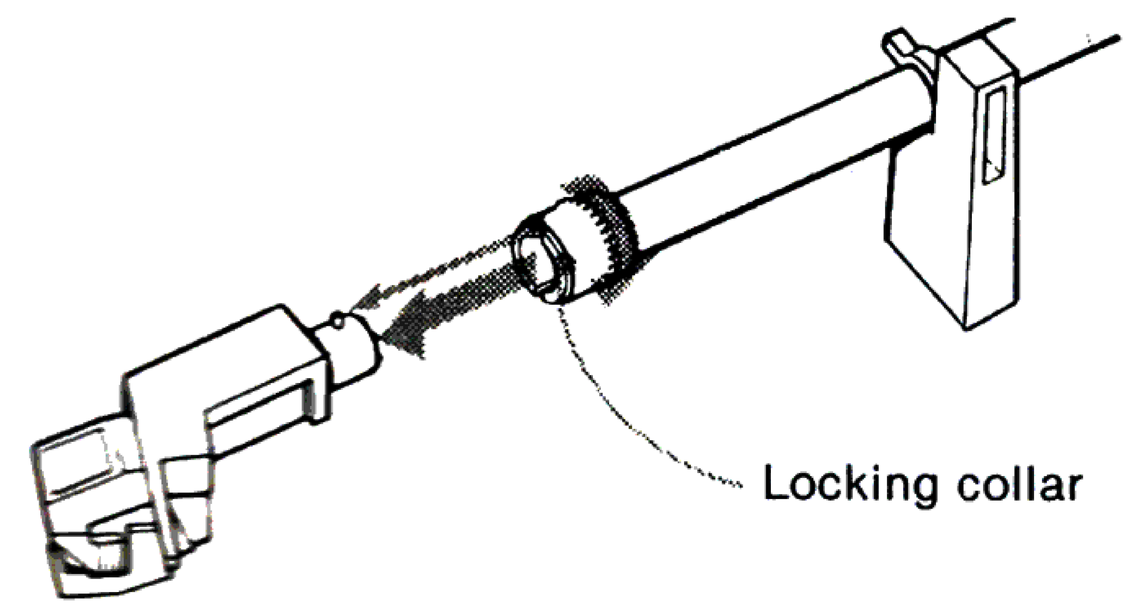
● You can keep the adjustment key in your key holder if you like. It may come in handy for a variety of jobs.

REPLACING THE STYLUS

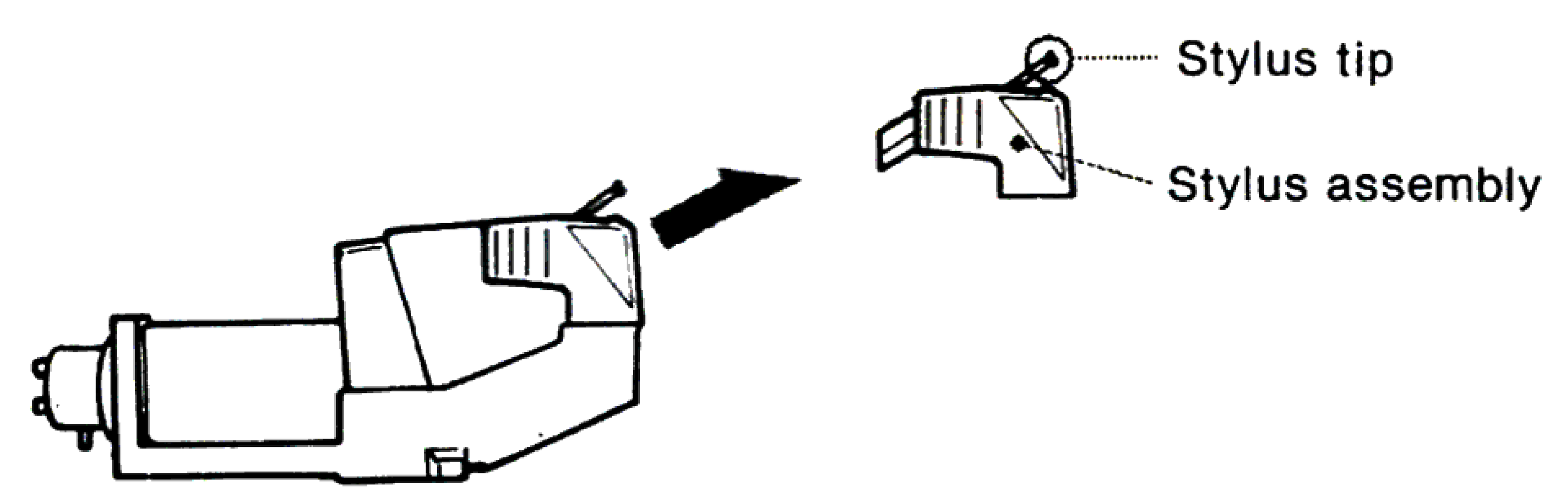
The stylus will lose its effectiveness and begin to damage records after about 400 hours of use.
An ND-150G (for the XL-150 cartridge) or ND-5G (for the VL-5 cartridge) replacement stylus is available at your Sony dealer.
Handle the stylus carefully as it is very delicate.
Install the replacement stylus as follows.

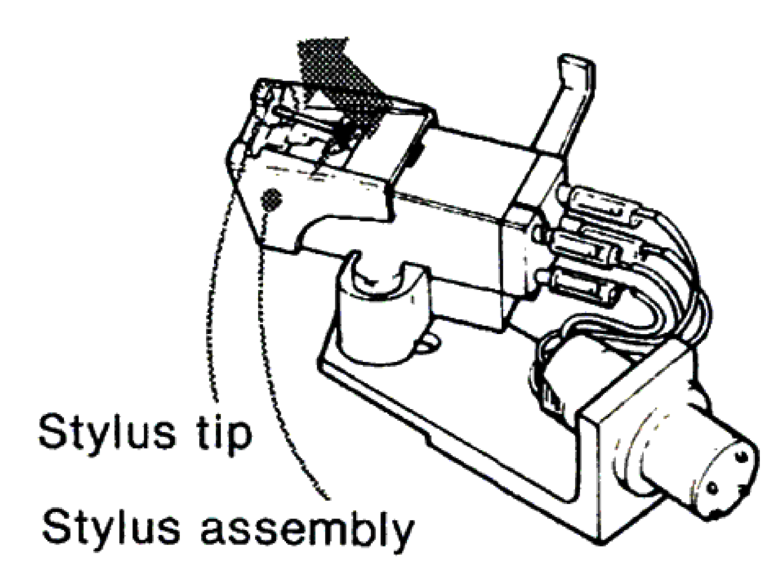
❶ Lower the sound level or turn the amplifier off.

❷ Secure the tonearm to the arm rest and separate the cartridge from the tonearm by turning the locking collar in the direction of the arrow.



❸ Detach the stylus assembly by grasping it between the thumb and forefinger and pulling gently in the direction of the arrow.



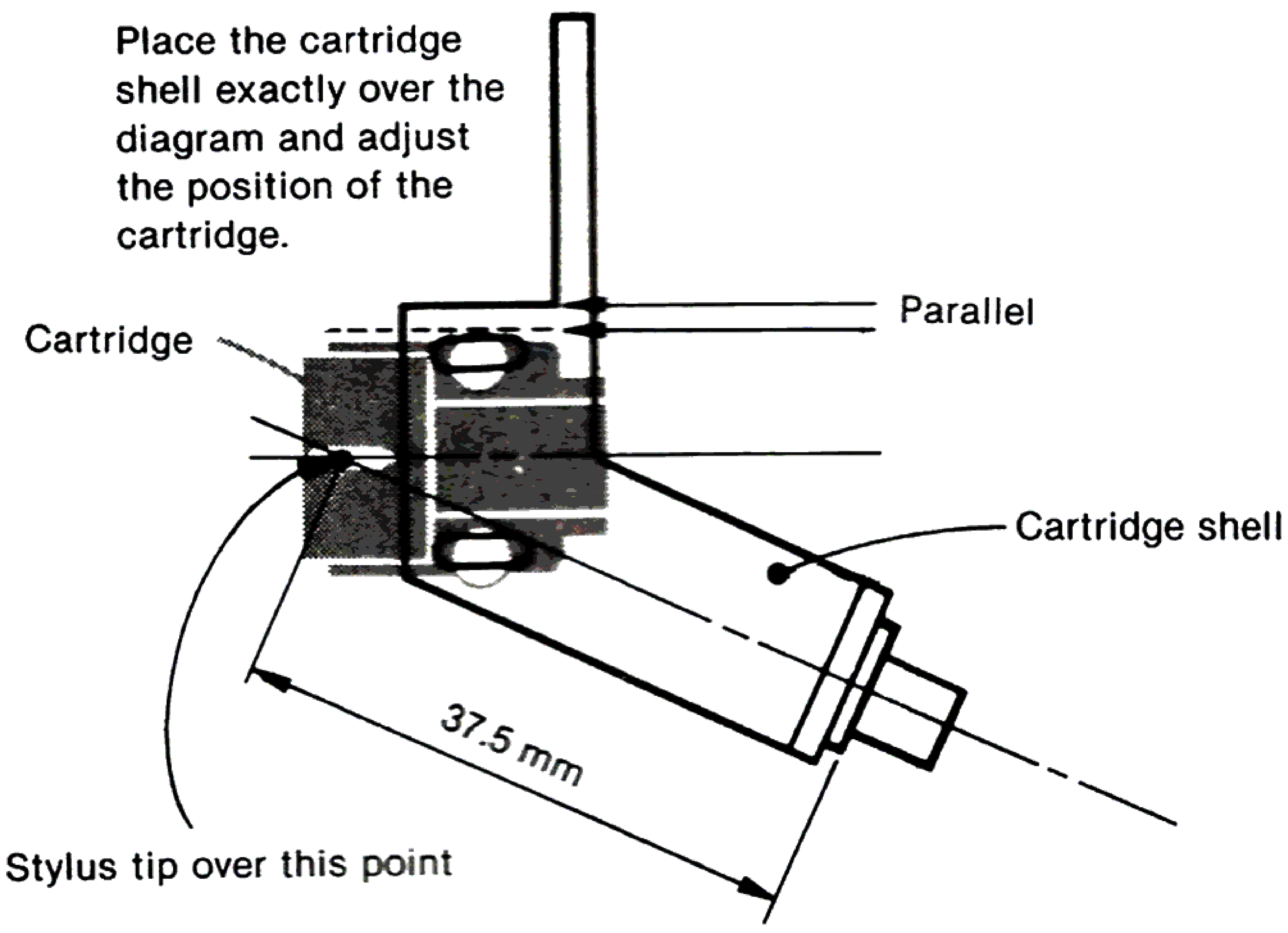


❹ Insert the new stylus into the cartridge.

❺ Plug the cartridge into the tonearm and turn the locking collar counterclockwise until the cartridge is locked.

INSTALLING A CARTRIDGE OTHER THAN THE ONE SUPPLIED

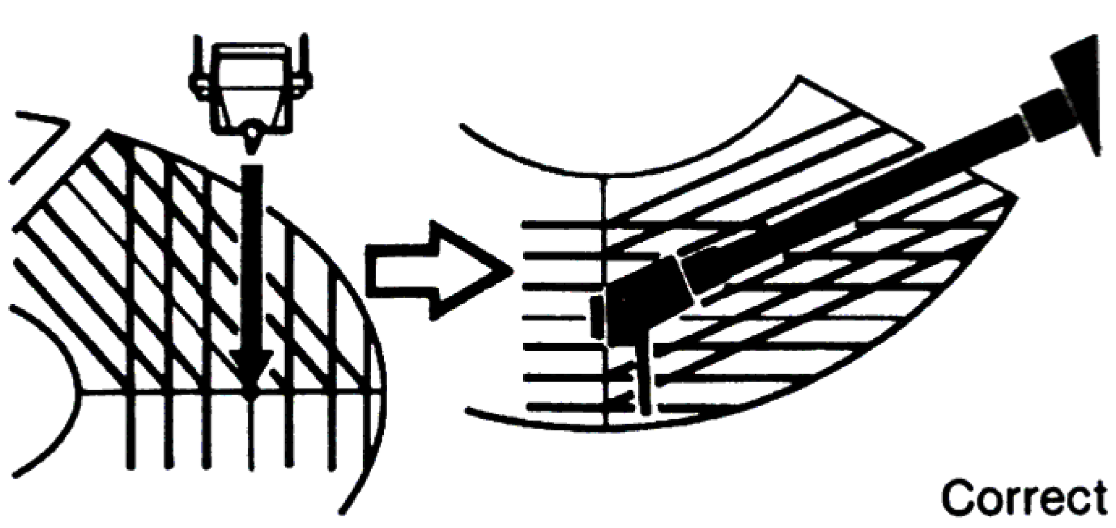
Since the cartridge supplied with this turntable is unified with the shell, if you want to use a different cartridge, you will need an appropriate cartridge shell (Sony SH-151). The total weight of the cartridge and shell must be between 7.5 grams and 12 grams.
Connect the lead wires of the shell to the corresponding pins on the cartridge and install the cartridge into the shell as illustrated. For details on the connection of the lead wires, refer to the instruction manuals of the cartridge and shell.



- After installing the new cartridge and shell, readjust the tonearm's balance, tracking force and anti-skating compensation as in "Tonearm adjustment" on page 9.

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 overhang will be incorrect and tone quality will be impaired.

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 cartridge 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.


Correct overhang

***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 16.5 mm overhang. The correct overhang is obtained by installing the cartridge with a 37.5 mm space between the stylus tip and the end of the cartridge shell and by checking the installation with the alignment gauge.

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 a fluid stylus cleaner is used, make sure not to moisten the stylus too much.

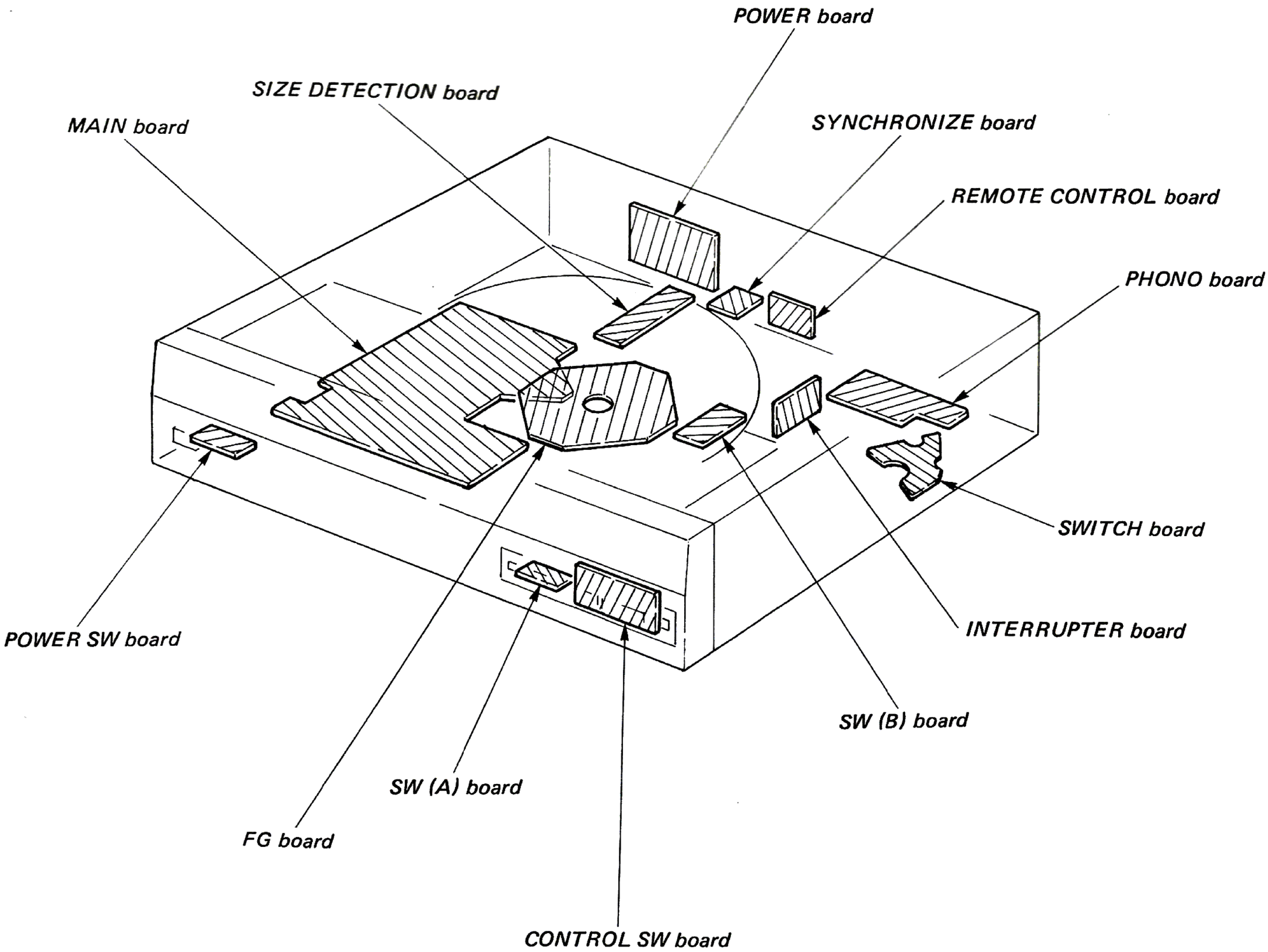
Cabinet
Clean the cabinet and dust cover periodically with a soft dry cloth. If the stains are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use solvents such as alcohol, benzine or thinner, since they will damage the finish.

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 1
OUTLINE

1-1. BOARDS LOCATION



1-2. CIRCUIT DESCRIPTION

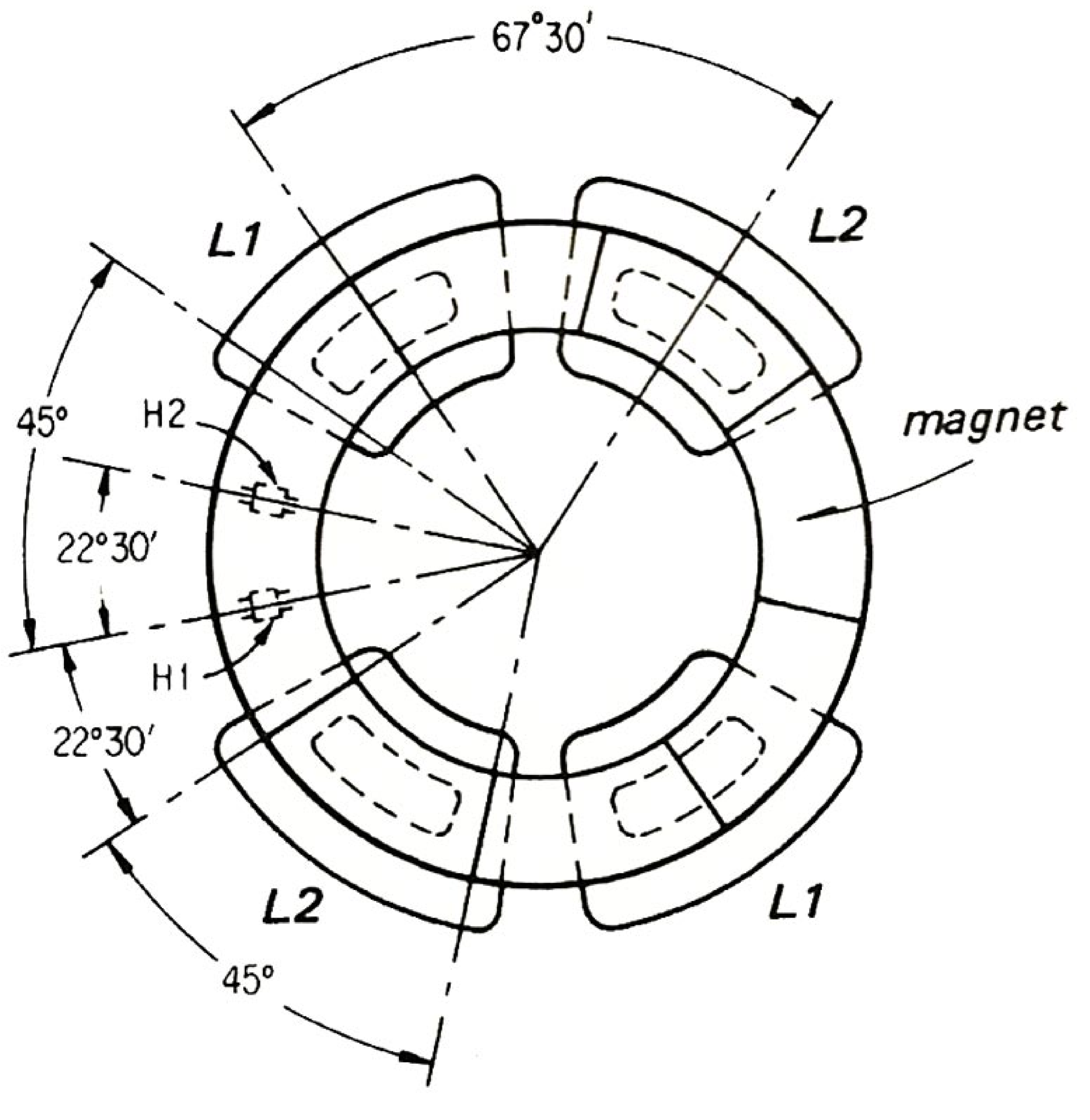
MOTOR

The method for detecting change in turntable rotation speed for the BSL (Brush and Slotless) DC servo motor on this set is different from the conventional method (detection by MG head fixed to the frame). On this set it is performed by the FG board fixed to the stator.

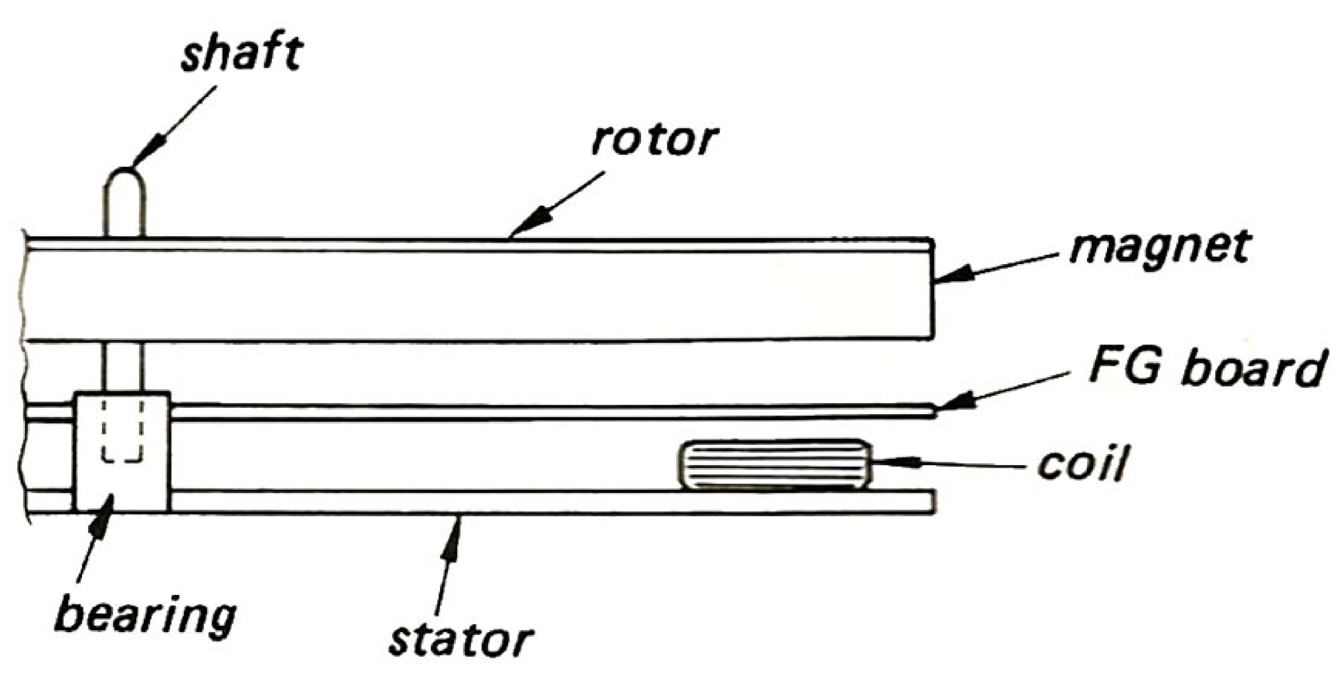
For this purpose, 256 poles of magnetization (SN alternately) are shallowly layered on the surface of the drive magnetizer (8 poles alternately SN) on the magnet used to rotate the rotor.

The frequencies detected at the FG board are:
$33^{1}/_{3}$ rpm---- $71.\dot{1}$ Hz
45 rpm----- -96.0 Hz

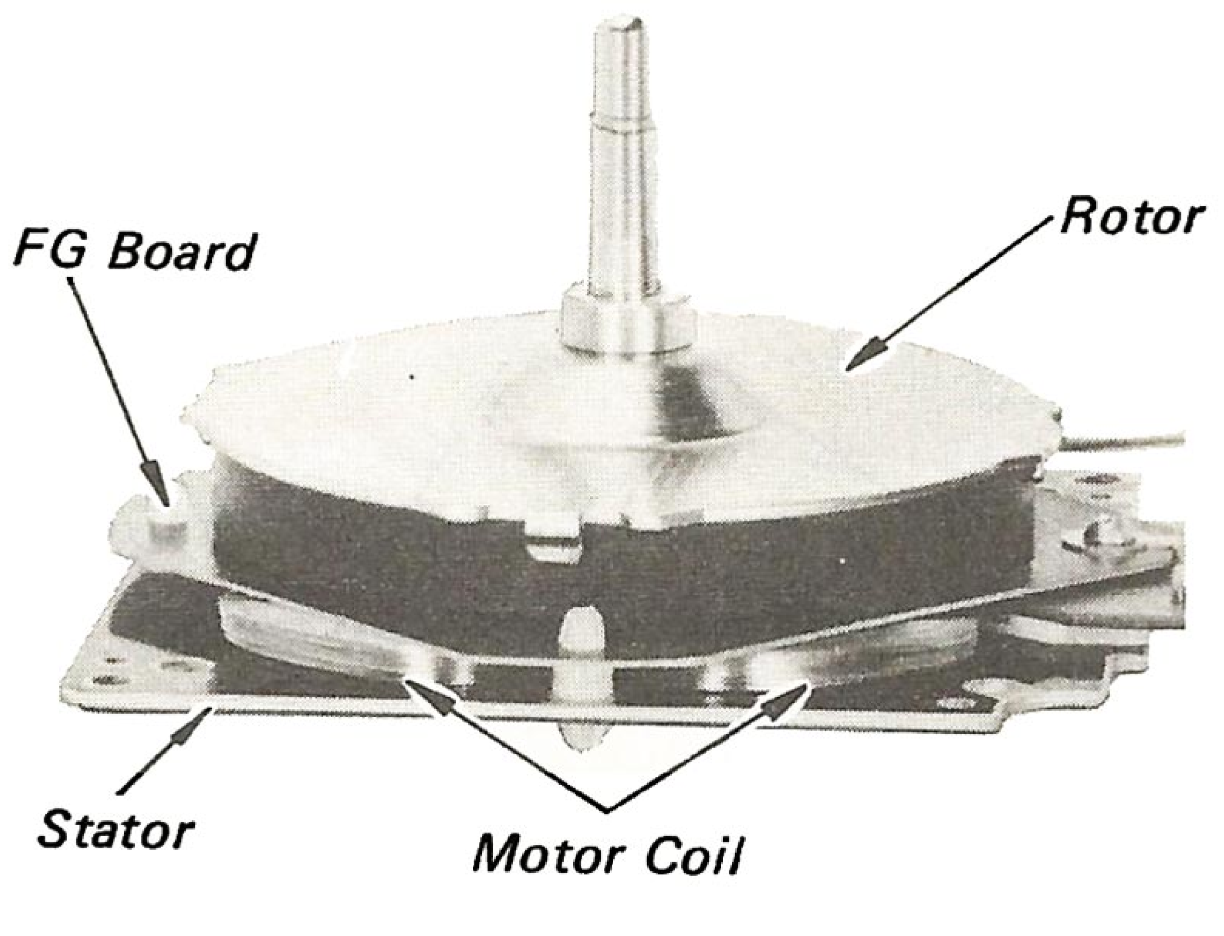
Motor Internal Diagram (upper surface)



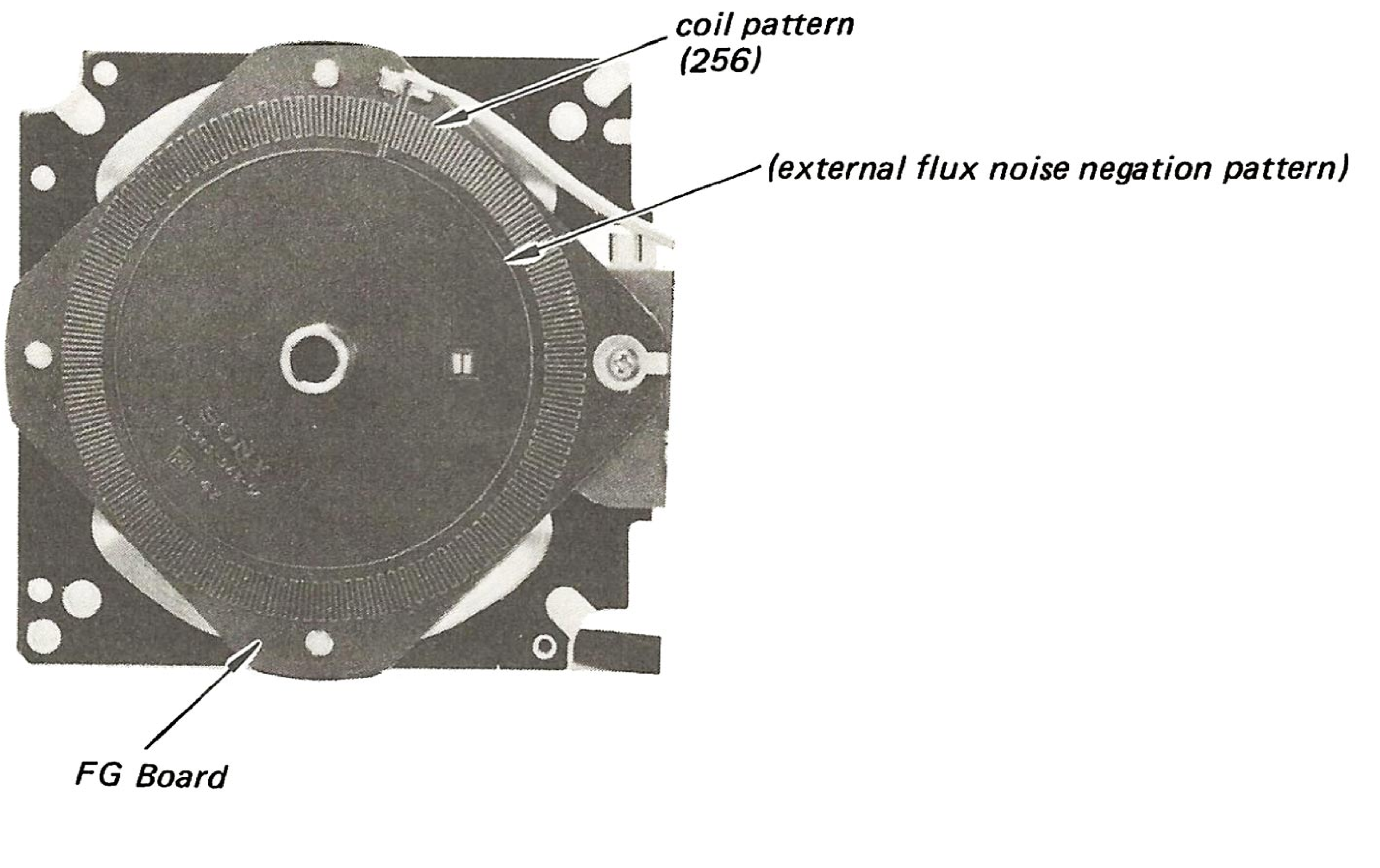
(cross-section)



Motor External View



External View of FG Board (with rotor removed)



ELECTROMOTANCE GENERATED ON FG BOARD

On the FG board, if the radial pattern Ⓐ in Figure 1 is considered as one conductor, when the rotor rotates, the conductor cuts the magnetic flux, electromotance is generated on the conductor, and its direction changes from the Fleming's right-hand rule to that in Figure 1.

Overall, the spacing of the radial pattern on the FG board and the rotation speed detection sine-wave magnet peak is the same, so the electromotance generated in all of the patterns is directed in a uniform direction as shown in Figure 2 if the pattern is considered as one loop.

Therefore, the electromotance generated on the one pattern Ⓐ on the FG board has 256 poles worth of electromotance added. (circular integral method)

The frequencies detected on the FG board are obtained as follows.

For one radial pattern, sine-wave electromotance is generated one time for 2 SN poles.

Therefore, when the rotor rotates one time:

256 (poles) ÷ 2 = 128 (times)

For 45 rotations:

128 (times) x 45 (rpm) ÷ 60 (seconds) = 96 (Hz)

In the same way, for $33\frac{1}{3}$ rotations:

128 (times) x $33\frac{1}{3}$ (rpm) ÷ 60 (seconds) = $71.\dot{1}$ (Hz)

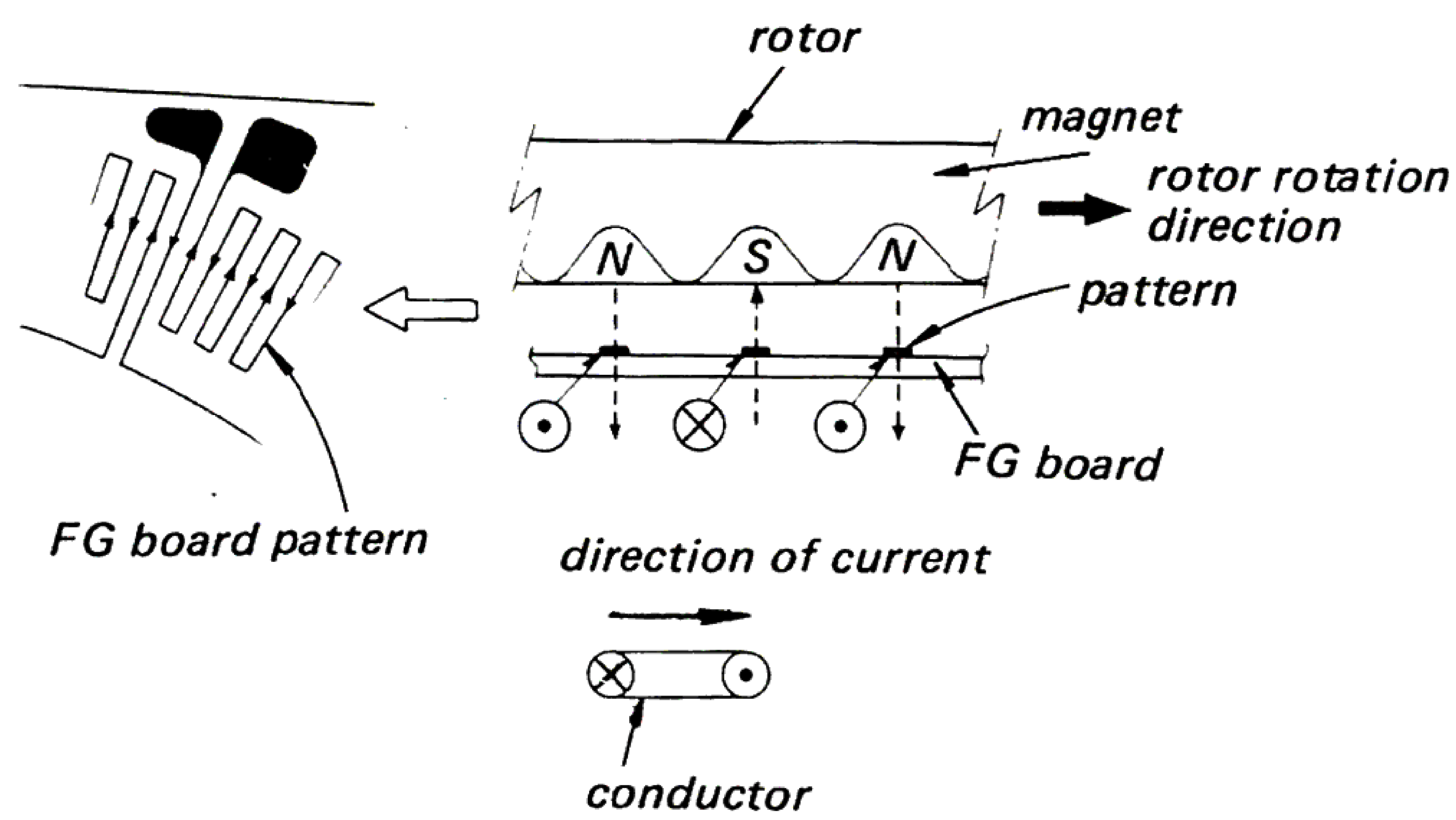


Fig. 2

FG Board Pattern Diagram (pattern surface)

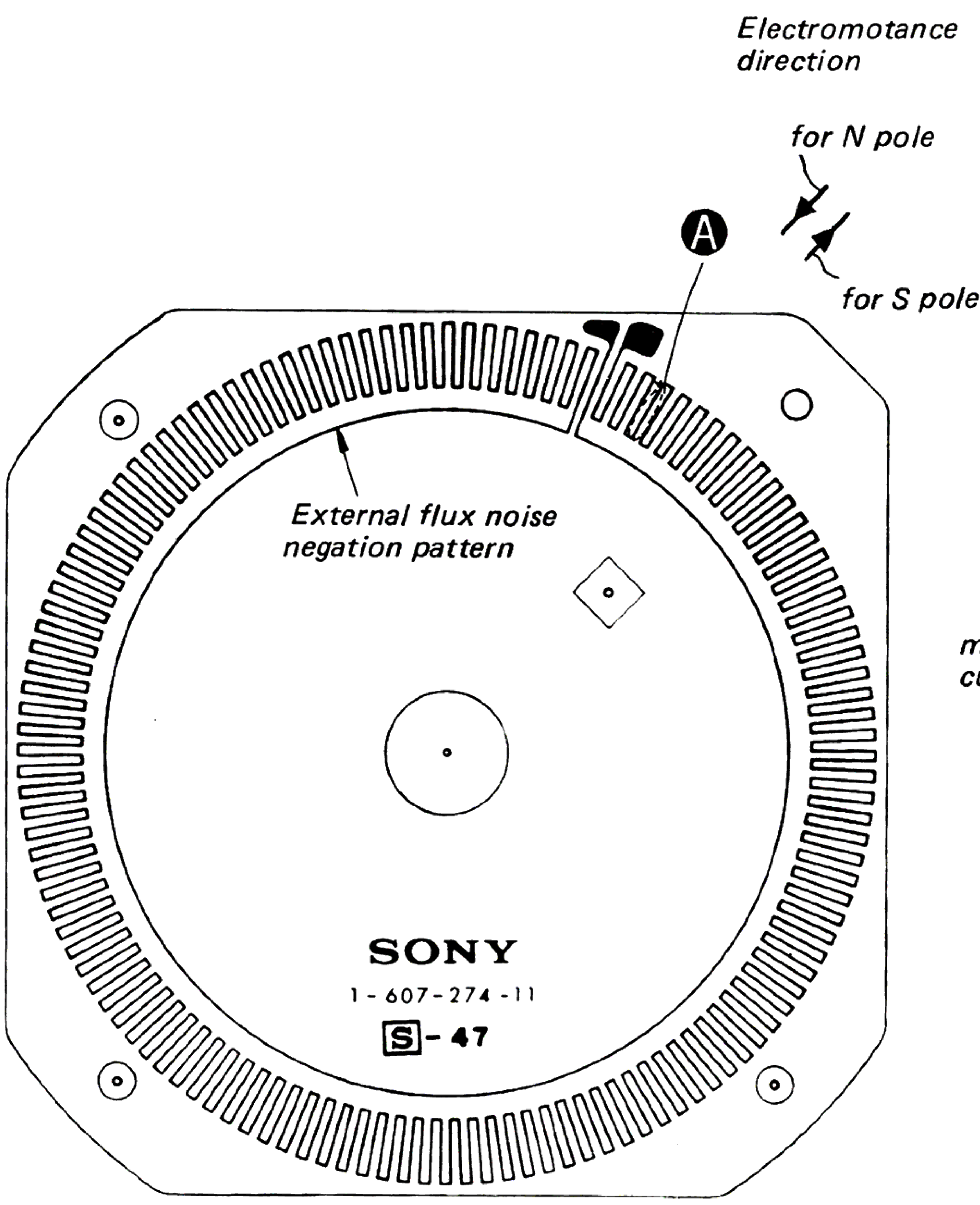
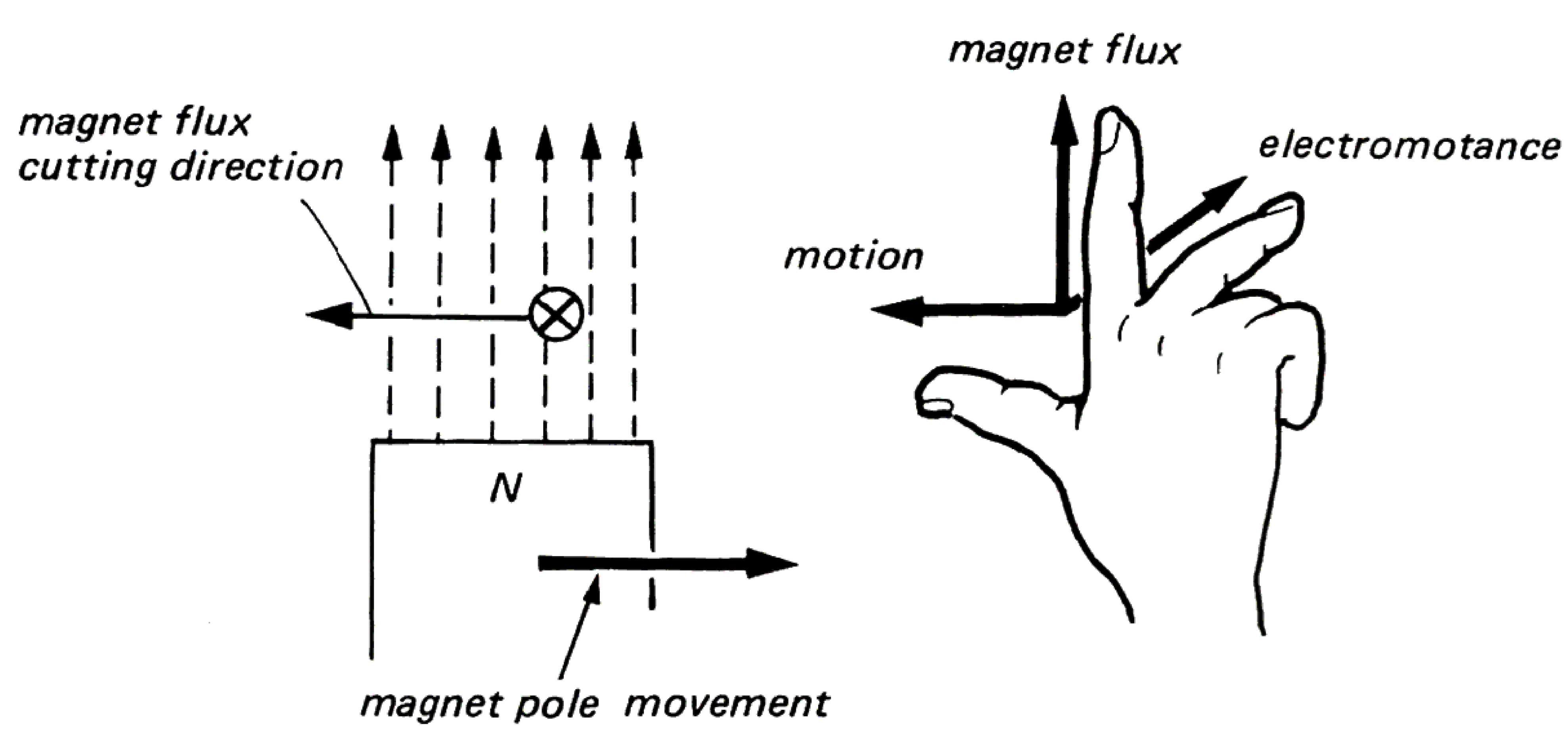
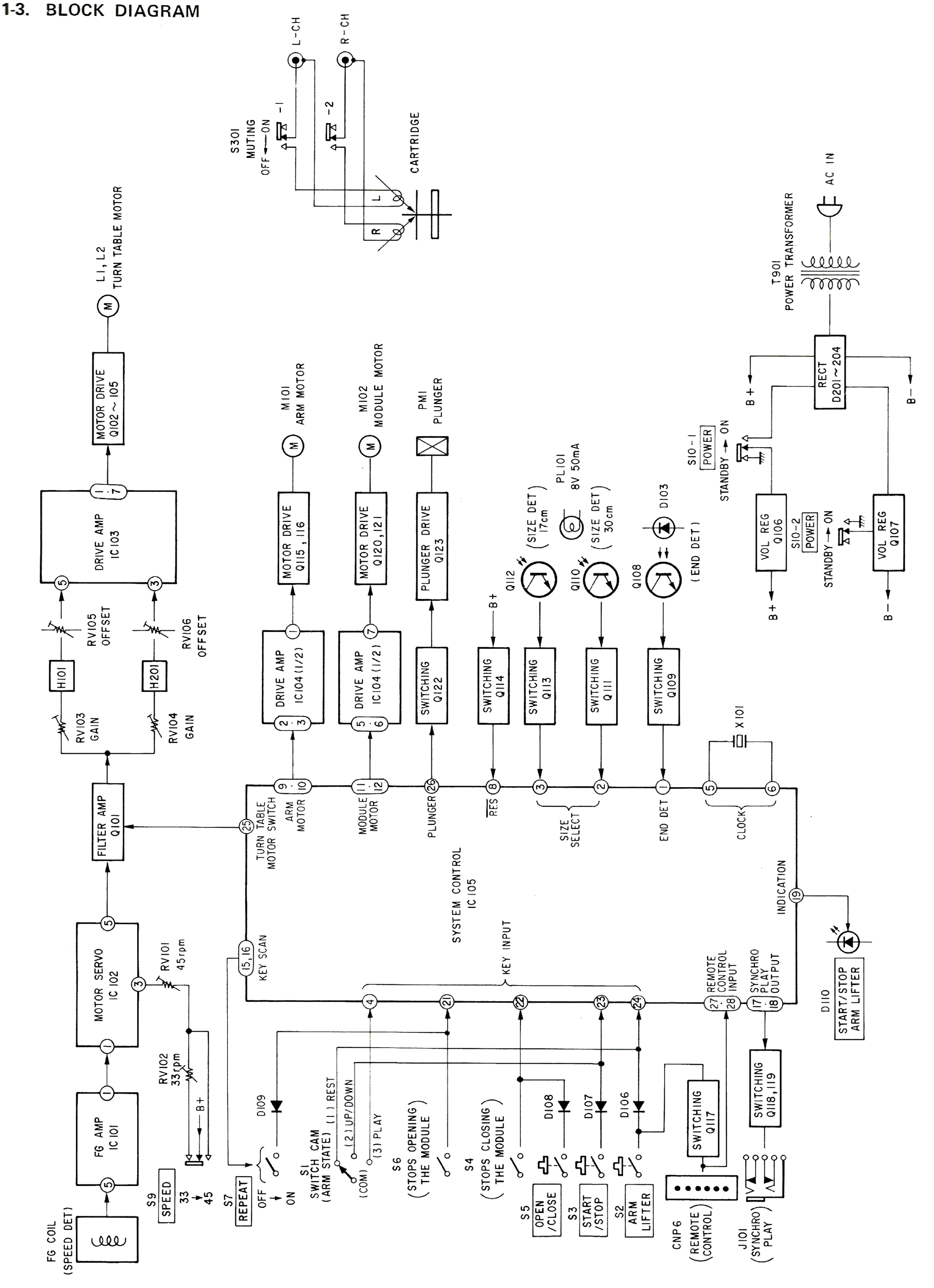


Fig. 1



Fleming's right-hand rule

1-3. BLOCK DIAGRAM

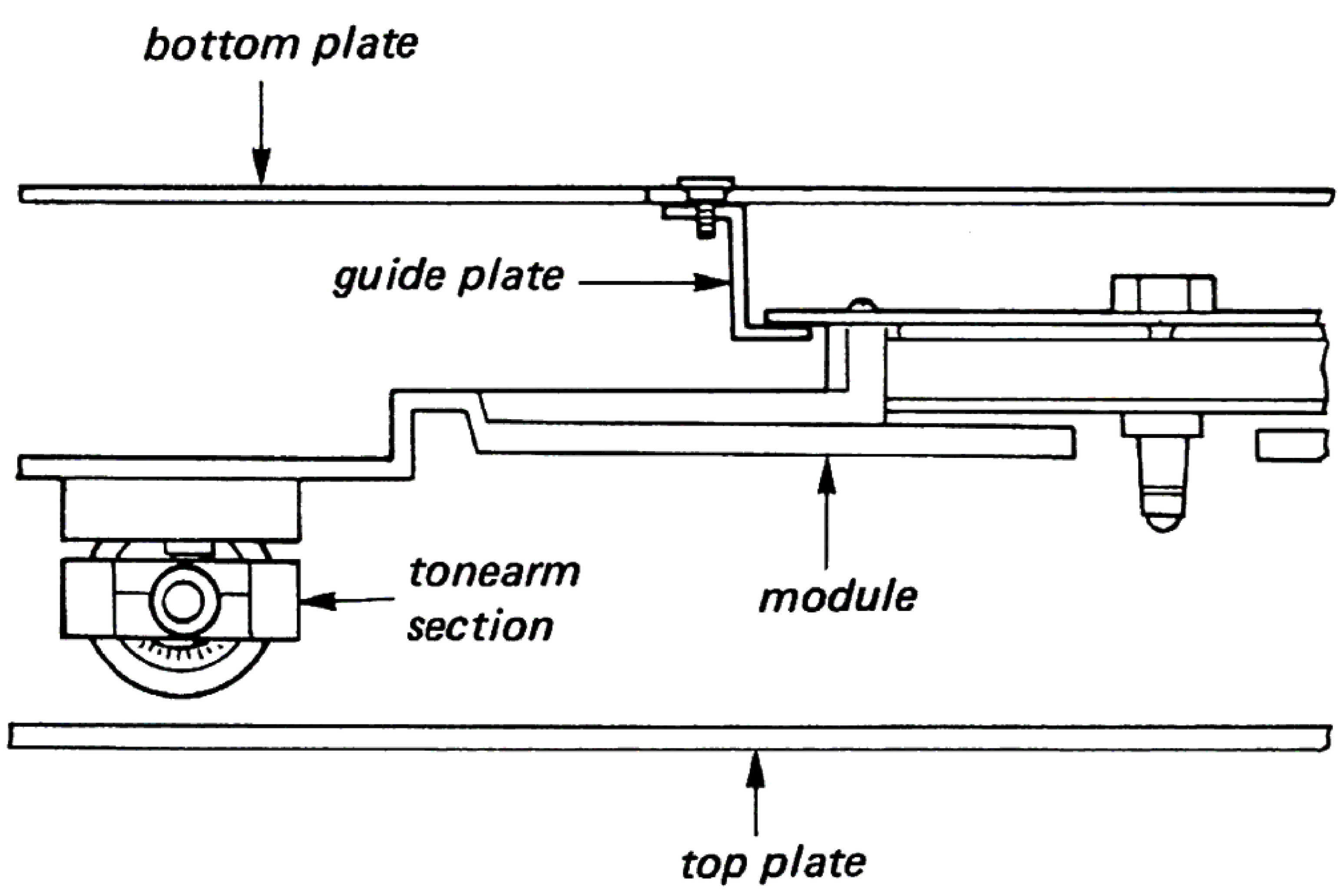


SECTION 2
DISASSEMBLY

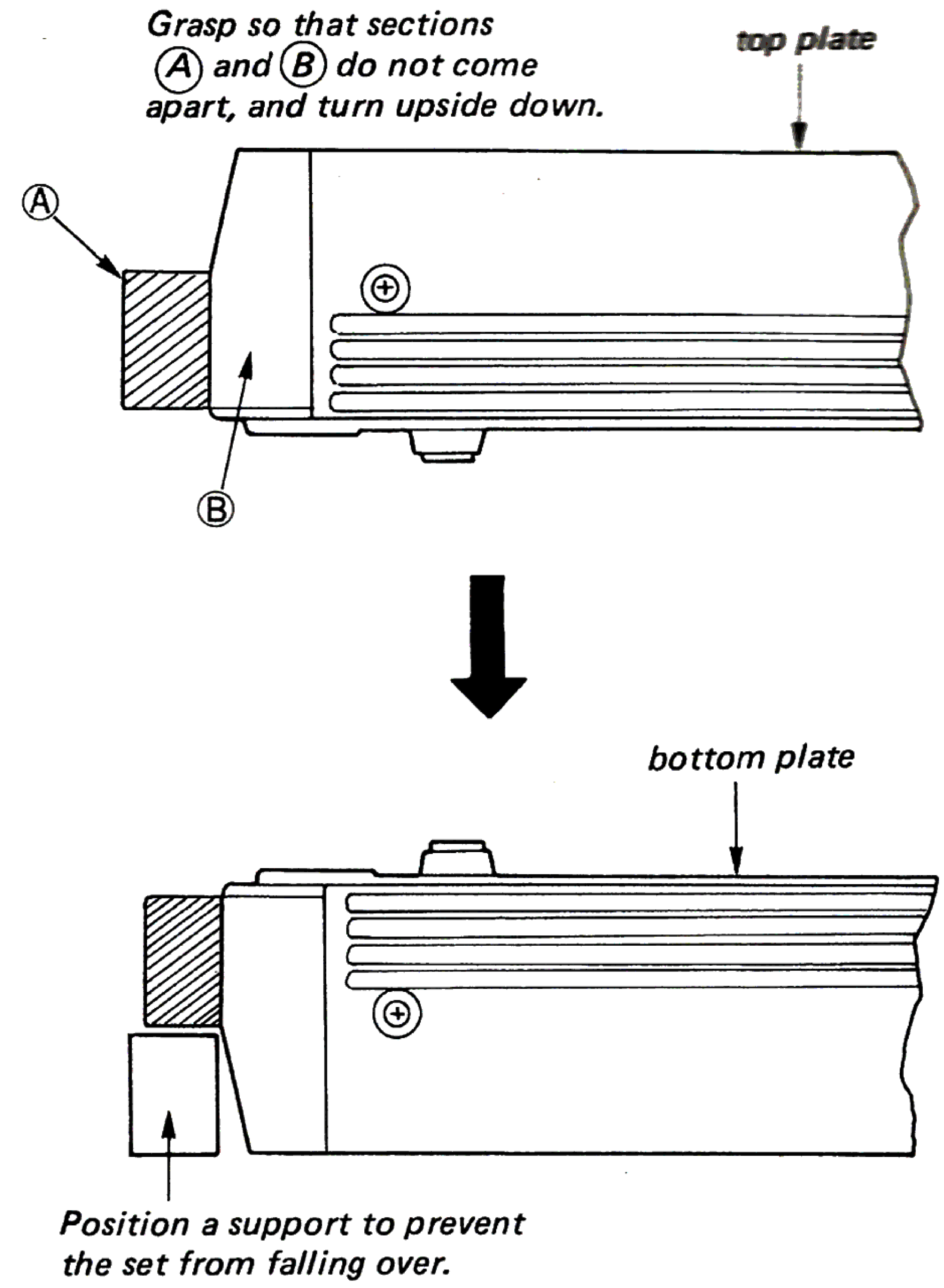
Note: Follow the disassembly procedure in the numerical order given.

2-1. NOTE ON TURNING SET UPSIDE DOWN

1. Remove the turntable.
2. Lock the arm in the arm rest.
3. If the set is turned over carelessly, the tonarm may bend. Proceed as follows:
   1) With the bottom plate attached, the module is supported by the guide plate, as shown in the figure below.

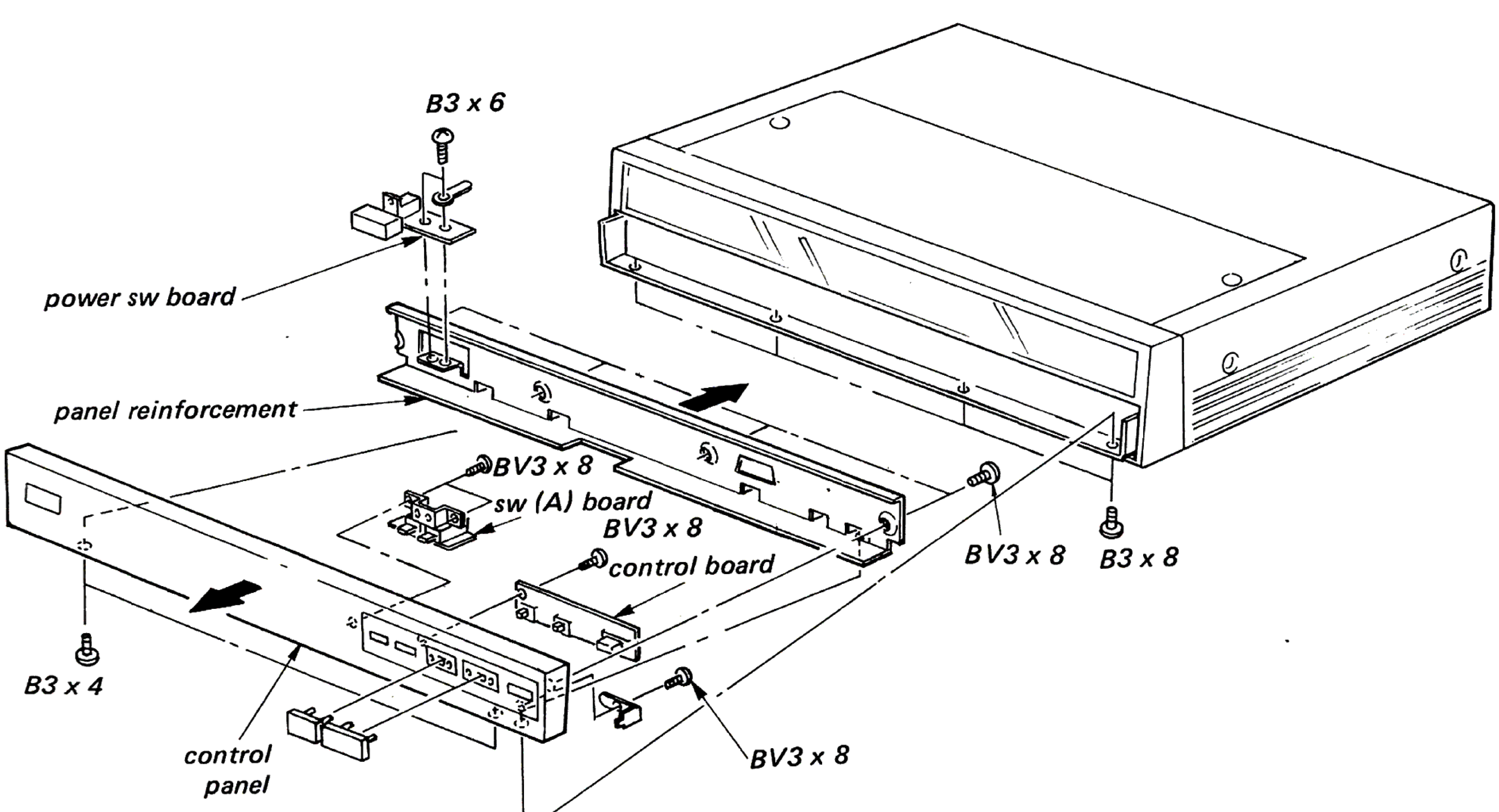


   2) If the bottom plate is removed at this point, the module will drop. So, the weight of the front of the module will fall on the tonearm cartridge section and bend the tonearm.
   3) In order to prevent this, proceed as shown below.

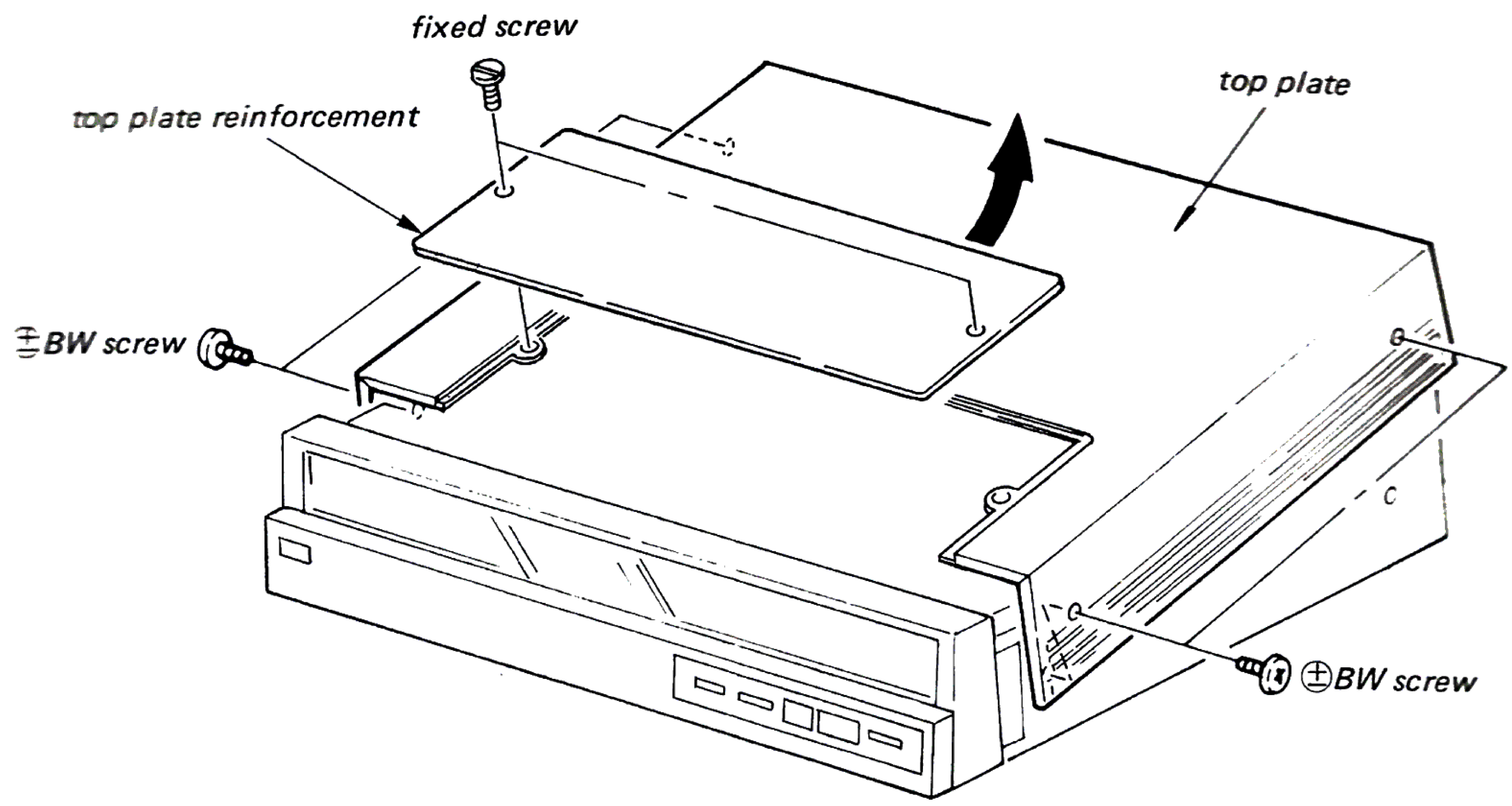


2-2. REMOVAL

CONTROL PANEL, CONTROL BOARD, SW (A) BOARD, POWER SW BOARD



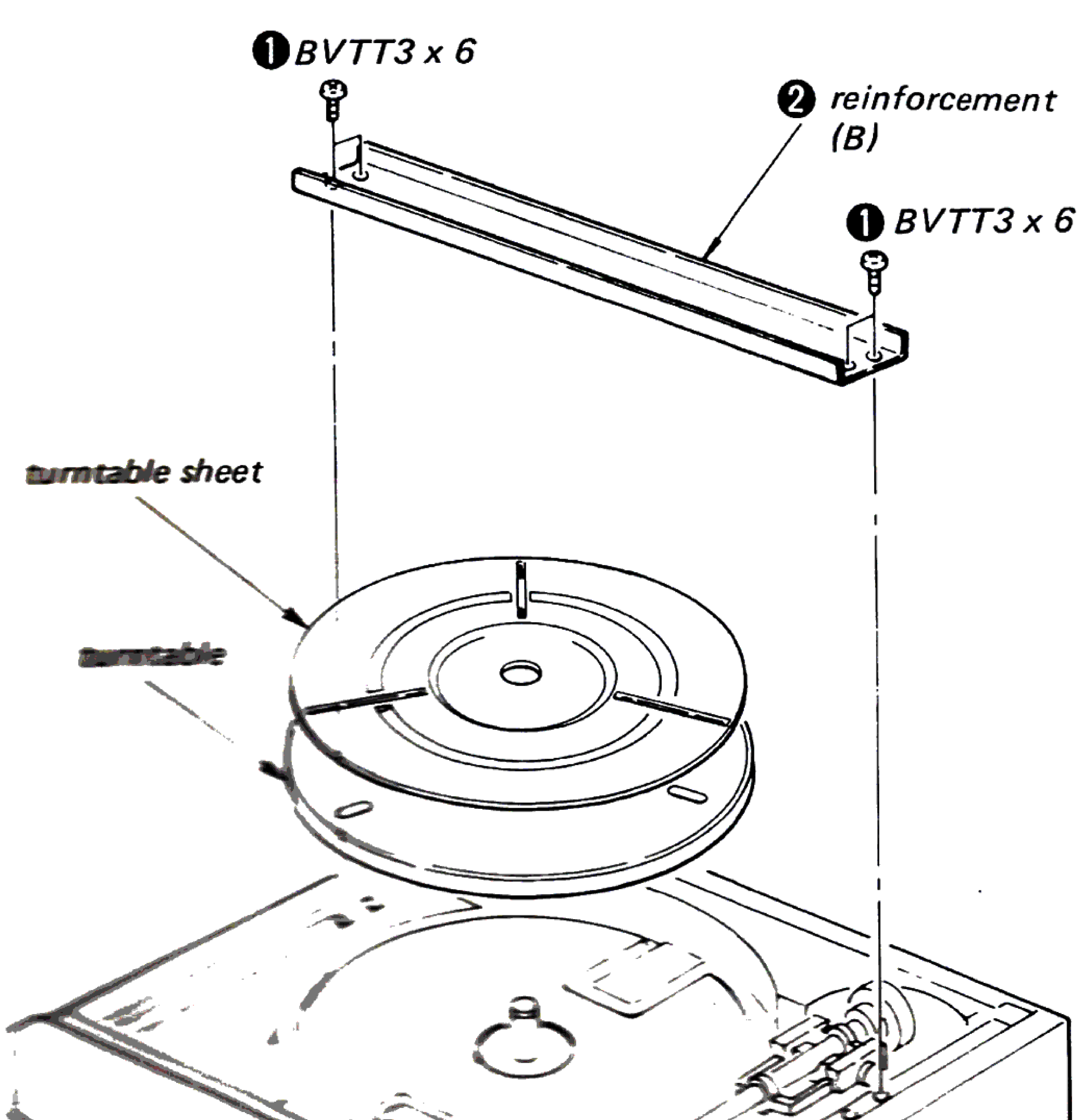
TOP PLATE



TURNTABLE, TURNTABLE SHEET, RECORD SENSOR (A) BOARD

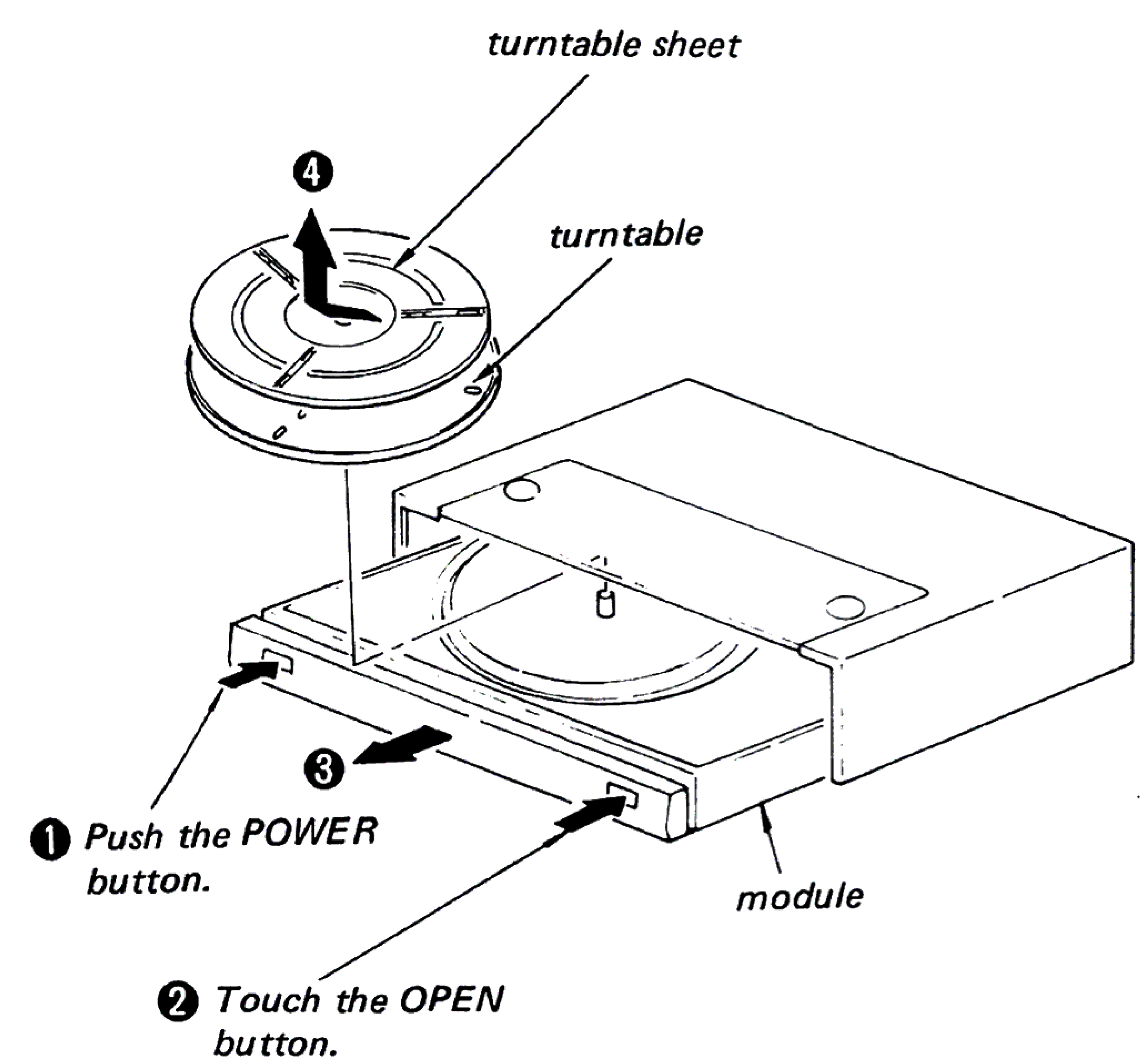
— When the module does not slide —

❶, ❷ : turntable, turntable sheet



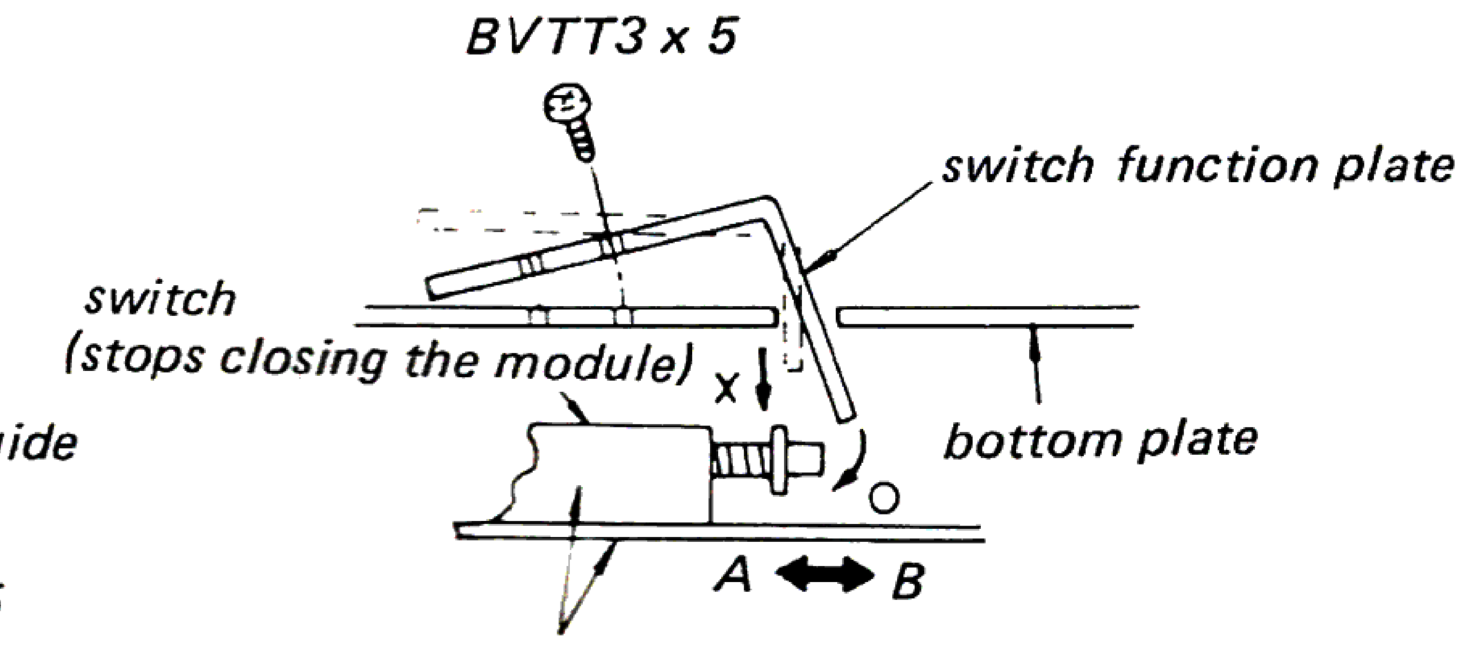
TURNTABLE, TURNTABLE SHEET

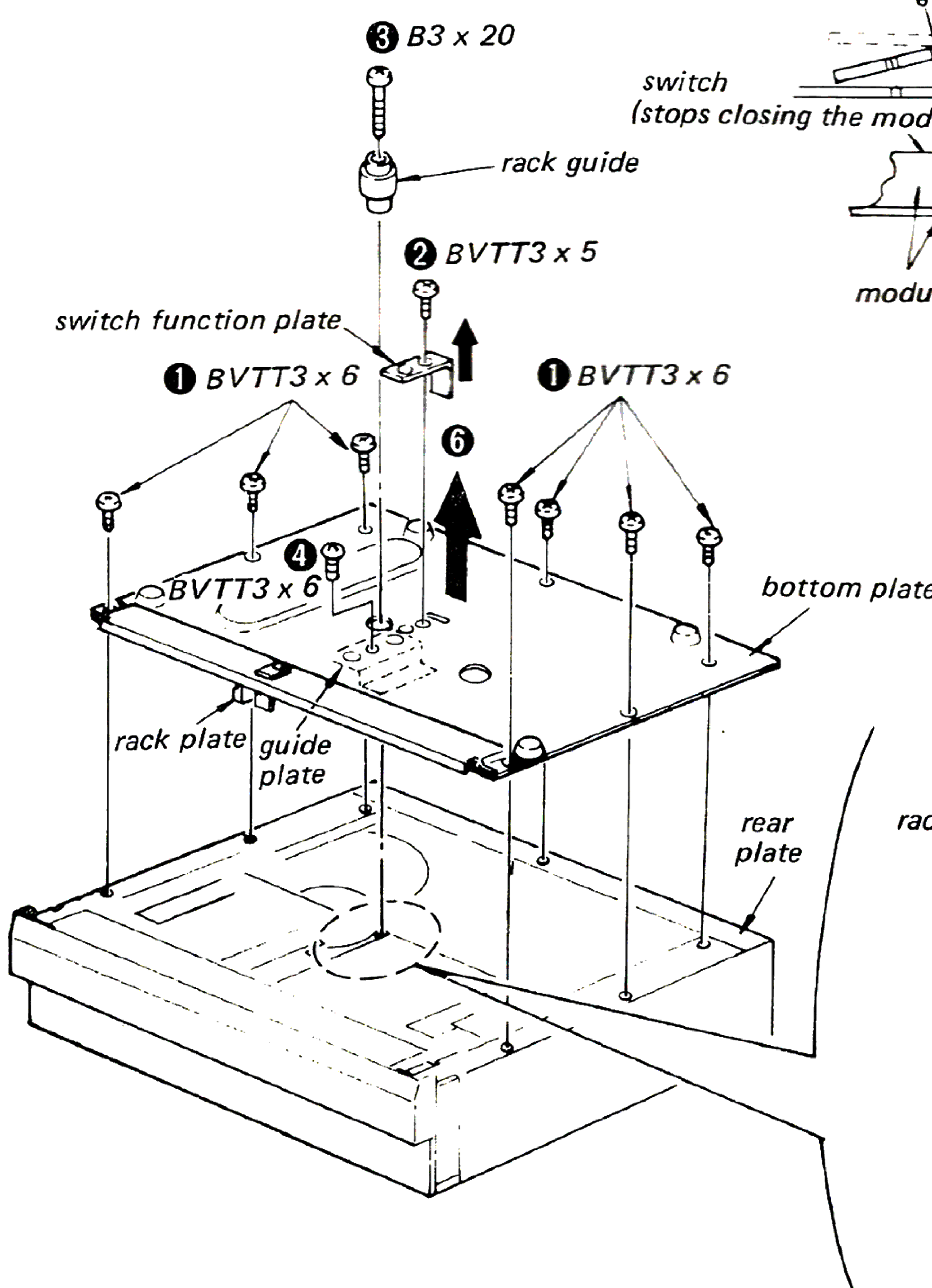
— When the module slides —



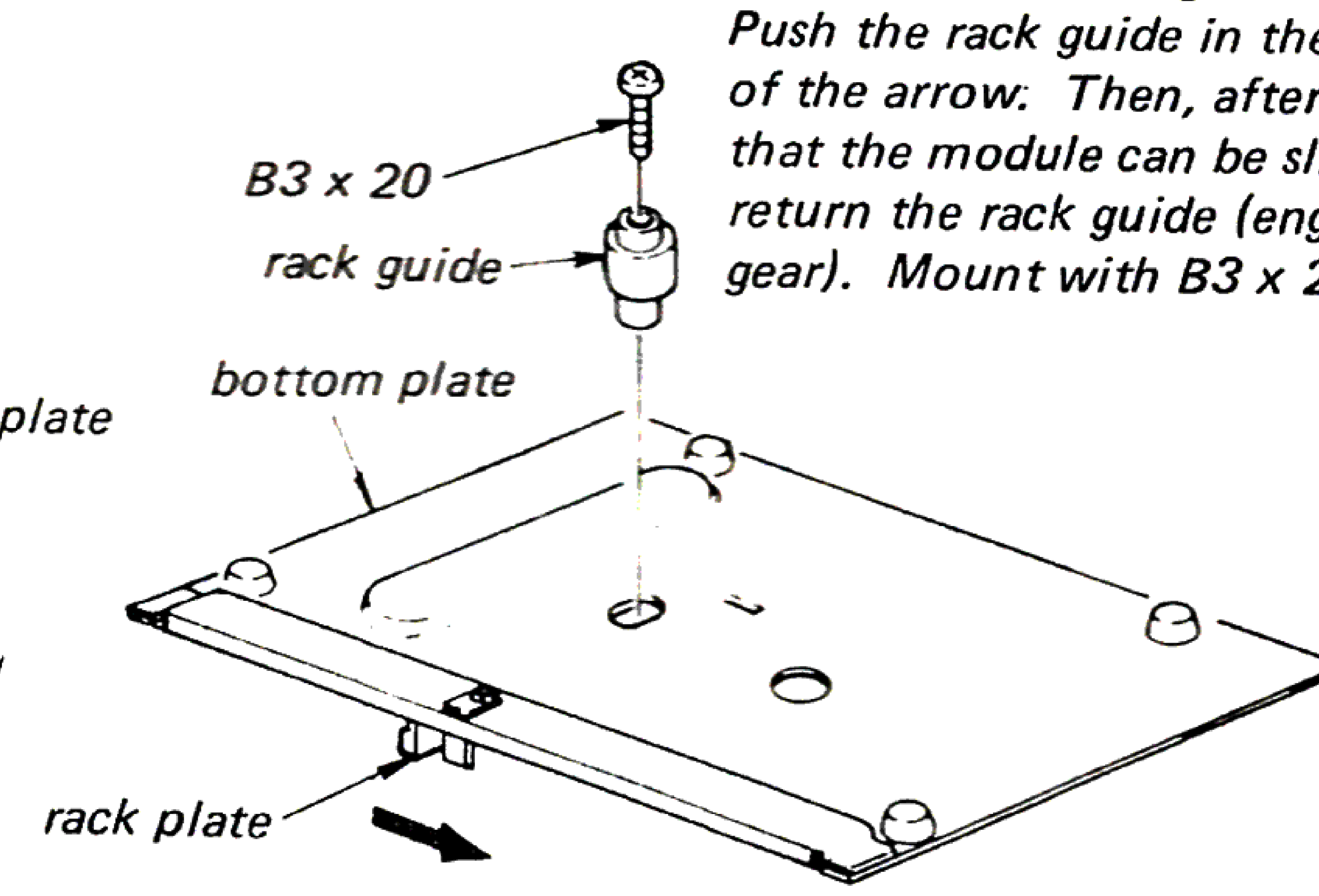
BOTTOM PLATE

– **Note on installing switch function plate** –
Install so that the switch on the module moves in the direction of arrow B and touches the switch function plate.

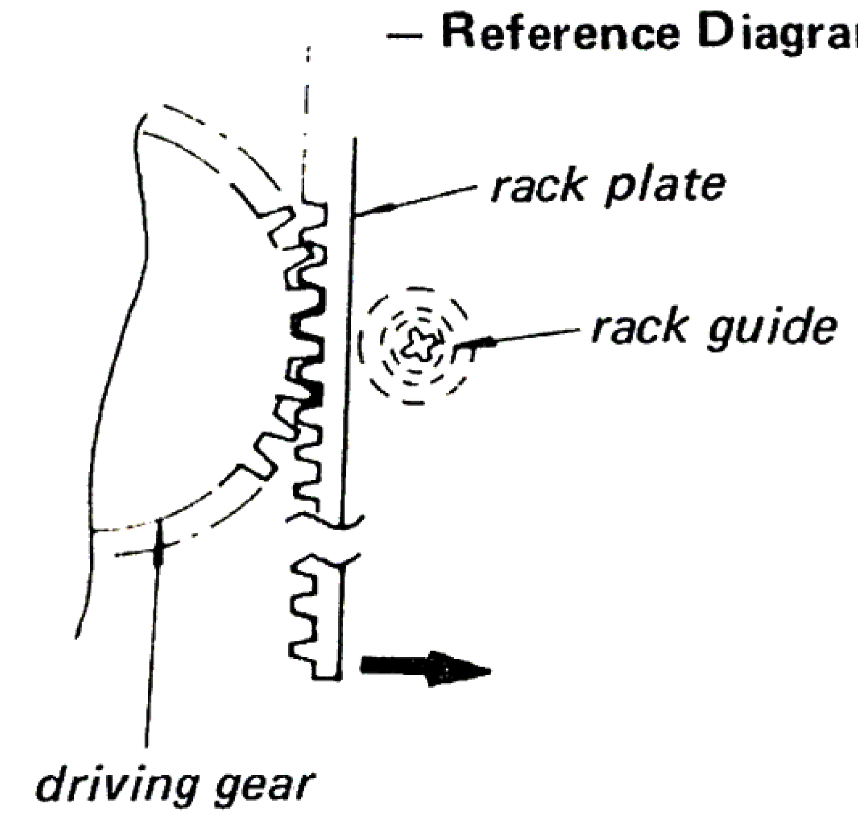




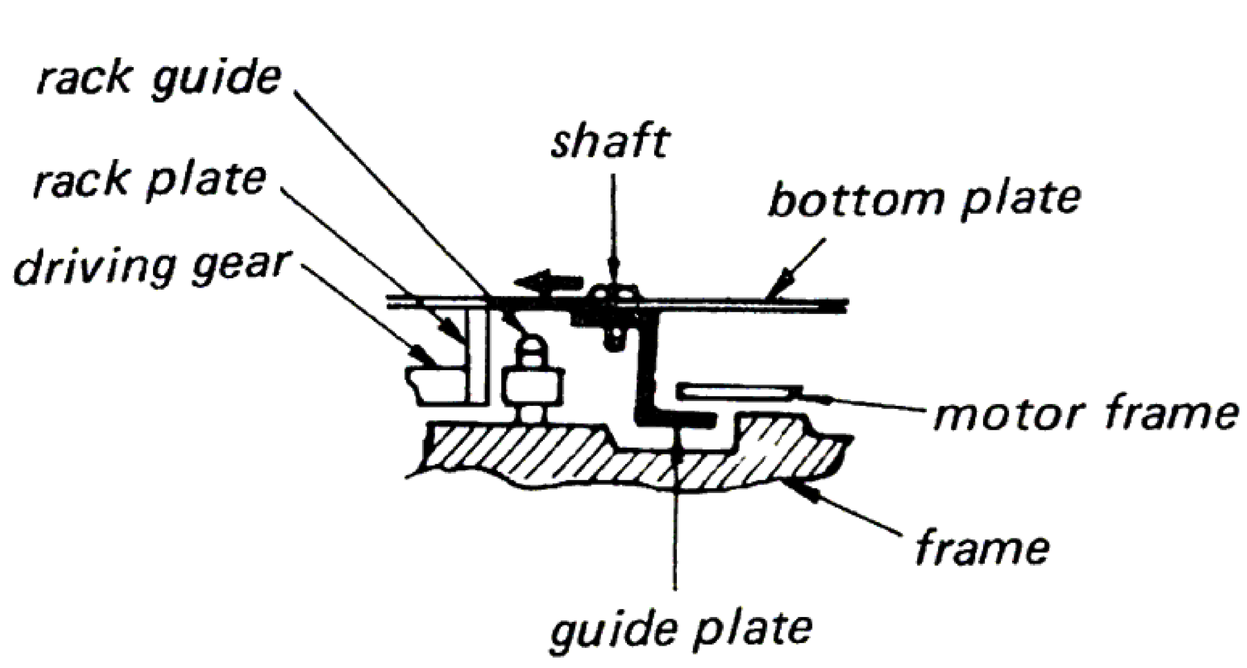
– **Note on installing rack guide** –
Push the rack guide in the direction of the arrow. Then, after confirming that the module can be slide by hand, return the rack guide (engage with gear). Mount with B3 x 20 screw.



– **Reference Diagram** –



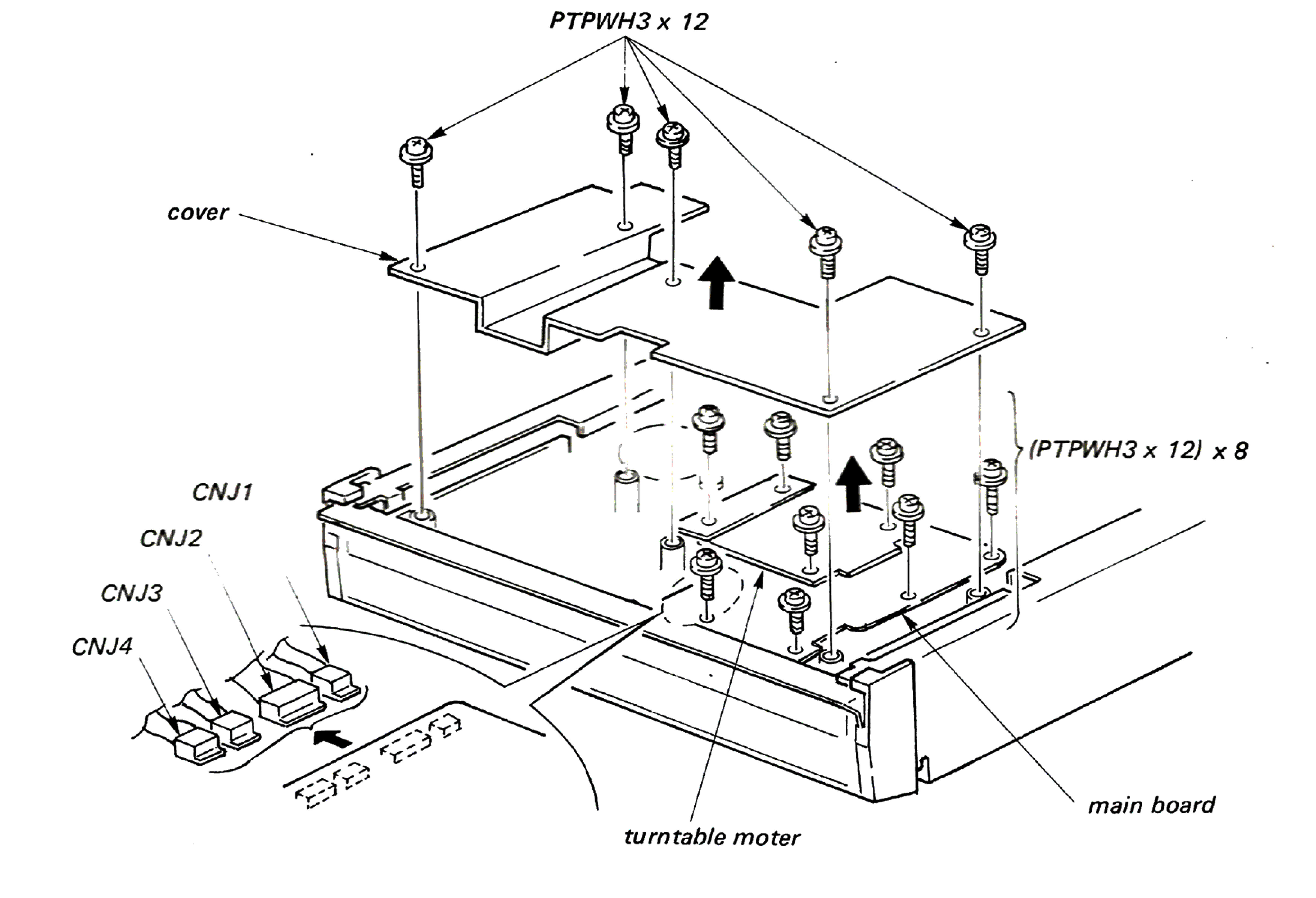
❺ *Loosen the two shafts and move the guide plate in the direction of the arrow.*
(When mounting, return the guide plate to the position shown and tighten the shafts.)



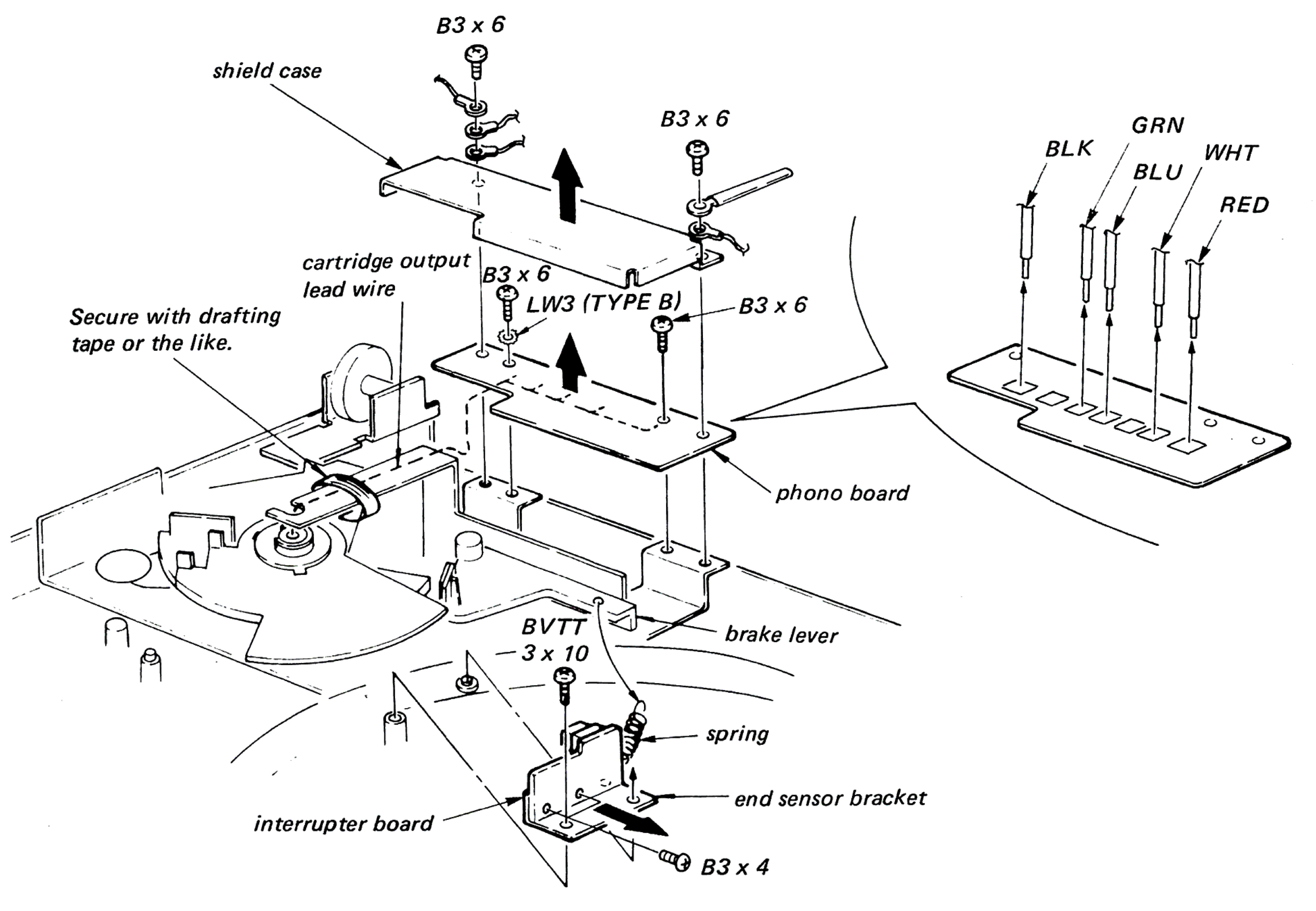
Notes on Installing Bottom Plate

When the module is pushed in and out by hand, confirm that the leads near the power transformer on the rear plate do not touch the module, then mount the bottom plate. If the bottom plate is mounted when the leads are touching the module, they may be damaged, causing AC power voltage to flow in the chassis. This may result in electrical shock, so be very careful.

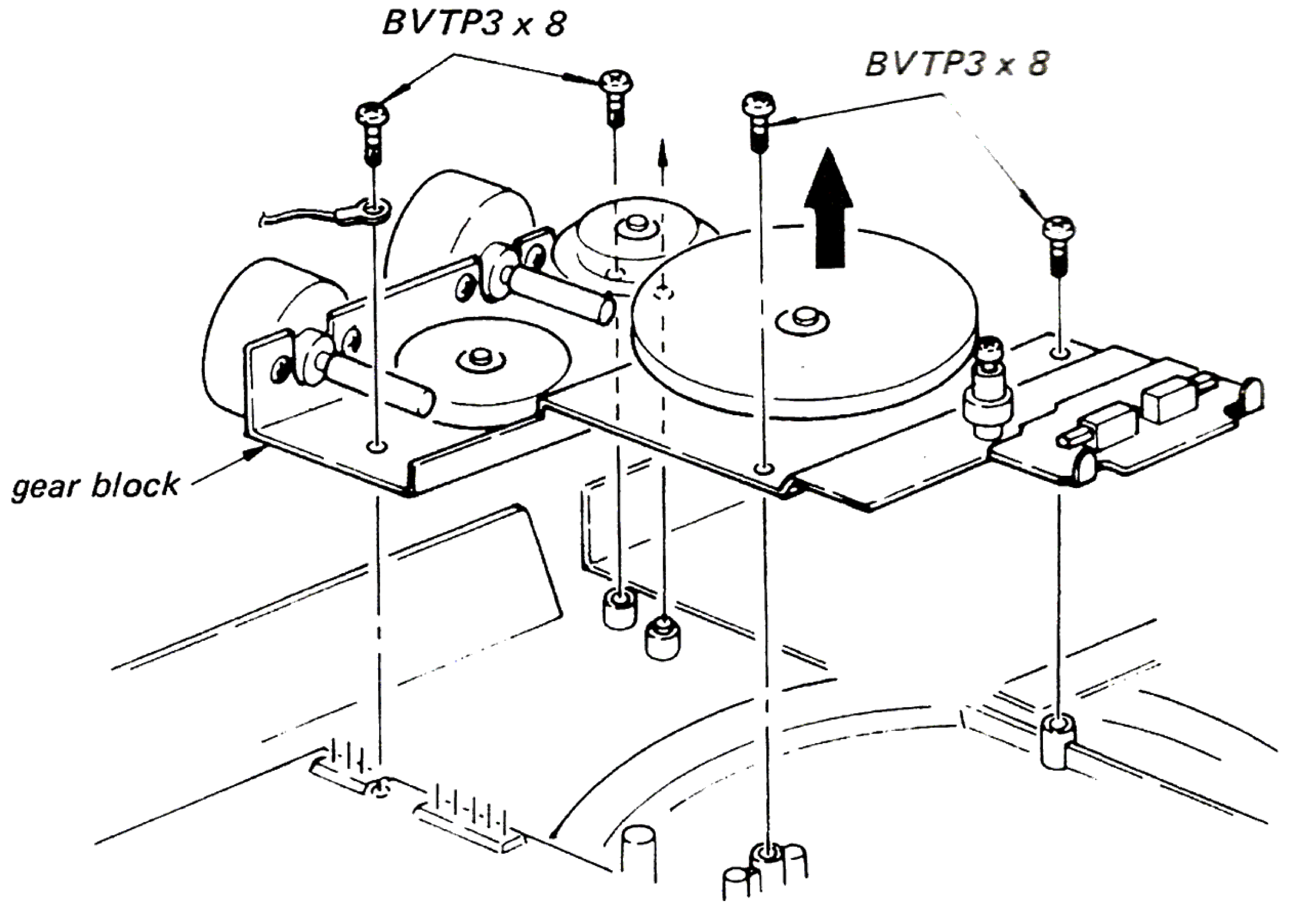
TURNTABLE MOTOR, MAIN BOARD



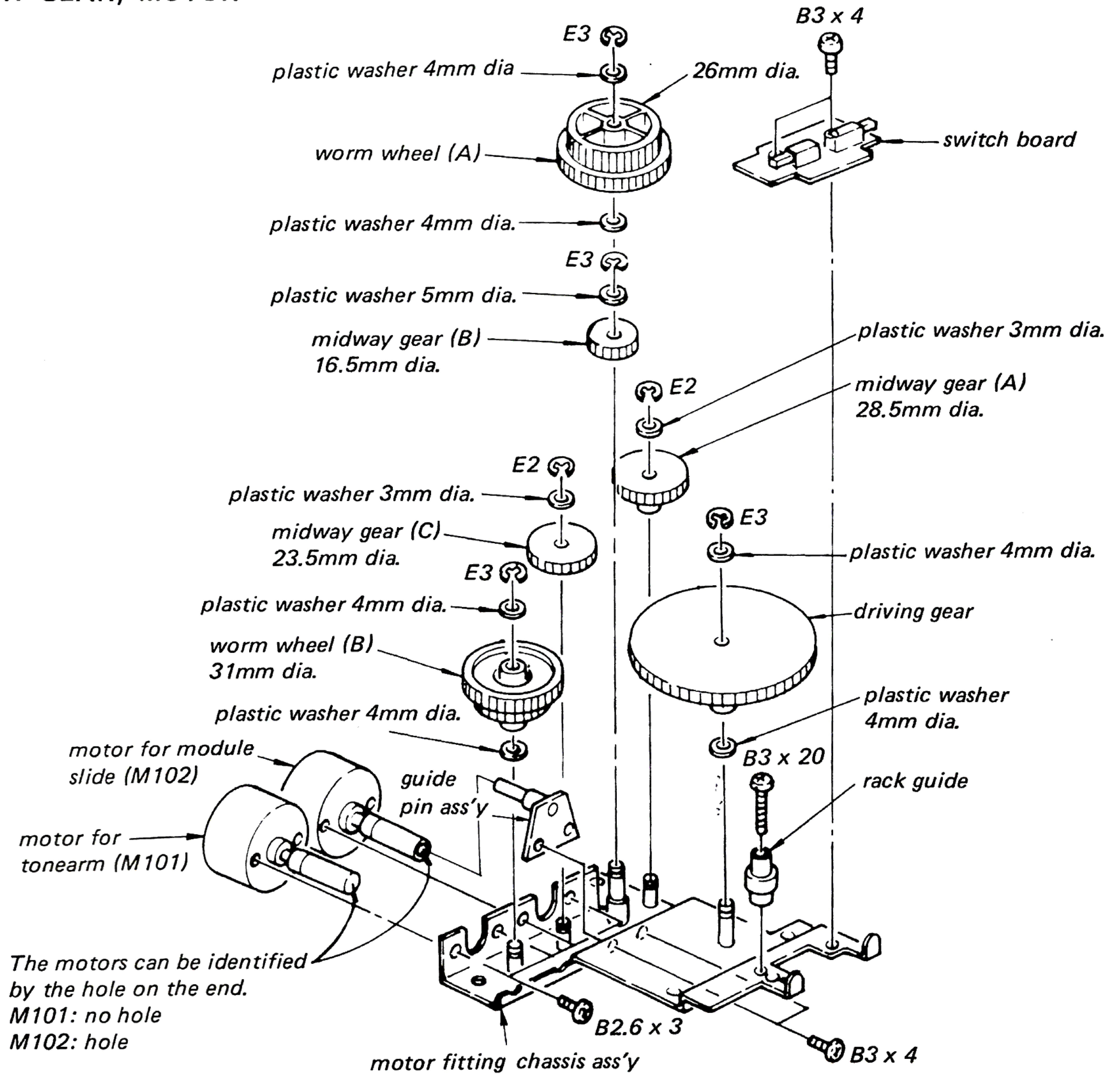
PHONO BOARD, INTERRUPTER BOARD



GEAR BLOCK



EACH GEAR, MOTOR



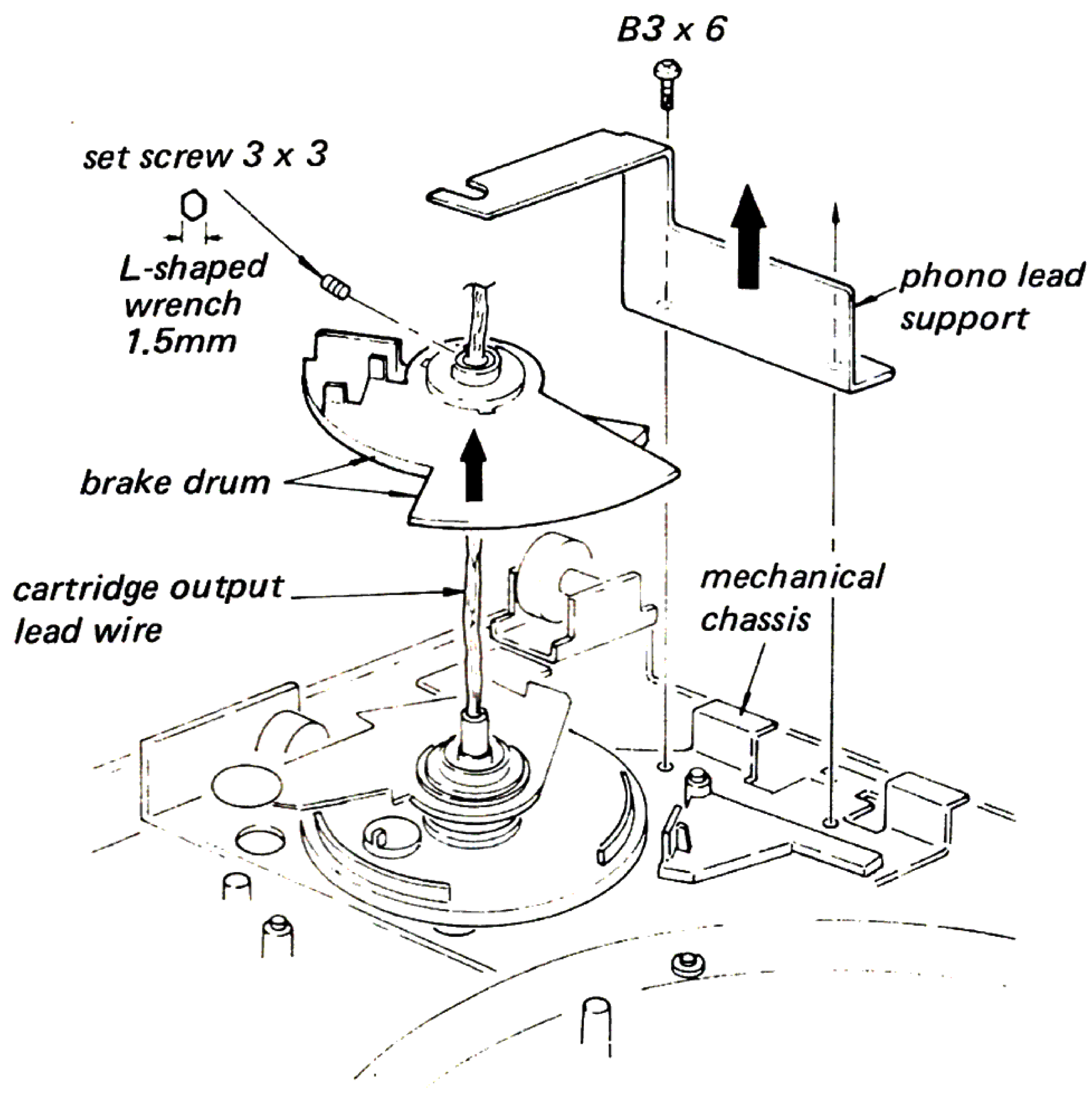
Note: Refer to the maximum diameter for each gear when mounting.

Module slide system: M102→worm wheel (A)→driving gear

Tonearm system: M101→worm wheel (B)→midway gear (C) → midway gear (B)→midway gear (A)→tonearm

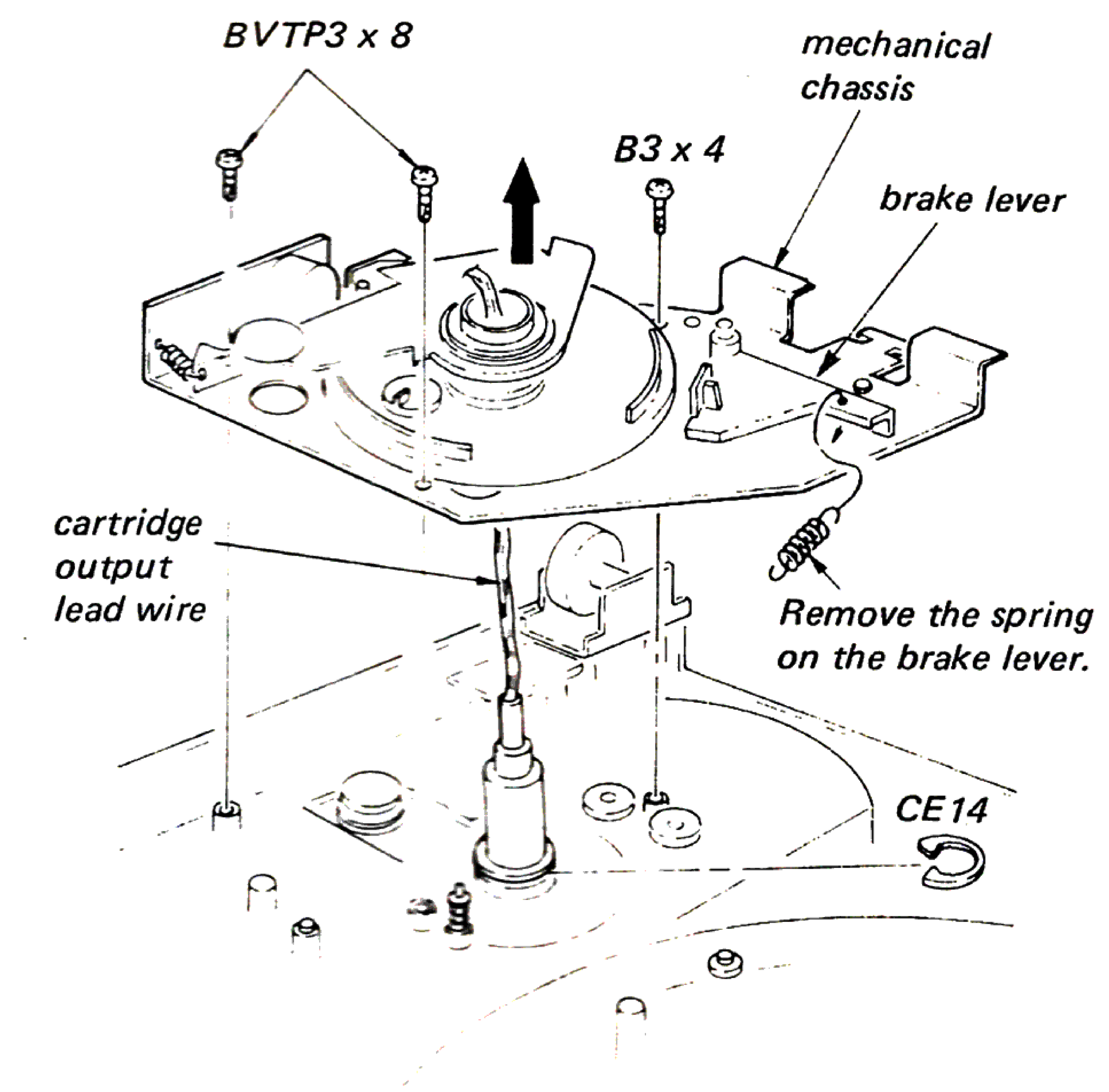
The gear angles do not need to be aligned, but the gears must engage.

BRAKE DRUM

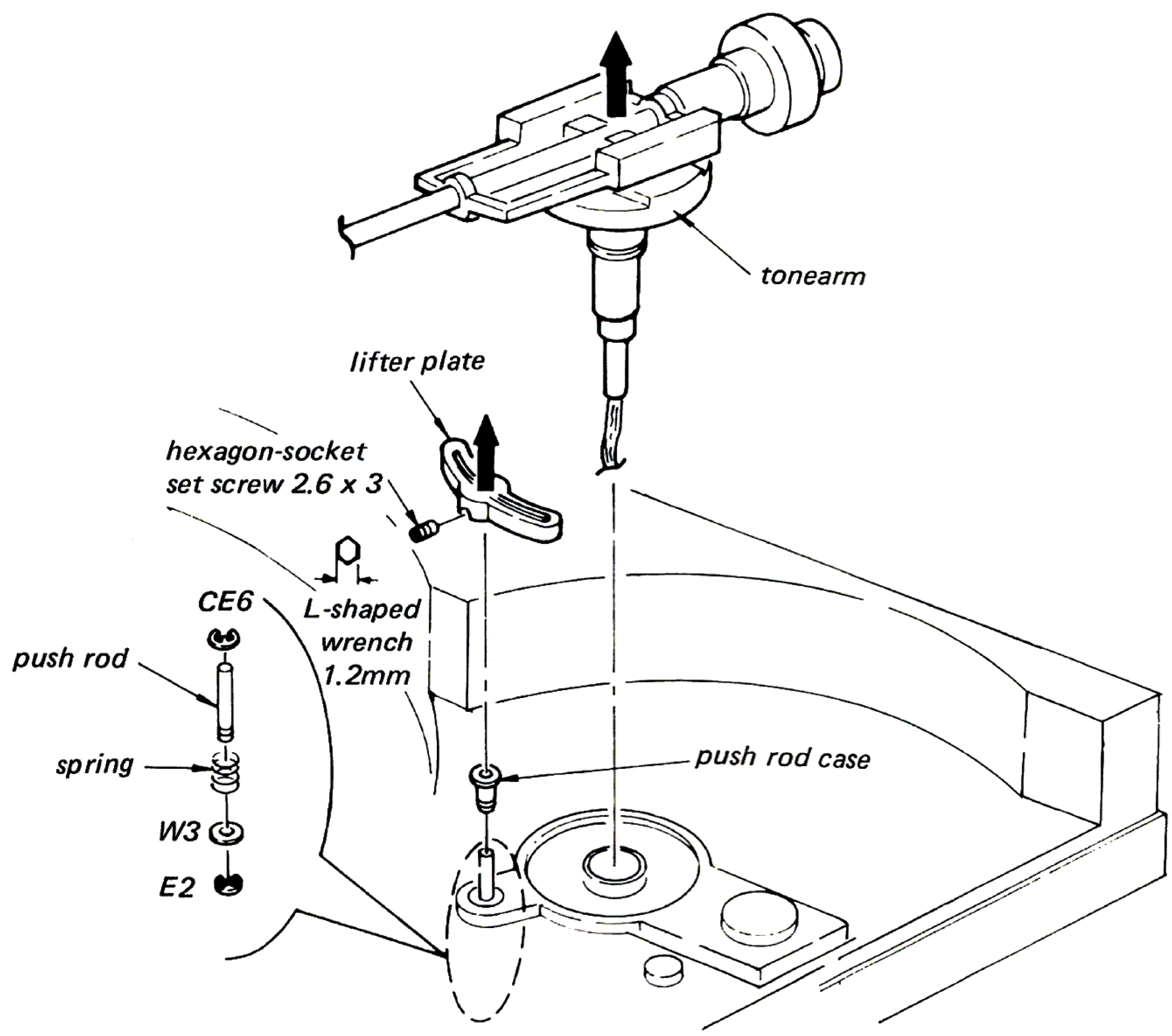


Note: After mounting, perform the brake drum position adjustment on page 25.

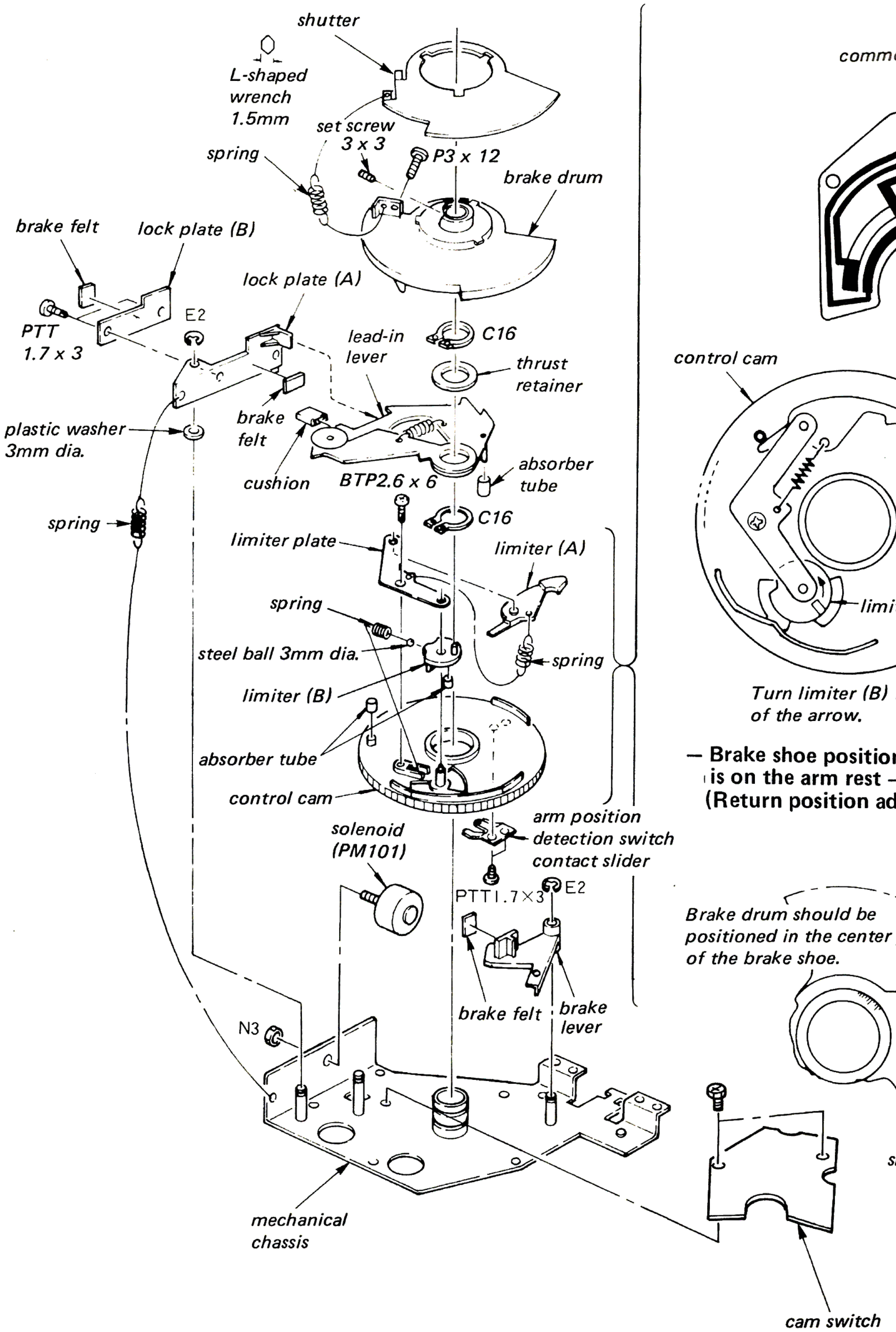
MECHANICAL CHASSIS



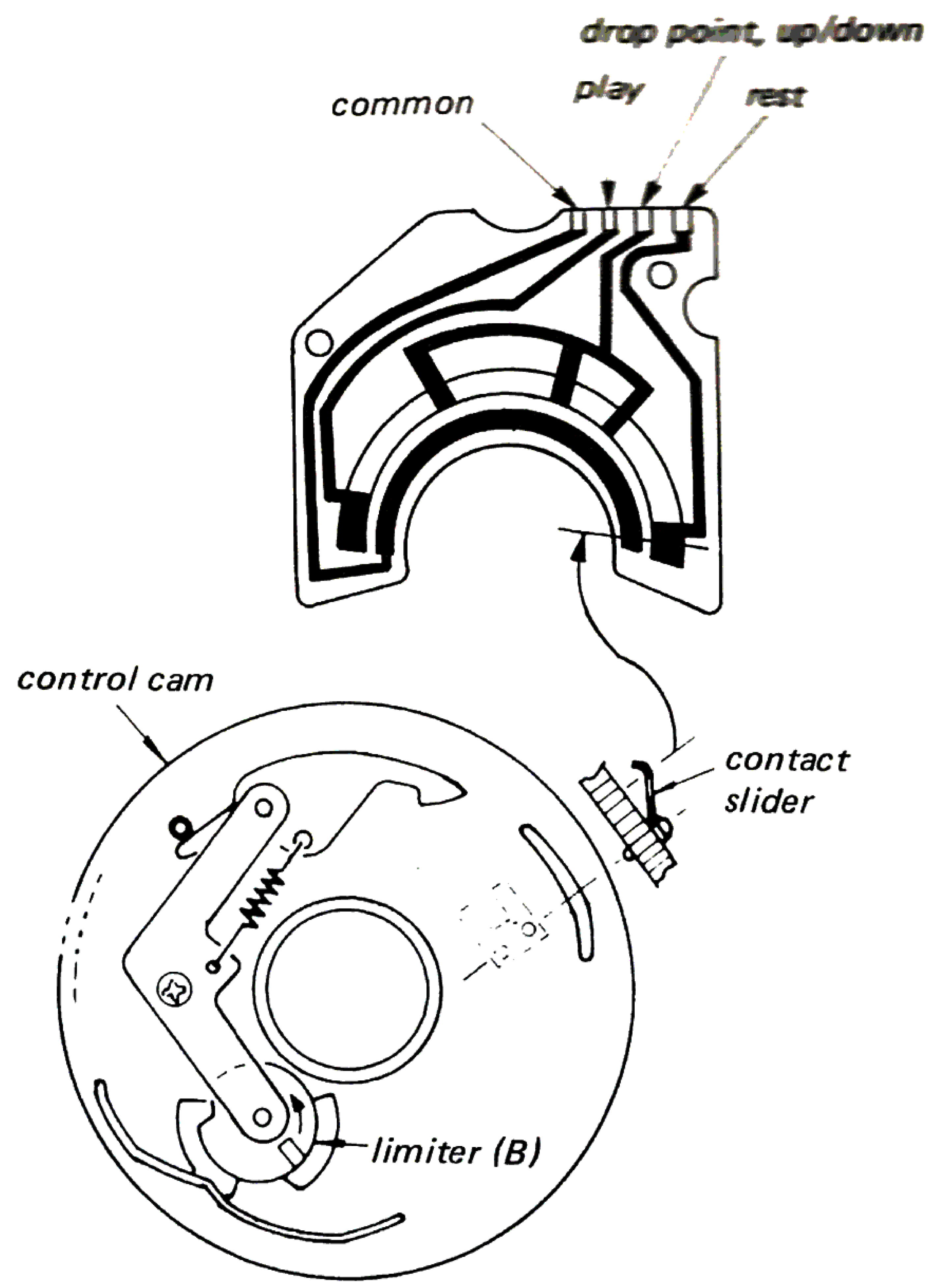
TONEARM, LIFTER PLATE



CONTROL CAM

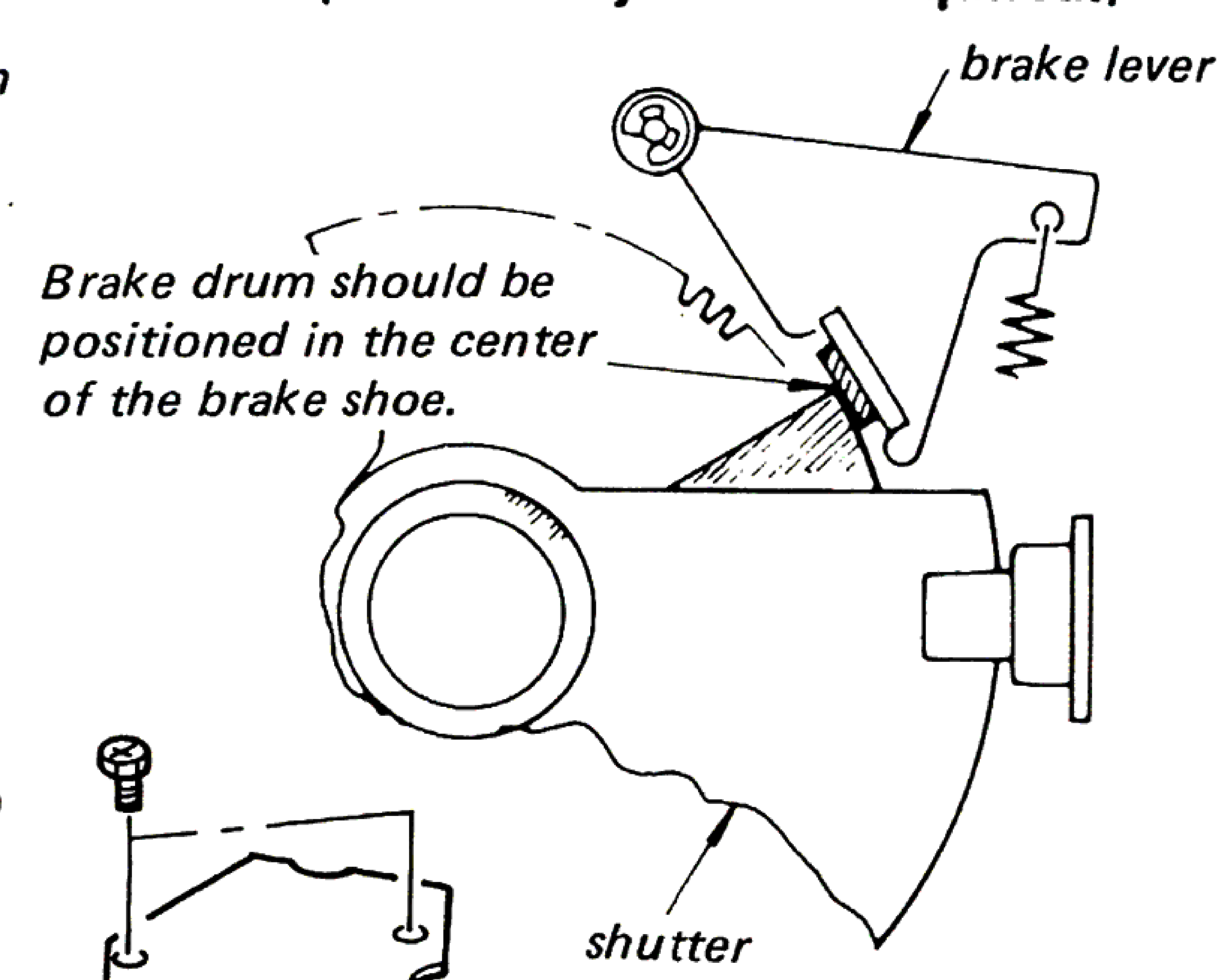


– Contact slider position when the tonearm is on the arm rest –



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

– Brake shoe position when tonearm is on the arm rest –
(Return position adjustment required.)

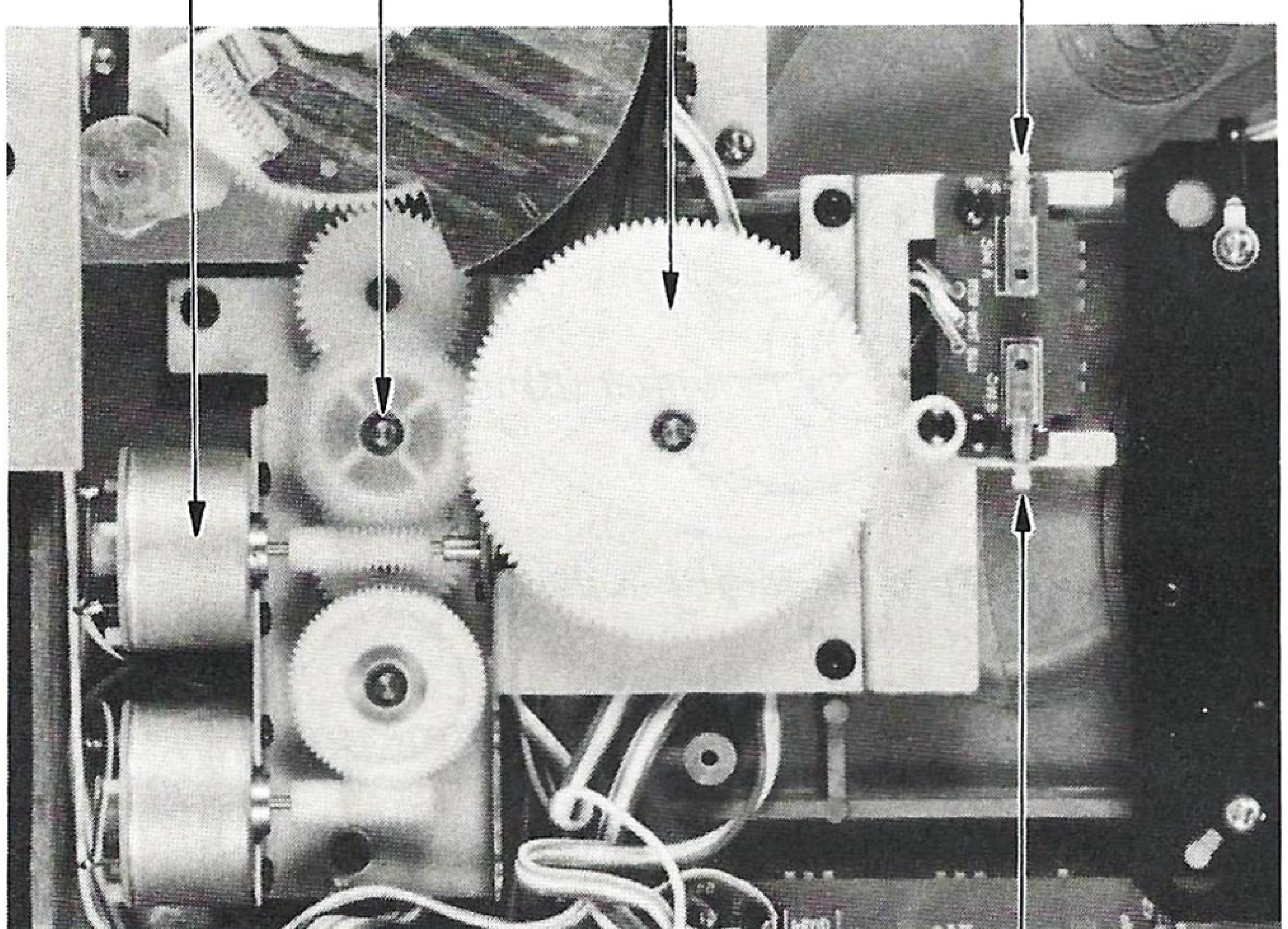


SECTION 3
ADJUSTMENTS

3-1. NOTES ON ADJUSTMENT

- When performing adjustments which require turntable rotation, place a record on the turntable. If this is not done, the turntable will not rotate when the START/STOP switch is pressed.

- When the POWER switch is turned ON with the bottom plate removed, the module slide motor and gears do not stop rotating, but this is normal. They can be stopped by pushing S4 or S6, shown below.

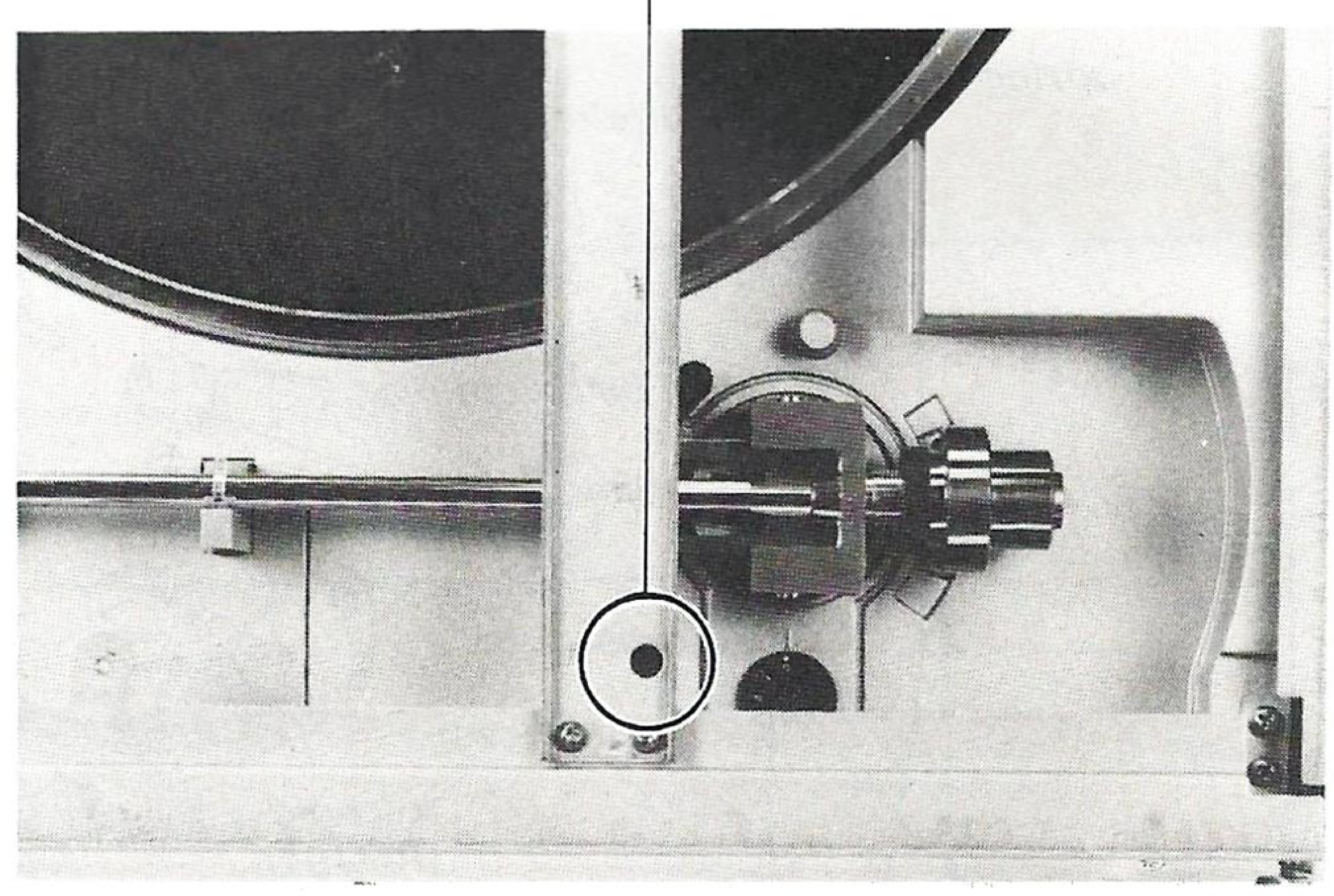


3-2. MECHANICAL ADJUSTMENT

Stylus Drop-point Adjustment

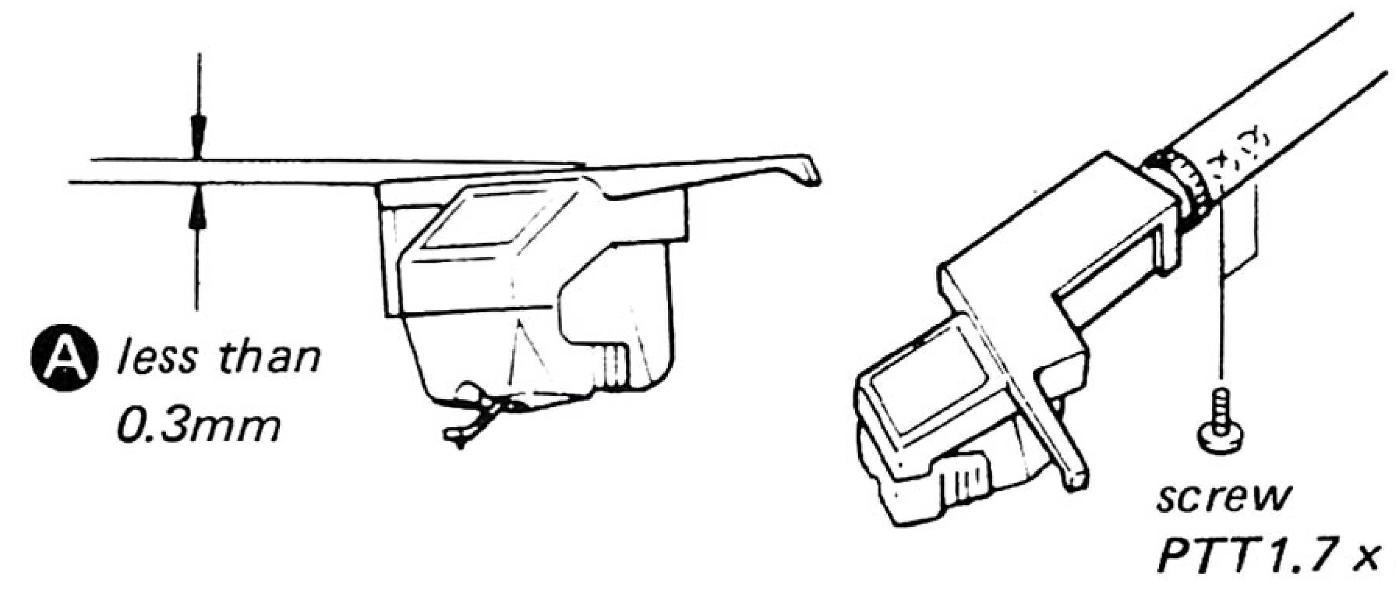
1. Remove the adjustment hole cap.
2. Set stylus force, IFC scale.
   (for XL-150 cartridge: stylus force 1.8g; IFC scale 1.8, VL-5 cartridge: stylus force 2.0g; IFC scale 2.0)
3. SPEED switch: 33 rpm
4. Use test record YFSC-16. Press START/STOP switch.
5. Turn the adjustment screw so that the stylus tip drops on the record at the 7–15 count position.
   clockwise: drop-point moves inward (larger count)
   counterclockwise: drop-point moves outward (lower count)

Note: The proper adjustment for a 30cm record is also correct for a 17cm record.



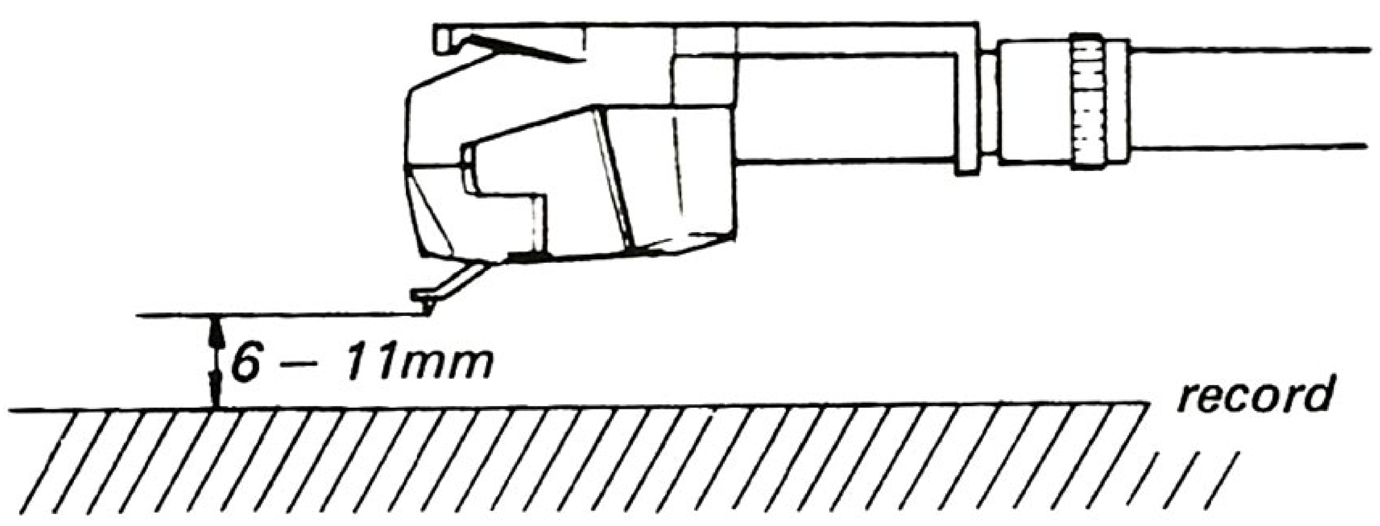
Shell's Horizontal Balance Adjustment

Loosen the neck cylinder screw and adjust so that section Ⓐ (shell slant) is less than 0.3mm.

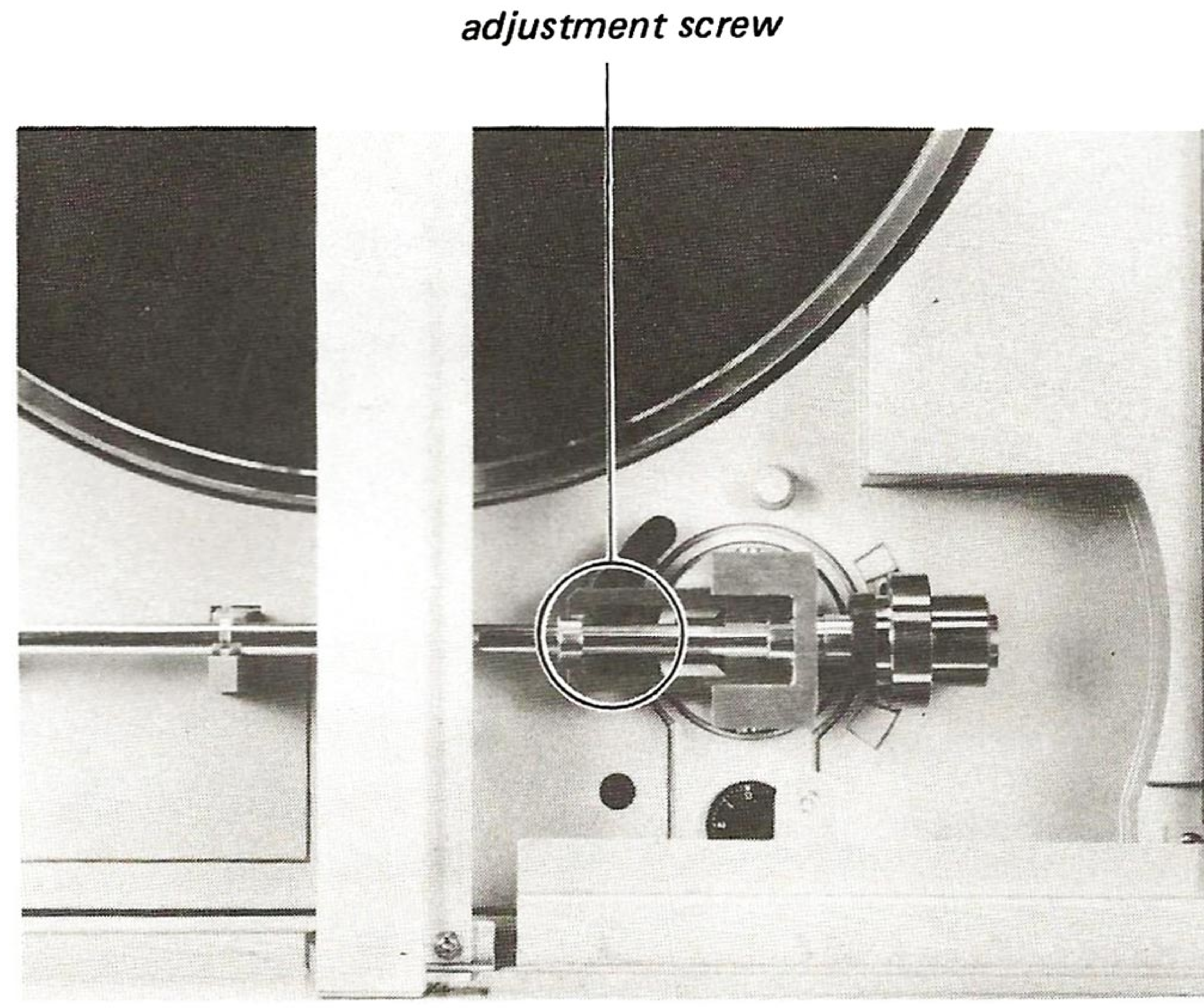


Stylus Height Adjustment

1. Obtain zero balance and apply appropriate stylus force with counterweight. (1.8g for XL-150 cartridge, 2.0g for VL-5 cartridge)
2. POWER switch: ON
3. Put a record on and press START/STOP switch.
4. Turn the POWER switch OFF when the tonearm reaches the end of the record, and the arm lifter rises to perform auto return.
5. At this time, the distance between the record and the stylus tip is 6 – 11mm.

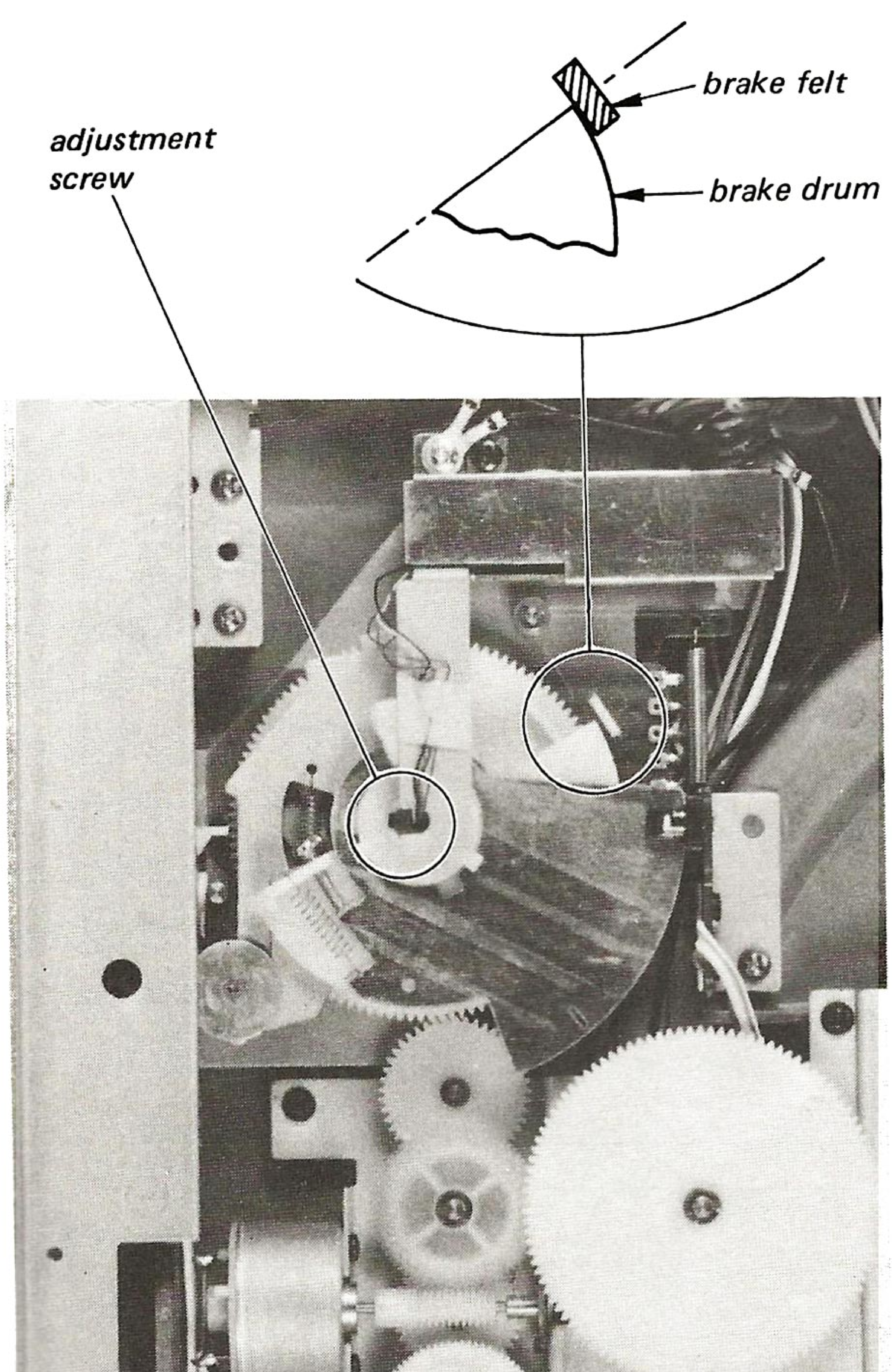


6 Confirm that the cartridge does not touch the top plate when the module is pulled out.



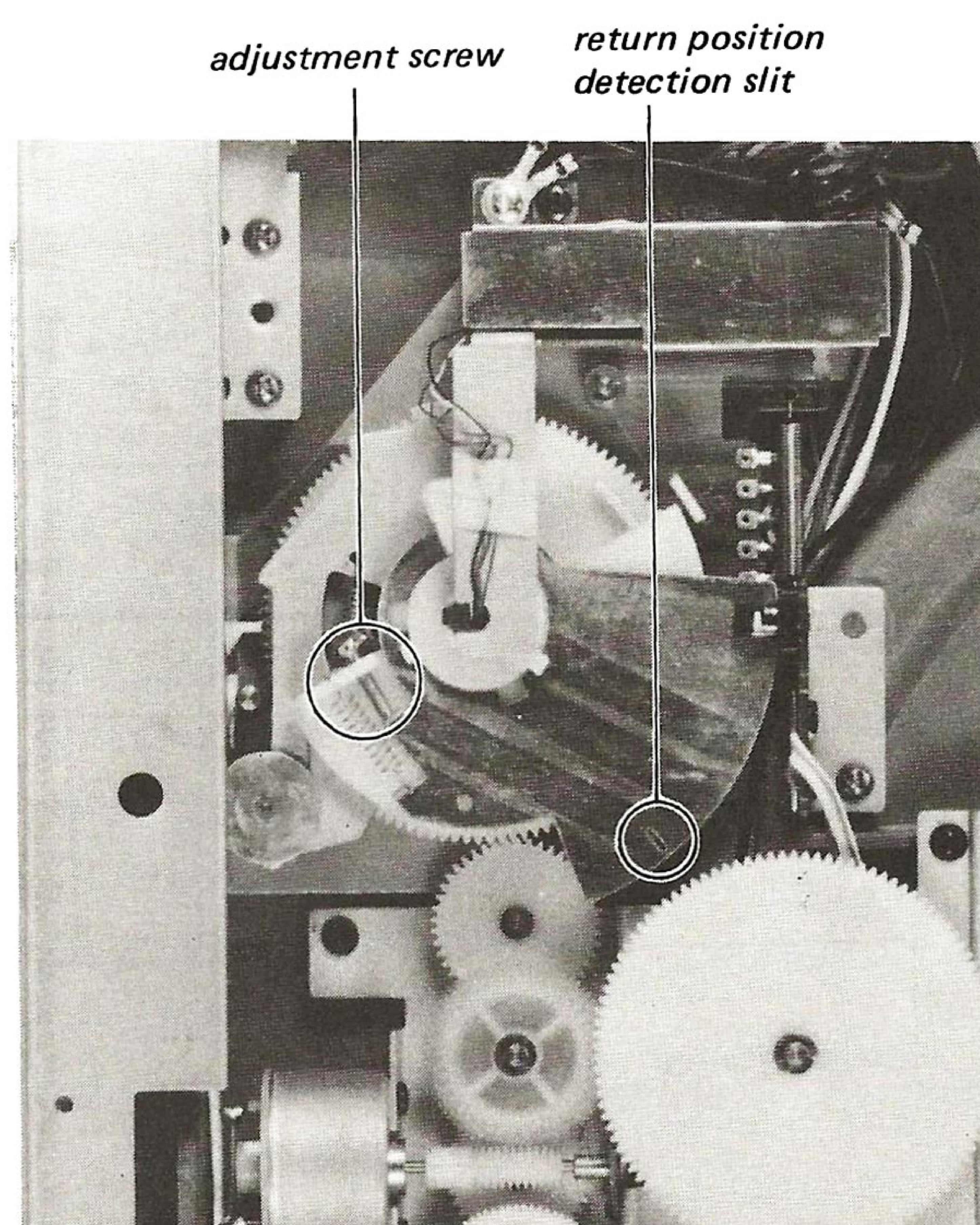
Brake Drum Position Adjustment

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



Return Position Adjustment

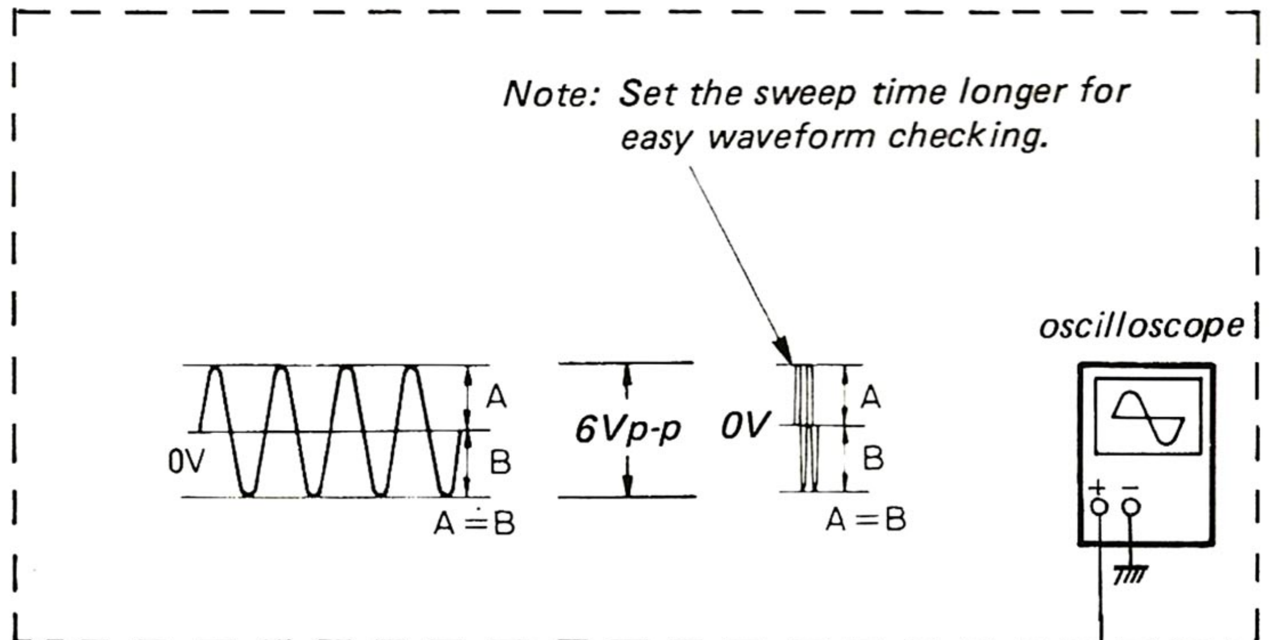
1. SPEED switch: 33 rpm
2. Put on a test record. (YFSC-16)
   Move the tonearm by hand and place in the return check groove.
3. Press the START/STOP switch and turn the adjustment screw so that it returns at count of 10 – 12.
   Clockwise: to the groove
   Counterclockwise: to the end of the record



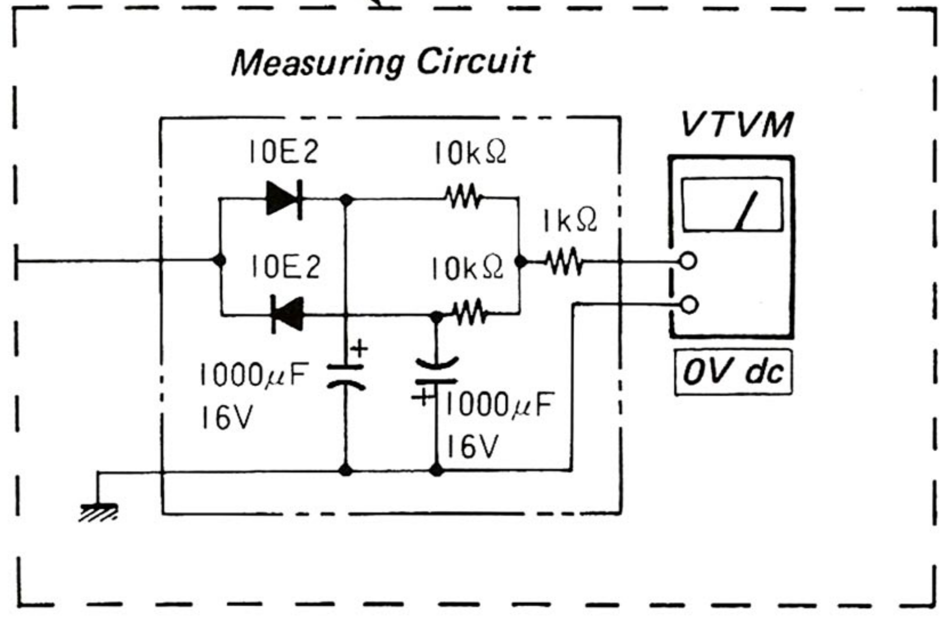
3-3. ELECTRICAL ADJUSTMENTS

Gain/Offset Adjustments

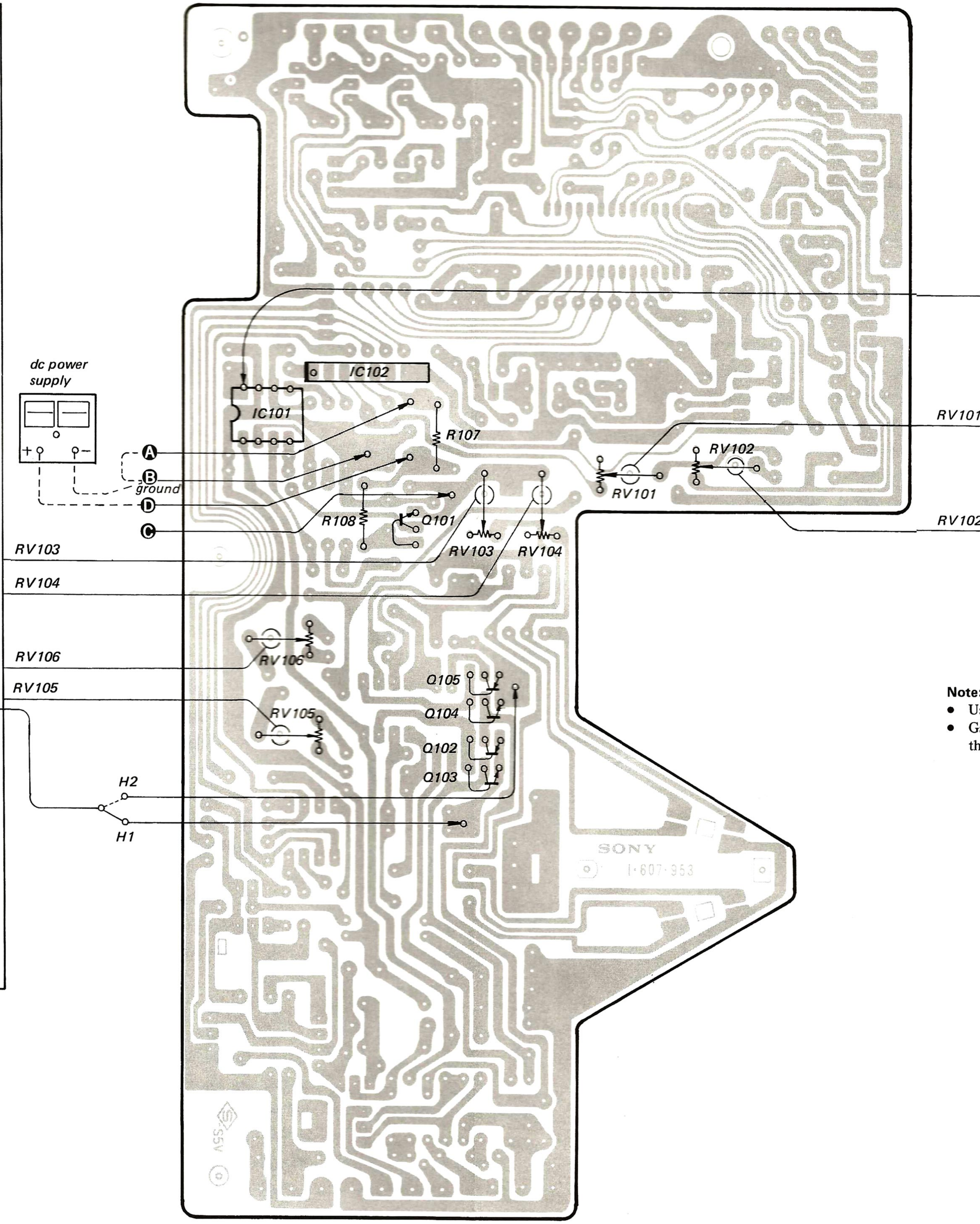
1. Connect a lead wire to the points Ⓐ and Ⓑ , and apply a 1.2V dc to the point Ⓒ via point Ⓓ .
2. Turn the power switch on, and push the START/STOP button.
3. Adjust the gain adjustment RV103 at the switch position H1 for a 6Vp-p reading on the oscilloscope.
4. Adjust the gain adjustment RV104 at H2 for a 6Vp-p reading.
5. Adjust the offset adjustment RV105 at H1 for a 0V dc centering on the waveform.
6. Adjust the offset adjustment RV106 at H2 for a 0V dc centering.
7. After the adjustments, disconnect a lead wire from the points Ⓐ and Ⓑ , and remove the dc-voltage connection from the point Ⓓ .



or

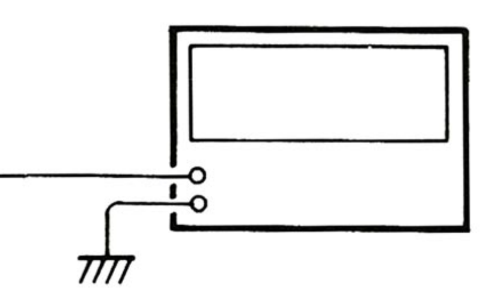


MAIN BOARD



Speed Adjustment

1. Connect a frequency counter to pin ① of IC101.
2. Turn the power switch on.

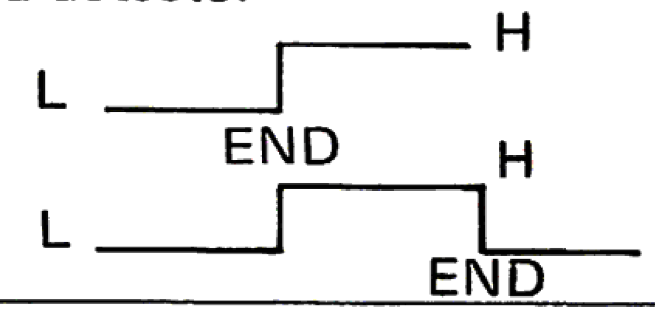


3. Turn the SPEED switch to 45, and push the START/STOP button.
4. Adjust the speed (45) adjustment RV101 for a 96Hz reading on the frequency counter.
5. Turn the SPEED switch to 33.
6. Adjust the speed (33) adjustment RV102 for 71.11Hz reading.

Note:

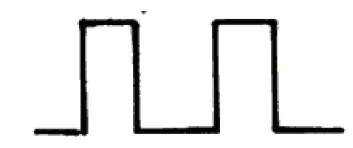
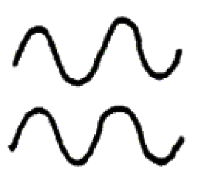
- Use a small-blade screwdriver for the adjustments.
- Gain/offset adjustments should be made earlier than Speed adjustment.

IC105's TERMINAL FUNCTIONS

<table>
<tr><th>PIN NO.</th><th></th><th>INPUT /OUTPUT</th><th></th></tr>
<tr><td>1</td><td>END DET</td><td>IN</td><td>Signal input for record end detector
RECORD SIZE 30cm:
RECORD SIZE 17cm:
</td></tr>
<tr><td>2

3</td><td>AUTO SIZE 30cm

AUTO SIZE 17cm</td><td>IN

IN</td><td>Signal input for record size detector
<table>
<tr><td>RECORD SIZE</td><td>30cm</td><td>17cm</td><td>—</td></tr>
<tr><td>PIN NO. 2</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>PIN NO. 3</td><td>L</td><td>L</td><td>H</td></tr>
</table>
H: </td></tr>
<tr><td>4</td><td>PLAY SW</td><td>IN</td><td>Signal input for cam switch (arm state)
DURING PLAY: H OTHERS: L</td></tr>
<tr><td>5
6</td><td>E XTAL
XTAL</td><td></td><td>Xtal terminal for clock osc.  (6.8Vp-p 2μSec)
(5.6Vp-p 2μSec)</td></tr>
<tr><td>7</td><td>$\overline{\text{INT}}$</td><td>IN</td><td>not use</td></tr>
<tr><td>8</td><td>$\overline{\text{RES}}$</td><td>IN</td><td>Signal input for reset RESET: L</td></tr>
<tr><td>9

10</td><td>ARM MOTOR (–)

ARM MOTOR (+)</td><td>OUT

OUT</td><td>Signal output for arm motor drive
<table>
<tr><td>ARM MOTOR</td><td>OFF</td><td>LEADIN</td><td>RETURN</td></tr>
<tr><td>PIN NO. 9</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>PIN NO. 10</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>11

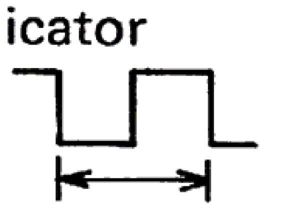
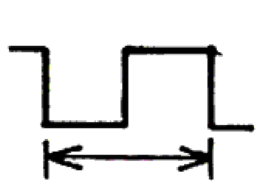
12</td><td>MODULE MOTOR (–)

MODULE MOTOR (+)</td><td>OUT

OUT</td><td>Signal output for module motor drive
<table>
<tr><td>MODULE MOTOR</td><td>OFF</td><td>CLOSING</td><td>OPENING</td></tr>
<tr><td>PIN NO. 11</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>PIN NO. 12</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>13</td><td>TEST</td><td>IN</td><td>NORMAL: L</td></tr>
<tr><td>14</td><td>Vss</td><td></td><td></td></tr>
<tr><td>15
16</td><td>KEY SCAN (1)
KEY SCAN (2)</td><td>OUT
OUT</td><td>Signal output for key scan</td></tr>
<tr><td>17

18</td><td>PAUSE

REC MUTE</td><td>OUT

OUT</td><td>Signal output for synchro play
H: RELEASE PAUSE
Signal output for synchro play
H: REC MUTE ON</td></tr>
<tr><td>19</td><td>INDICATOR</td><td>OUT</td><td>Signal output for indicator
L: PLAY  : LEADIN /RETURN  : UP/DOWN</td></tr>
<tr><td>20</td><td>VDD</td><td></td><td></td></tr>
<tr><td>21
22
23
24</td><td>SWITCH (1)
SWITCH (2)
SWITCH (3)
SWITCH (4)</td><td>IN
IN
IN
IN</td><td>KEY INPUT</td></tr>
<tr><td>25</td><td>TURNTABLE</td><td>OUT</td><td>Signal output for turntable motor drive
TURNTABLE MOTOR H: ON L: OFF</td></tr>
<tr><td>26</td><td>PLUNGER</td><td>OUT</td><td>Signal output for plunger drive
PLUNGER H: ON L: OFF</td></tr>
<tr><td>27

28</td><td>REMOTE START

REMOTE STOP</td><td>IN

IN</td><td>Signal input for external remote controller
REMOTE CONTROL START: H
Signal input for external remote controller
REMOTE CONTROL STOP: H</td></tr>
</table>

DIAGRAMS

• Refer to page 40 for semiconductor lead layouts.

Note:
- ○—: parts extracted from the component side.
- ●—: parts extracted from the conductor side.
- : B+ pattern

4-2. SCHEMATIC DIAGRAM

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

Note: 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.

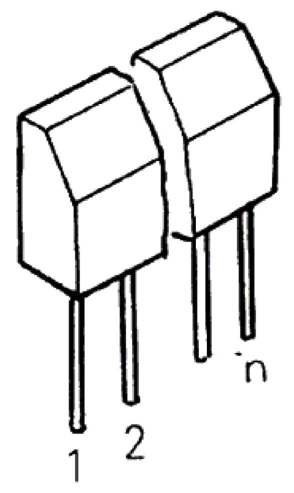
Note:
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- : panel designation.
- : adjustment for repair.
- ——: B+ bus.
- – – –: B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1	SWITCH CAM	(1) REST
S2	ARM LIFTER	OFF
S3	START/STOP	OFF
S4	(STOPS OPENING THE MODULE)	OFF
S5	OPEN/CLOSE	OFF
S6	(STOPS CLOSING THE MODULE)	OFF
S7	REPEAT	OFF
S9	SPEED	33
S10	POWER	STANDBY
S301	MUTING	OFF

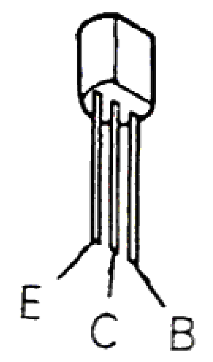
Note: Voltages are measured with a VOM (50kΩ/V).

Semiconductor Lead Layouts

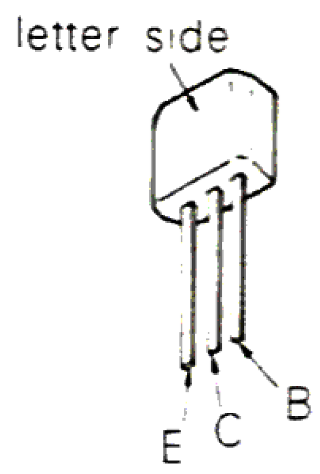
CX065B



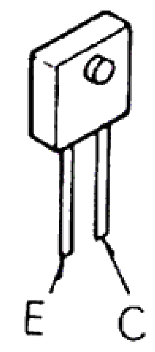
2SC1364
2SD774



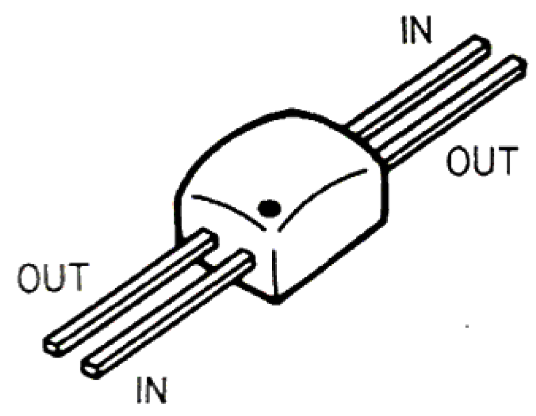
2SB731
2SD809



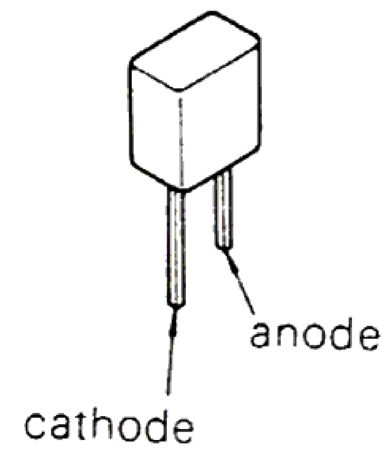
PH103



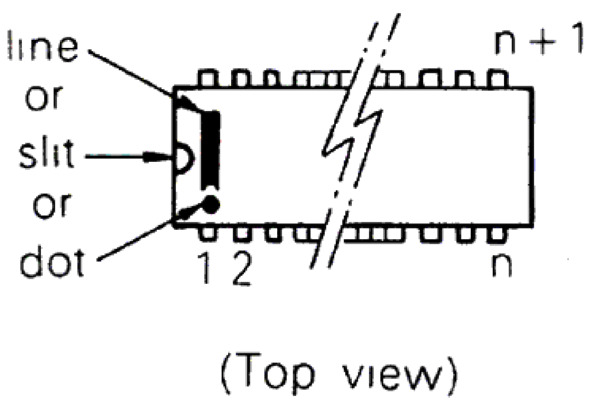
HL-300C



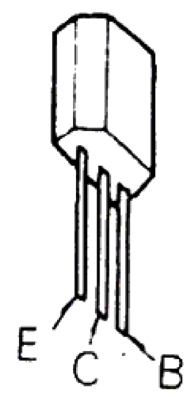
SR110



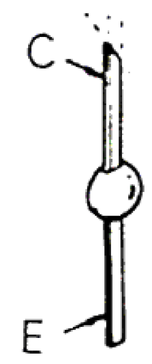
LM6416E
μPC4558C



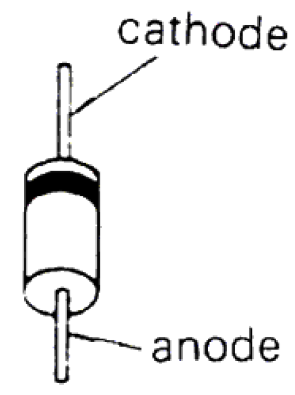
2SA1026
2SA1027R



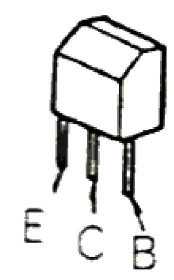
PH101



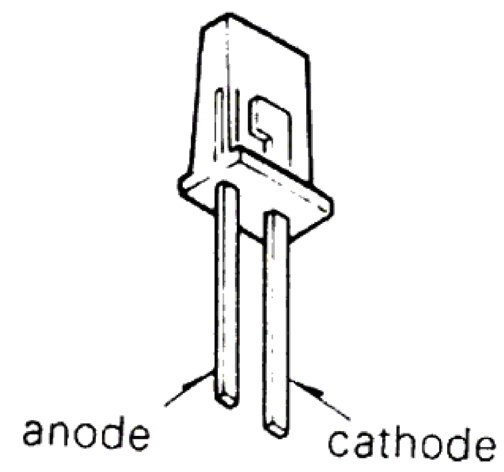
HZ9B1L
HZ6C2L
1S1555
10E2



2SB734

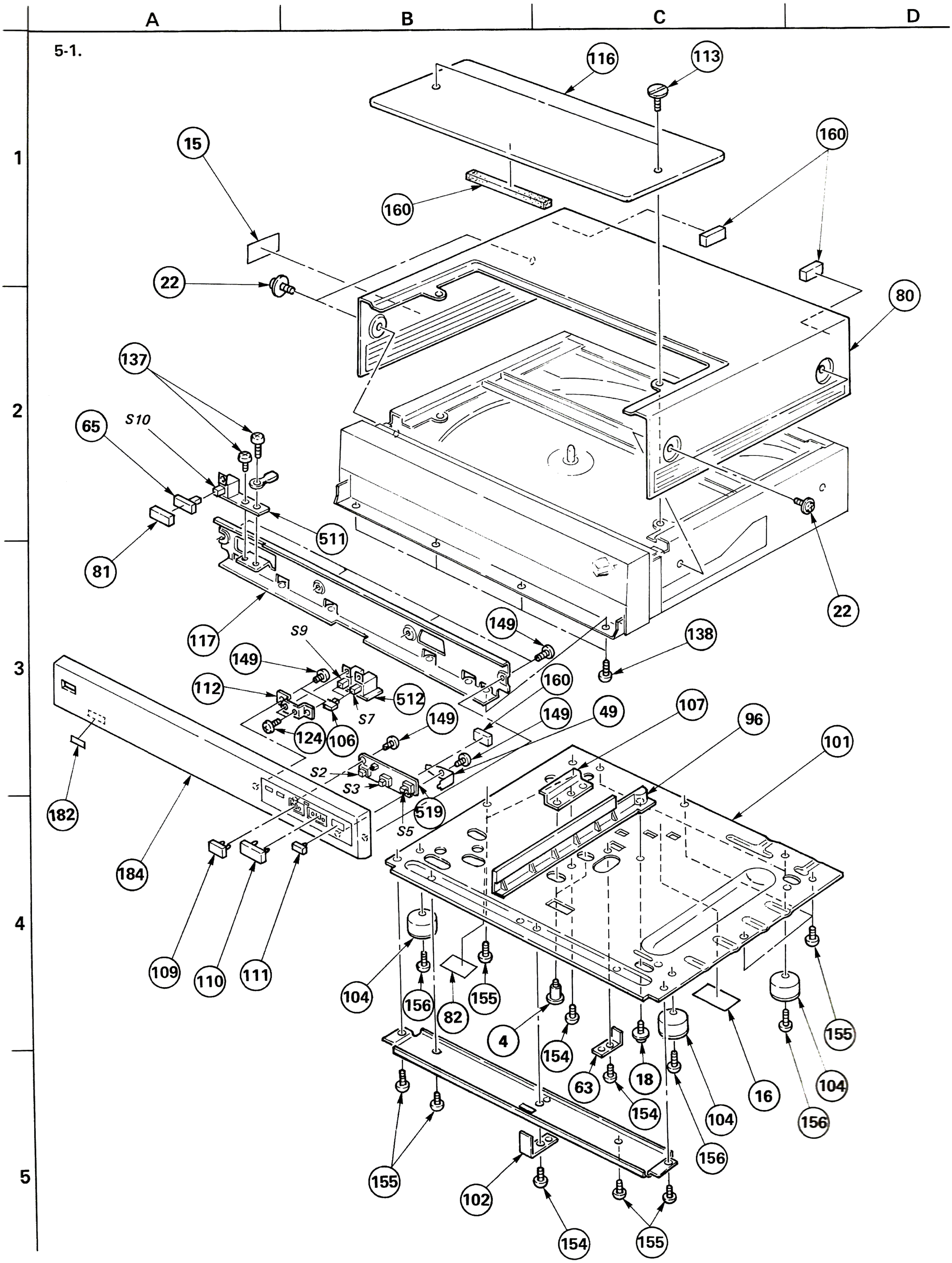


GL9HD2



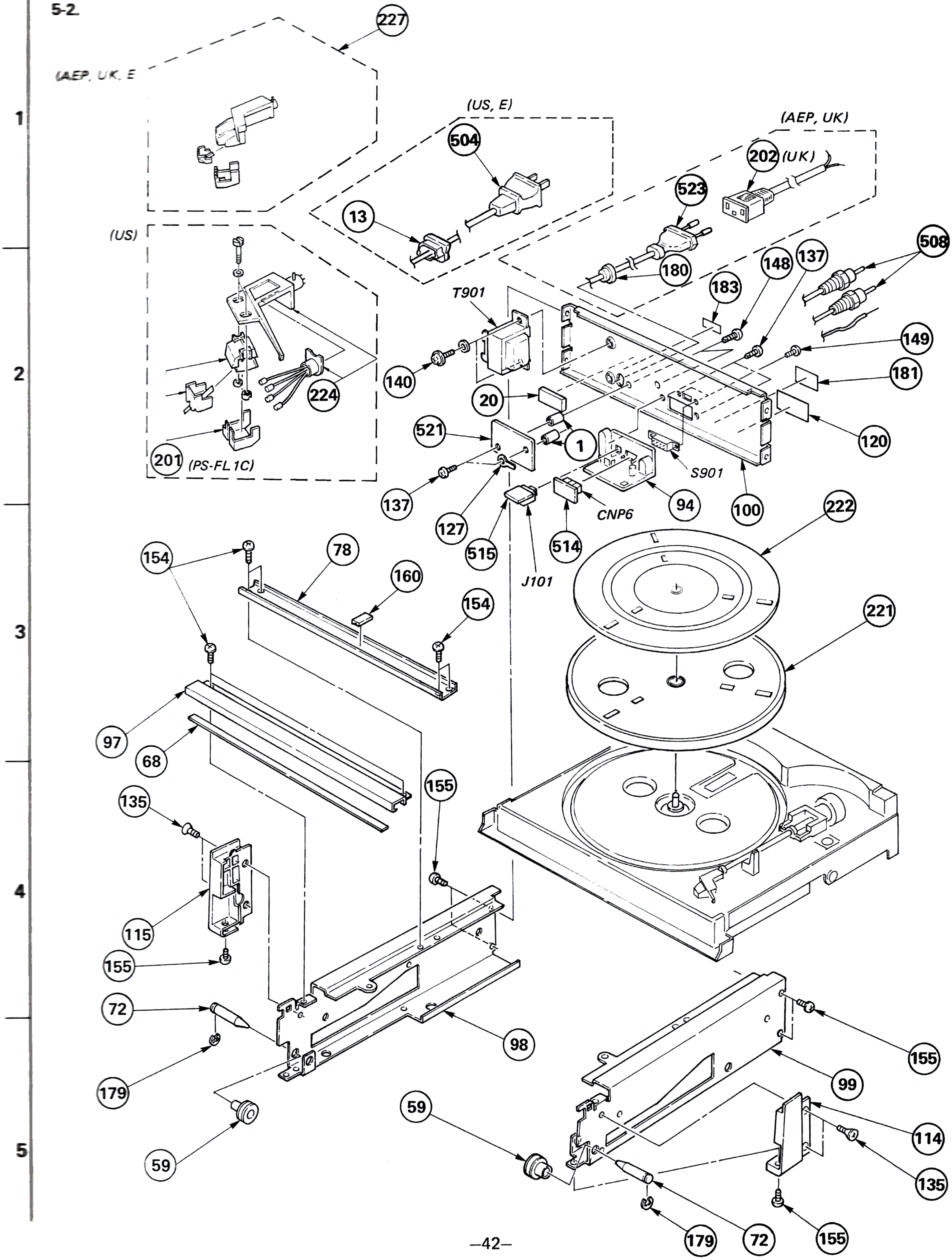
SECTION 5
EXPLODED VIEW AND PARTS LIST

5-1.



A	B	C	D

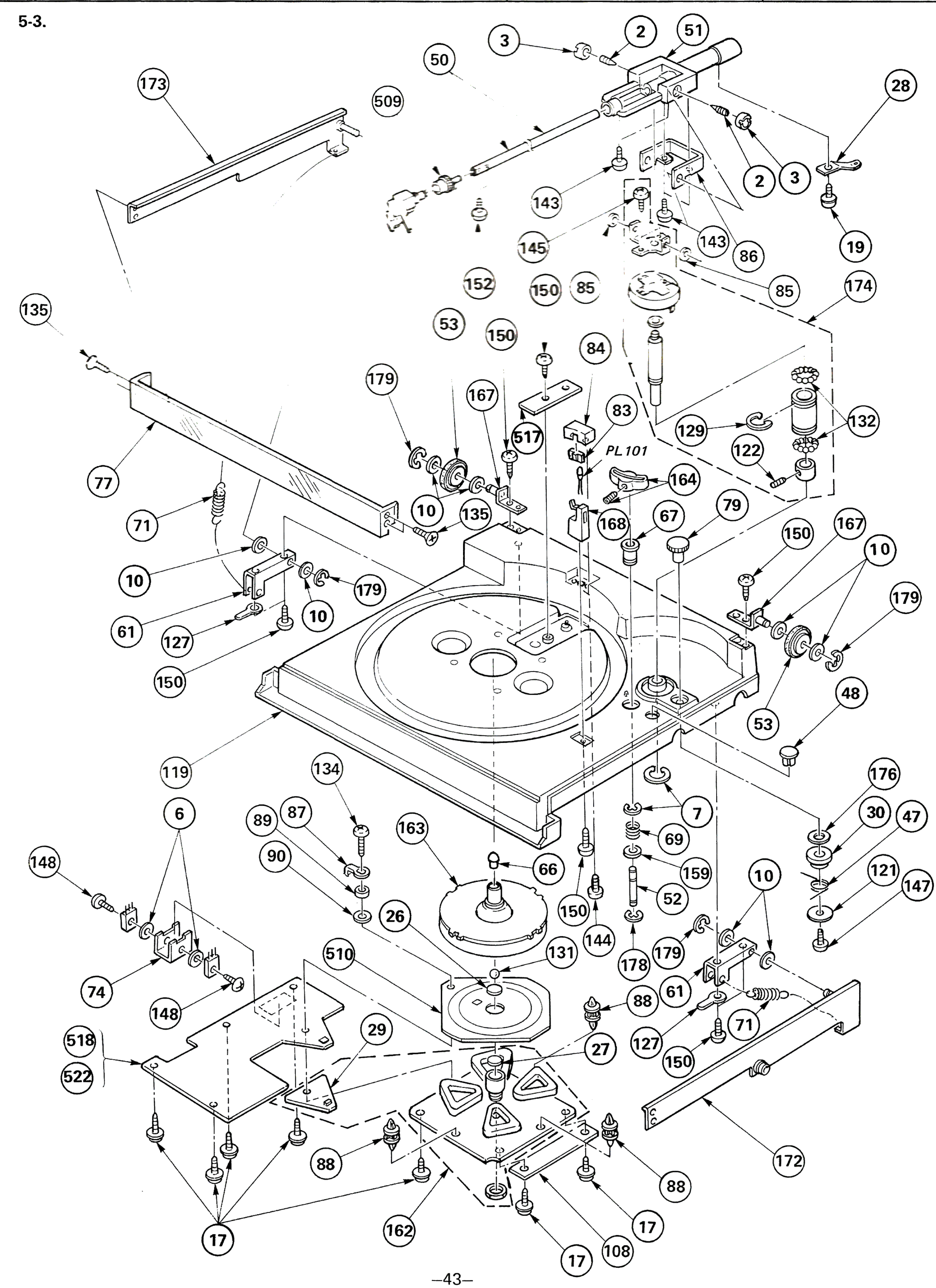
5-2.



(AEP, UK, E
227
(US, E)
504
13
(AEP, UK)
202
(UK)
523
180
(US)
508
183
148
137
149
181
120
100
S901
94
CNP6
514
515
J101
127
137
521
1
20
140
T901
224
201
(PS-FL 1C)
222
221
154
78
160
154
97
68
155
135
115
155
72
179
59
98
99
155
114
135
155
72
179
59
1
2
3
4
5

	A	B	C	D

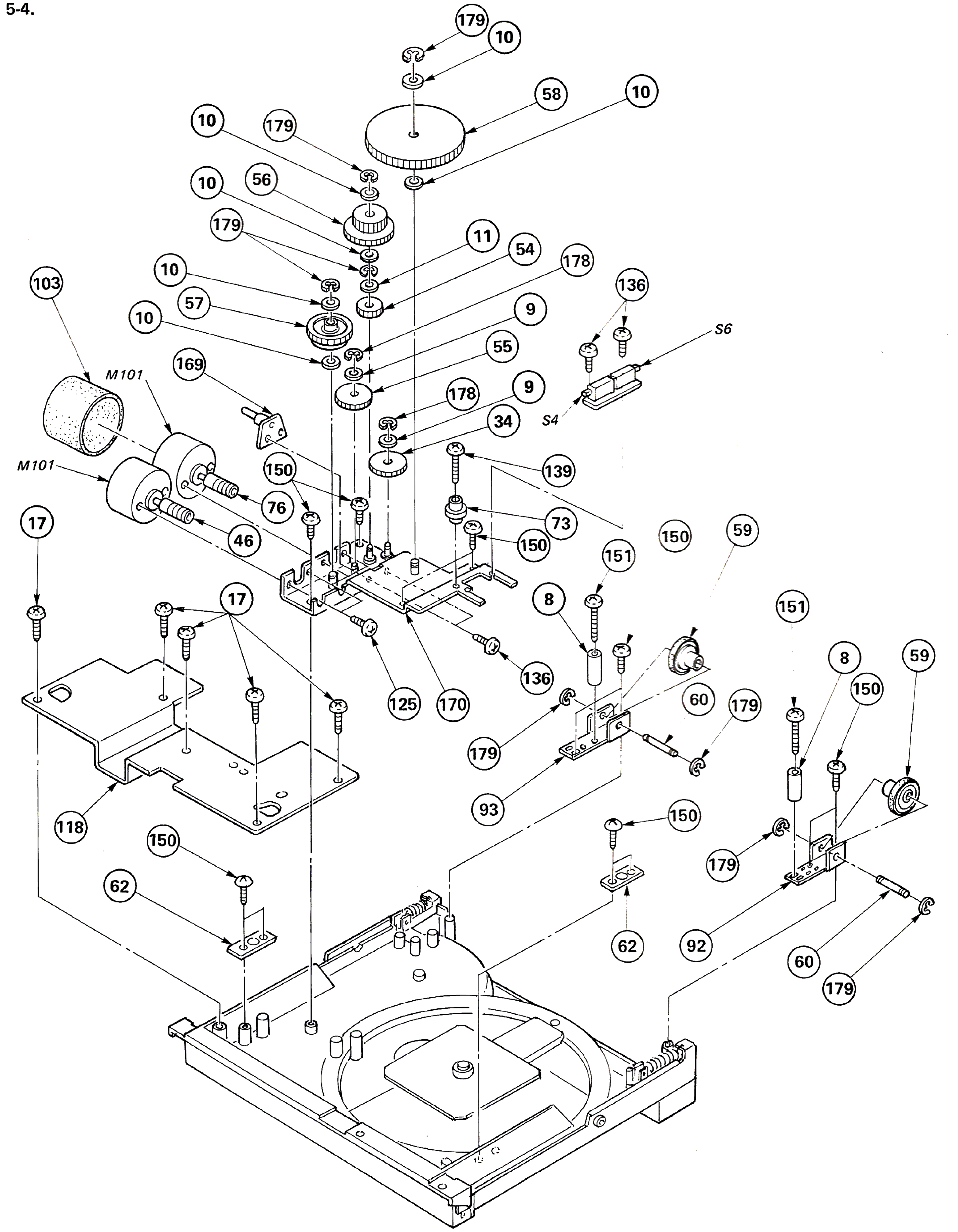
5-3.



1
2
3
4
5

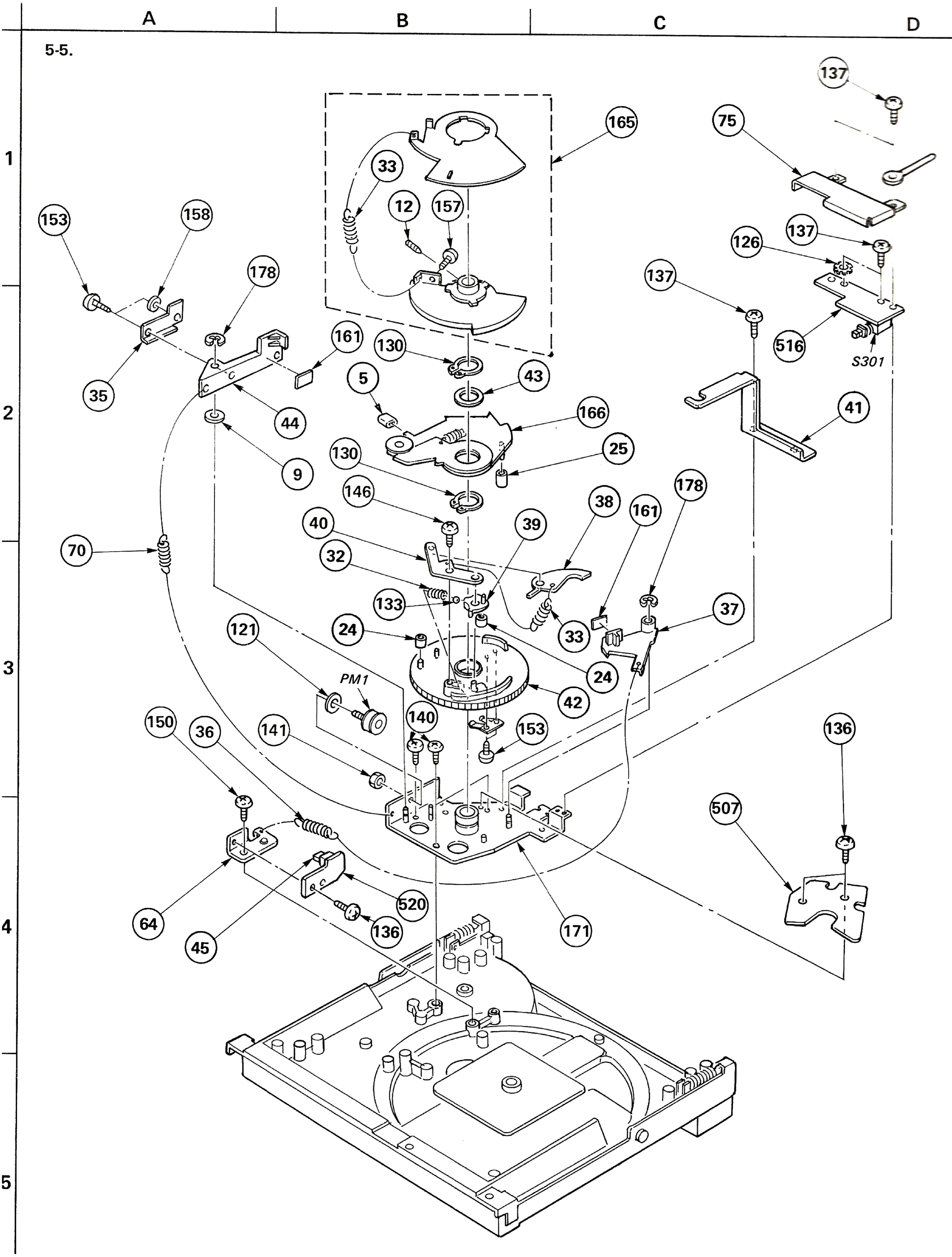
	A	B	C	D

5-4.



179
10
58
10
10
179
56
10
179
11
54
178
136
10
57
10
9
S6
55
103
M101
169
178
9
34
S4
M101
150
139
76
73
46
150
17
150
150
59
151
8
17
3
125
170
136
60
179
179
151
8
150
59
93
118
150
150
62
179
62
92
60
179

5-5.


A
B
C
D
1
2
3
4
5
137
165
75
33
12
157
153
158
178
126
137
137
161
130
43
516
S301
35
5
166
41
44
25
9
130
146
178
38
161
40
39
32
70
133
33
37
24
121
24
PM1
42
140
153
150
36
141
136
507
520
64
136
171
45

GENERAL SECTION

No.	Part No.	Description
1	♠;2-066-111-05	SUPPORT
2	2-203-518-61	SCREW, PIVOT
3	2-203-519-00	NUT (A), LOCK, PIVOT
4	♠;3-465-048-00	SHAFT
5	3-537-173-00	CUSHION, CASSETTE-UP
6	3-572-365-01	SHEET (A), INSULATING
7	3-618-078-00	RING, RETAINING, CE TYPE
8	3-654-603-00	SPACER
9	3-701-439-11	WASHER
10	3-701-441-11	WASHER
11	3-701-443-21	WASHER, 5
12	3-701-505-00	SET SCREW, DOUBLE POINT 3X3
13	⚠3-701-682-00	(US,E)...STOPPER, CORD
14	♠;3-701-822-00	HOLDER, WIRE
15	3-703-082-21	(US)...LABEL, CAUTION
16	3-703-114-01	(US)...LABEL, MAIN CAUTION
17	3-703-136-00	SCREW, TAPPING
18	3-703-137-00	SCREW, TAPPING
19	3-703-454-00	SCREW, TAPPING
20	3-831-441-XX	CUSHION
21	....	
22	4-820-330-21	SCREW, BW, PLUS MINUS
23	4-844-041-00	WASHER, (N)
24	4-847-035-00	TUBE, ABSORBER
25	♠;4-847-035-21	TUBE, ABSORBER
26	4-852-007-00	RETAINER (A), THRUST
27	4-852-008-00	RETAINER (B), THRUST
28	4-853-043-00	SPRING (B), GUIDE
29	4-857-642-00	HOLDER, PC BOARD
30	4-858-229-00	CAM, IFC
31	....	
32	4-862-640-00	SPRING, COMPRESSION
33	4-862-642-00	SPRING, TENSION
34	4-869-903-00	GEAR (A), MIDWAY
35	♠;4-869-906-00	PLATE (B), LOCK
36	4-869-911-00	SPRING, TENSION
37	4-869-915-00	LEVER, BRAKE
38	4-869-933-00	LIMITER (A)
39	4-869-934-00	LIMITER (B)
40	4-869-935-00	PLATE, LIMITER
41	♠;4-869-936-00	SUPPORT, PHONO LEAD
42	4-869-957-00	CAM, CONTROL
43	4-869-960-00	RETAINER, THRUST
44	4-869-963-00	PLATE, LOCK (A)
45	4-869-965-00	PLATE, SLIT

GENERAL SECTION

No.	Part No.	Description
46	4-869-995-00	WORM
47	4-874-250-00	SPRING
48	4-874-260-01	CAP, BLIND
49	♠;4-874-273-00	PLATE, GROUND, PANEL
50	4-875-210-00	PIPE, ARM
51	4-875-218-00	JOINT (M), PIPE
52	4-879-505-00	ROD, PUSH
53	4-879-509-00	ROLLER (A)
54	♠;4-879-512-00	GEAR (B), MIDWAY
55	♠;4-879-513-00	GEAR (C), MIDWAY
56	4-879-514-00	WHEEL (A), WORM
57	4-879-515-00	WHEEL (B), WORM
58	♠;4-879-516-00	GEAR, DRIVING
59	4-879-520-00	ROLLER (B)
60	♠;4-879-521-00	SHAFT, ROLLER (B)
61	♠;4-879-523-00	BRACKET, LIFTER, PANEL
62	♠;4-879-524-00	PLATE, FIXED
63	♠;4-879-530-00	PLATE, FUNCTION, SWITCH
64	♠;4-879-535-00	BRACKET, END SENSOR
65	4-879-539-00	BASE, BUTTON, SWITCH
66	♠;4-879-541-00	CAP, CENTER
67	4-879-543-00	CASE, ROD, PUSH
68	4-879-545-00	PROTECTOR (A)
69	4-879-563-00	SPRING, COMPRESSION
70	4-879-564-00	SPRING, TENSION
71	4-879-565-00	SPRING, TENSION
72	♠;4-879-566-00	SHAFT (C), ROLLER
73	♠;4-879-568-00	GUIDE, RACK
74	♠;4-879-569-00	HEAT SINK
75	♠;4-879-570-00	CASE, SHIELD
76	4-879-571-00	WORM
77	4-879-574-00	PANEL, FRONT
78	♠;4-879-579-00	REINFORCEMENT (B)
79	4-879-587-00	KNOB, IFC
80	4-879-591-11	PLATE, TOP
81	4-879-602-00	BUTTON, POWER
82	♠;4-879-615-01	LABEL, CAUTION, SERVICE
83	4-879-741-00	WINDOW, LAMP
84	4-879-775-00	HOLDER, LAMP
85	4-881-618-00	BEARING, PIVOT
86	♠;4-881-628-00	REINFORCEMENT (A)
87	♠;4-881-629-00	PLATE (A), GROUND
88	♠;4-881-636-00	SUPPORT (TMD), PC
89	4-881-665-00	COLLAR (TMD)
90	4-881-666-00	WASHER (FG)

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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.

GENERAL SECTION

No.	Part No.	Description
91	....	
92	♣;4-882-212-01	BRACKET, ROLLER (B)
93	♣;4-882-212-11	BRACKET, ROLLER (B)
94	♣;4-882-214-00	PANEL, PLATE, REAR
95	♣;4-882-215-00	REINFORCEMENT (D)
96	♣;4-882-216-00	PLATE, RACK
97	4-882-220-00	PANEL, TOP
98	4-882-223-00	PLATE (LEFT), SIDE
99	4-882-224-00	PLATE (RIGHT), SIDE
100	♣;4-882-225-00	(US).......PLATE, REAR
100	♣;4-882-225-11	(AEP,UK)...PLATE, REAR
100	♣;4-882-225-21	(E)........PLATE, REAR
101	♣;4-882-228-00	PLATE, BOTTOM
102	♣;4-882-230-00	PLATE (F), FUNCTION, SWITCH
103	♣;4-882-233-00	CASE, ACOUSTIC ABSORBER
104	4-882-235-00	FOOT
105	♣;4-882-237-00	RETAINER, IFC
106	4-883-701-00	KNOB, PUSH
107	♣;4-883-705-00	GUIDE
108	♣;4-883-706-00	PLATE, SLIDE
109	4-883-708-00	BUTTON, LIFTER
110	4-883-709-00	BUTTON, START.STOP
111	4-883-710-00	BUTTON, OPEN.CLOSE
112	♣;4-883-711-00	BRACKET, SWITCH
113	4-883-714-00	SCREW, FIXED
114	4-883-715-00	PANEL (RIGHT), SIDE
115	4-883-716-00	PANEL (LEFT), SIDE
116	4-883-717-00	PLATE, TOP, REINFORCEMENT
117	♣;4-883-719-00	REINFORCEMENT, PANEL
118	♣;4-883-721-00	(US).........COVER
118	♣;4-883-721-11	(AEP,UK,E)...COVER
119	♣;4-883-724-00	FRAME
120	4-883-725-00	(US)....LABEL, MODEL NUMBER (USA,CND)
120	4-883-726-00	(UK)....LABEL, MODEL NUMBER (UK)
120	4-883-727-00	(AEP)...LABEL, MODEL NUMBER (AEP 1)
120	4-883-728-00	(E).....LABEL, MODEL NUMBER (E1,E2,PX1)
121	4-890-173-00	WASHER
122	7-621-712-17	SET-SCREW, SLOT 2.6X2 CUP POINT
123	....	
124	7-621-772-18	SCREW +B 2X4
125	7-621-775-00	SCREW +B 2.6X3
126	7-623-422-07	LW 3, TYPE B
127	7-623-508-01	LUG, 3
128	....	
129	7-624-133-54	STOP RING 10, TYPE-CE
130	7-624-197-31	STOP RING 16, TYPE-C

GENERAL SECTION

No.	Part No.	Description
131	7-671-114-01	BALL 4, STEEL
132	7-671-151-01	STAINLESS, BALL 1/16INCH
133	7-671-155-01	STEEL BALL 3.0
134	7-682-149-13	SCREW +P 3X10
135	7-682-245-04	SCREW +K 3X4
136	7-682-545-09	SCREW +B 3X4
137	7-682-547-04	SCREW +B 3X6
138	7-682-548-09	SCREW +B 3X8
139	7-682-553-09	SCREW +B 3X20
140	7-682-947-01	SCREW +PSW 3X6
141	7-684-023-04	N 3, TYPE 2
142	....	
143	7-685-105-24	SCREW +P 2X8 TYPE2 SLIT
144	7-685-136-11	SCREW +P 2.6X12 TYPE2 NON-SLIT
145	7-685-533-14	SCREW +BTP 2.6X6 TYPE2 N-S
146	7-685-533-21	SCREW +BTP 2.6X6 TYPE2 SLIT
147	7-685-545-21	SCREW +BTP 3X6 TYPE2 SLIT
148	7-685-645-71	SCREW +BVTP 3X6 TYPE2 SLIT
149	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
150	7-685-647-71	SCREW +BVTP 3X10 TYPE2 SLIT
151	7-685-651-21	SCREW +BVTP 3X20 TYPE1
152	7-685-772-04	SCREW +PTT 1.7X2, TYPE1
153	7-685-799-74	SCREW +PTT 1.7X3
154	7-685-870-01	SCREW +BVTT 3X5 (S)
155	7-685-871-04	SCREW +BVTT 3X6 (S)
156	7-685-872-01	SCREW +BVTT 3X8 (S)
157	7-685-874-01	SCREW +BVTT 3X12 (S)
158	7-688-001-01	W 2, SMALL
159	7-688-003-11	W 3, MIDDLE
160	9-911-841-XX	CUSHION
161	9-911-850-XX	FELT, BRAKE
162	A-4608-214-A	STATOR ASSY
163	A-4608-218-A	ROTOR ASSY
164	A-4637-053-A	PLATE ASSY, LIFTER
165	X-4869-906-5	DRUM ASSY, BRAKE
166	X-4869-908-0	LEVER ASSY, LEAD-IN
167	♣;X-4879-501-0	BRACKET ASSY, ROLLER (A)
168	X-4879-505-0	REST ASSY, ARM
169	♣;X-4879-506-0	PIN ASSY, GUIDE
170	♣;X-4879-508-0	CHASSIS ASSY, MOTOR FITTING
171	♣;X-4879-509-0	CHASSIS ASSY, MECHANICAL
172	X-4882-202-0	LIFTER (RIGHT) ASSY, PANEL
173	X-4882-203-0	LIFTER (LEFT) ASSY, PANEL
174	X-4883-701-0	SHAFT ASSY, ROTARY
175	3-703-737-01	SCREW +PTPWH 3X10

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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.

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GENERAL SECTION

No.	Part No.	Description
176	4-853-042-00	WASHER
177	....	
178	7-624-104-04	STOP RING 2.0, TYPE-E
179	7-624-106-04	STOP RING 3.0, TYPE-E
180	⚠.3-703-244-00	(UK,AEP)...BUSHING, CORD
181	3-703-043-21	(UK)....LABEL, CAUTION, MAIN
182	3-701-690-00	(UK)....LABEL (MADE IN JAPAN)
183	3-703-396-00	(UK)....LABEL, CAUTION
184	X-4883-704-1	(US).........FRONT PANEL ASSY
184	X-4883-704-2	(AEP,UK,E)...FRONT PANEL ASSY

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
201	1-549-105-00	(PS-FL1C)...CARTRIDGE COMPLETE ASSY
202	⚠.1-551-967-00	(UK)....CORD, POWER
203	3-701-616-00	BAG, POLYETHYLENE
204	3-701-630-00	BAG, POLYETHYLENE
205	3-701-634-00	BAG, POLYETHYLENE
206	3-701-806-00	ADAPTOR, 45, (E)
207	3-773-046-11	(AEP,UK,E)...MANUAL, INSTRUCTION
207	3-773-046-21	(US).........MANUAL, INSTRUCTION
207	3-773-046-41	(AEP)........MANUAL, INSTRUCTION
208	....	
209	4-862-043-11	CUSHION, ARM
210	4-869-962-00	ADJUSTOR, DP
211	4-879-606-00	STOPPER, L
212	4-879-620-00	BAG, PROTECTION
213	4-808-459-61	SCREW, TRANSPORT
214	4-881-671-00	CUSHION, TURNTABLE
215	4-882-204-00	PLATE, LOCK, TRANSPORT
216	4-882-238-00	PROTECTOR
217	4-882-239-11	CUSHION, LOWER
218	4-882-240-11	CUSHION (LEFT), UPPER
219	4-882-241-11	CUSHION (RIGHT), UPPER
220	4-882-244-00	HOLDER, TURNTABLE
221	4-883-720-02	TURNTABLE
222	4-883-723-01	(AEP,UK,E)...SHEET, TURNTABLE
222	4-883-723-11	(US).........SHEET, TURNTABLE
223	4-883-731-00	INDIVIDUAL CARTON
224	X-4869-912-0	(US)....SHELL ASSY, HEAD
225	X-4869-915-0	(US)....SCREW ASSY, FITTING
226	X-4874-214-0	WEIGHT ASSY, MAIN
227	A-4505-069-A	(AEP,UK,E)....CARTRIDGE COMPLETE ASSY

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♦;1-508-803-13	U TYPE BASE POST			
502	♦;1-508-804-00	U TYPE BASE POST			
503	♦;1-508-994-00	PIN, CONNECTOR			
504	⚠.1-534-986-XX	(US)...CORD, POWER			
504	⚠.1-551-472-00	(E)..CORD, POWER;WITH PARALLEL BLADE PLUG			
504	⚠.1-555-734-00	(E)..CORD, POWER;WITH EURO-PLUG			
505	♦;1-535-116-00	TERMINAL			
506	♦;1-535-141-00	BASE POST 19MM (10MM PITCH)			
507	♦;1-554-229-00	SWITCH, PC BOARD			
508	1-556-242-21	CORD, CONNECTION			
509	1-561-551-00	CONNECTOR, NECK CYLINDER (M)			
510	♦;1-607-274-00	PC BOARD, FG			
511	♦;1-607-946-00	PC BOARD, POWER SW			
512	♦;1-607-947-00	PC BOARD, SW (B)			
513	♦;1-607-948-00	PC BOARD, SW (A)			
514	♦;1-607-949-00	PC BOARD, REMOTE CONTROL			
515	♦;1-607-950-00	PC BOARD, SYNCHRONIZE			
516	♦;1-607-951-00	PC BOARD, PHONO			
517	♦;1-607-952-00	PC BOARD, SIZE DETECTION			
518	♦;1-607-953-00	PC BOARD, MAIN			
519	♦;1-607-954-00	PC BOARD, CONTROL SW			
520	♦;1-607-955-00	PC BOARD, INTERRUPTER			
521	⚠.;1-607-956-00	PC BOARD, POWER			
522	♦;A-4619-183-A	(AEP,UK)...MOUNTED PCB, MAIN			
522	♦;A-4619-184-A	(US,E).....MOUNTED PCB, MAIN			
523	⚠.1-534-817-XX	(AEP)...CORD, POWER			
523	⚠.1-551-962-00	(UK)....CORD, POWER			
C127	1-161-323-00	CERAMIC	0.001MF	10%	50V
C128	1-161-323-00	CERAMIC	0.001MF	10%	50V
C201	⚠.1-123-337-00	ELECT	1000MF	20%	25V
C202	⚠.1-123-337-00	ELECT	1000MF	20%	25V
CNJ1	♦;1-508-879-00	BASE POST			
CNJ2	♦;1-508-879-00	BASE POST			
CNJ3	♦;1-560-070-00	BASE POST			
CNJ4	♦;1-560-200-00	BASE POST, MCD CONNECTOR 2P			
CNJ5	♦;1-560-061-00	PIN, CONNECTOR 3P			
D101	8-719-910-68	DIODE HZ6C2L			
D102	8-719-910-94	DIODE HZ9B1L			
D103	8-719-101-11	DIODE SR110			
D104	8-719-815-55	DIODE 1S1555			
D105	8-719-815-55	DIODE 1S1555			
D106	8-719-815-55	DIODE 1S1555			
D107	8-719-815-55	DIODE 1S1555			
D108	8-719-815-55	DIODE 1S1555			
D109	8-719-815-55	DIODE 1S1555			

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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.
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COILS
- MMH : mH, UH : μH

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
D110	8-719-902-94	DIODE GL-9HD2
D111	8-719-200-02	DIODE 10E-2
D201	⚠ 8-719-200-02	DIODE 10E-2
D202	⚠ 8-719-200-02	DIODE 10E-2
D203	⚠ 8-719-200-02	DIODE 10E-2
D204	⚠ 8-719-200-02	DIODE 10E-2
H101	8-719-903-00	DIODE HL-300C
H102	8-719-903-00	DIODE HL-300C
IC101	8-759-145-58	IC UPC4558C
IC102	8-759-602-65	IC CX-065B
IC103	8-759-145-58	IC UPC4558C
IC104	8-759-145-58	IC UPC4558C
IC105	8-759-800-29	IC LM6416E-104
J101	1-507-688-21	JACK (STEREO PLUG)
L101	1-407-177-XX	MICRO INDUCTOR 470UH
L102	1-407-177-XX	MICRO INDUCTOR 470UH
M101	1-541-163-00	MOTOR
M102	1-541-163-00	MOTOR
PL101	1-518-340-91	LAMP, PILOT
PM1	1-454-321-00	SOLENOID, PLUNGER
Q101	8-729-663-47	TRANSISTOR 2SC1364
Q102	8-729-180-93	TRANSISTOR 2SD809
Q103	8-729-173-13	TRANSISTOR 2SB731
Q104	8-729-180-93	TRANSISTOR 2SD809
Q105	8-729-173-13	TRANSISTOR 2SB731
Q106	8-729-177-43	TRANSISTOR 2SD774
Q107	8-729-103-43	TRANSISTOR 2SB734
Q108	8-729-101-13	TRANSISTOR PH103
Q109	8-729-612-77	TRANSISTOR 2SA1027R
Q110	8-729-101-01	TRANSISTOR PH101
Q111	8-729-612-77	TRANSISTOR 2SA1027R
Q112	8-729-101-01	TRANSISTOR PH101
Q113	8-729-612-77	TRANSISTOR 2SA1027R
Q114	8-729-663-47	TRANSISTOR 2SC1364
Q115	8-729-180-93	TRANSISTOR 2SD809
Q116	8-729-173-13	TRANSISTOR 2SB731
Q117	8-729-663-47	TRANSISTOR 2SC1364
Q118	8-729-663-47	TRANSISTOR 2SC1364
Q119	8-729-663-47	TRANSISTOR 2SC1364
Q120	8-729-180-93	TRANSISTOR 2SD809
Q121	8-729-173-13	TRANSISTOR 2SB731
Q122	8-729-612-77	TRANSISTOR 2SA1027R
Q123	8-729-177-43	TRANSISTOR 2SD774

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R104	1-214-780-00	METAL 130K 1% 1/4W
R105	1-214-767-00	METAL 39K 1% 1/4W
R124	⚠ 1-202-858-00	(AEP,UK)...COMPOSITION 47 1/4W F
R185	1-244-865-00	CARBON 470 5% 1/2W
R186	⚠ 1-202-851-00	(AEP,UK)...COMPOSITION 3.3 1/4W F
R187	⚠ 1-202-851-00	(AEP,UK)...COMPOSITION 3.3 1/4W F
R188	⚠ 1-202-855-00	(AEP,UK)...COMPOSITION 15 1/4W F
RV101	1-228-238-00	RES, ADJ, METAL GLAZE 20K
RV102	1-226-237-00	RES, ADJ, CARBON 20K
RV103	1-226-234-00	RES, ADJ, CARBON 2K
RV104	1-226-234-00	RES, ADJ, CARBON 2K
RV105	1-226-238-00	RES, ADJ, CARBON 50K
RV106	1-226-238-00	RES, ADJ, CARBON 50K
S2	1-552-412-00	SWITCH, KEY BOARD
S3	1-552-412-00	SWITCH, KEY BOARD
S4	1-554-205-00	SWITCH, SLIDE
S5	1-552-412-00	SWITCH, KEY BOARD
S6	1-554-205-00	SWITCH, SLIDE
S7	1-553-909-00	SWITCH, PUSH
S9	1-553-909-00	SWITCH, PUSH
S10	1-553-909-00	SWITCH, PUSH
S301	1-553-321-00	SWITCH, PUSH
S901	⚠ 1-552-535-00	(E)...SWITCH, POWER & VOLTAGE CHANGE
T901	⚠ 1-447-377-00	(AEP,UK)...TRANSFORMER, POWER
T901	⚠ 1-447-387-00	(US).......TRANSFORMER, POWER
T901	⚠ 1-447-409-00	(E)........TRANSFORMER, POWER
X101	1-527-476-00	OSCILLATOR, CERAMIC

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- F : nonflammable

COILS
- MMH : mH, UH : μH

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

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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	1-121-41[illegible]-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)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
RATING							
	PART No.		PART No.		PART No.		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

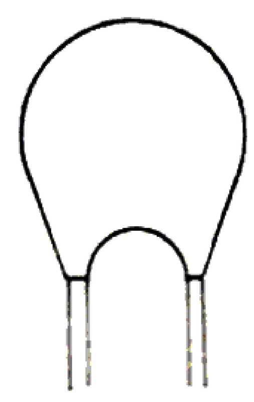
CERAMIC (SEMICONDUCTOR) CAPACITORS

CAP. (μF)	RATING		CAP. (μF)	→: Use the high voltage rated one.	
	25 VOLT.	50 VOLT.		25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	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)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. 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				

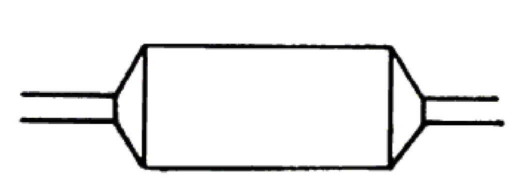
TANTALUM CAPACITORS



RATING →: Use the high voltage rated one.

CAP. (μF)	3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. 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	–	–	–			

TANTALUM CAPACITORS



CAP. (μF)	3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. 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					

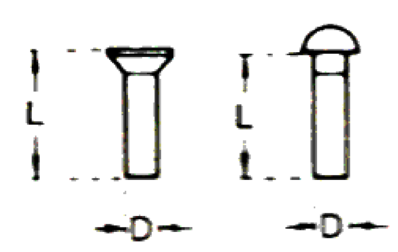
1/4 WATT CARBON RESISTORS

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 PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW 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		brazier-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	

Sony Corporation

1982
English
82H04145-1
Printed in Japan

9-950-979-11