

Technics

Direct Drive
Automatic Turntable System

SL-3200

Operating instructions



The model number of this product may be found on the back of the unit, and the serial number, on the bottom of the unit. Please note the model and serial numbers of this unit in the space provided and retain this booklet as a permanent record of your purchase to aid identification in the event of theft.

MODEL NUMBER

SERIAL NUMBER

Before operating this set, please read these instructions completely

We want to thank you for selecting the SL-3200.

For optimum performance, we recommend that you read these instructions carefully.

Parts identification

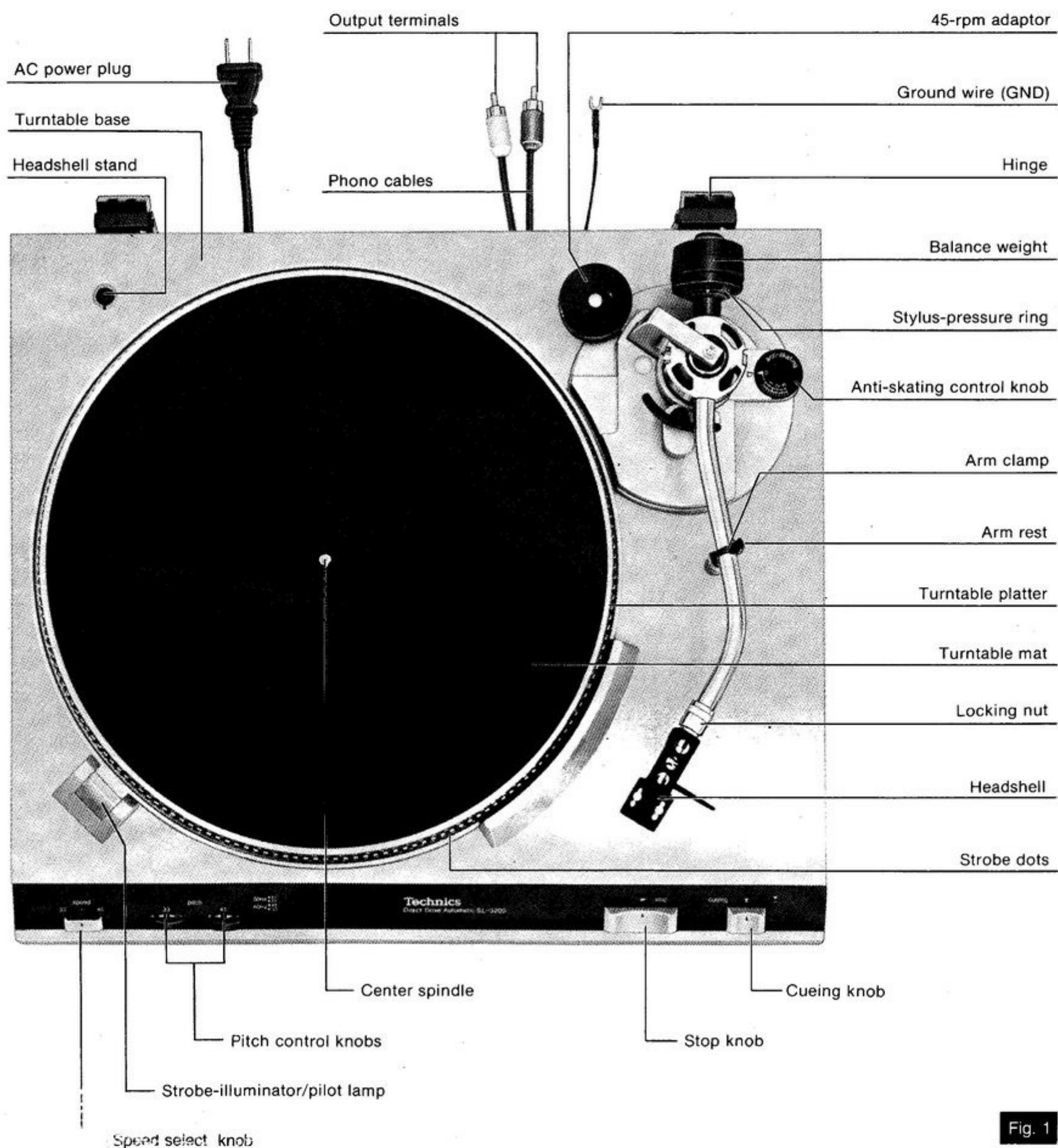


Fig. 1

**“Warning: To prevent fire or shock hazard,
do not expose this appliance to rain or moisture.”**

Before use

Caution:

- Never connect the AC power plug before assembly has been completed.
- Attach the dust cover last, so that assembly and adjustments can be made most conveniently.

■ Checklist of parts

Turntable unit	1
Turntable platter	1
Turntable mat	1
Dust cover	1
45-rpm adaptor	1
Balance weight	1
Headshell	1
Shell weight	1
Overhang gauge	1

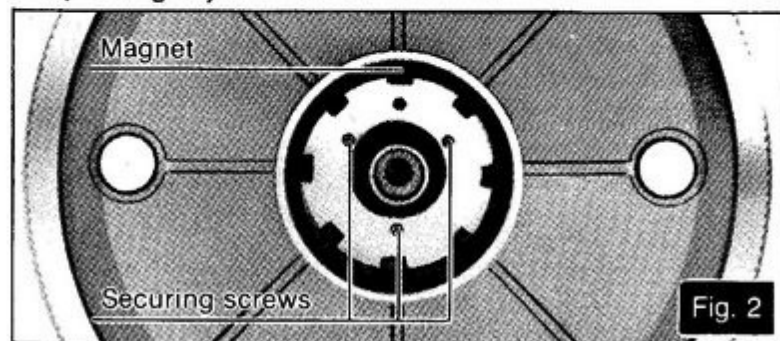
Assembly and set-up

① Installation of turntable platter

- 1 Place the turntable platter on the center spindle.

Note:

- The rotor is connected to the underside of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance, extra care should be taken to prevent adhesion of dust or iron filings to the magnet and not to damage the magnet by dropping it.
- Do not remove or loosen the screws. Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit cannot be guaranteed. (See Fig. 2.)



- 2 Place the turntable mat on the platter.

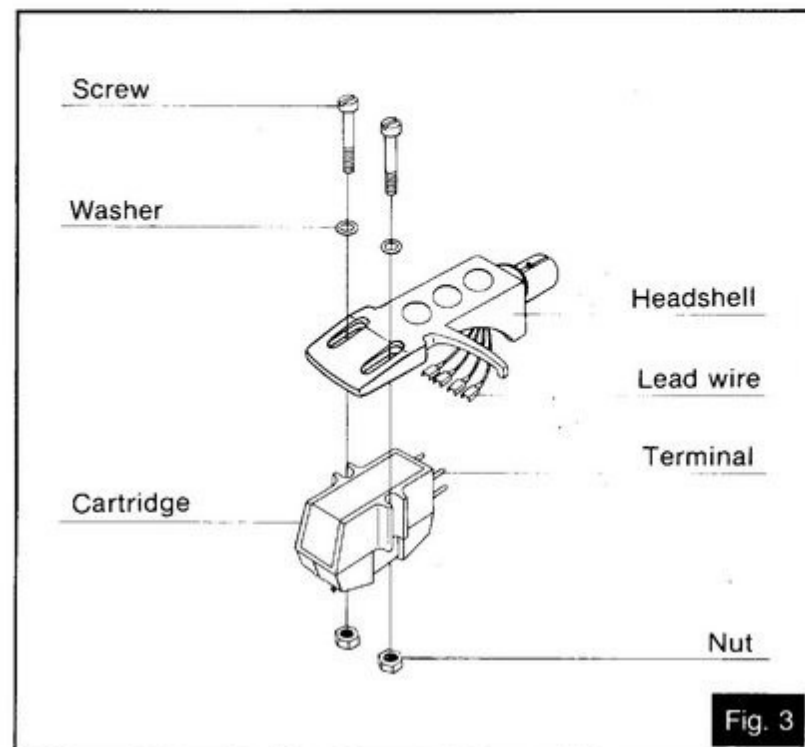
Note:

- After having placed the turntable mat manually rotate the turntable platter clockwise about 10 times. This will disengage the automatic mechanism from the tonearm gear, which in rare cases may have moved out of its normal position during transportation.

② Installation of cartridge

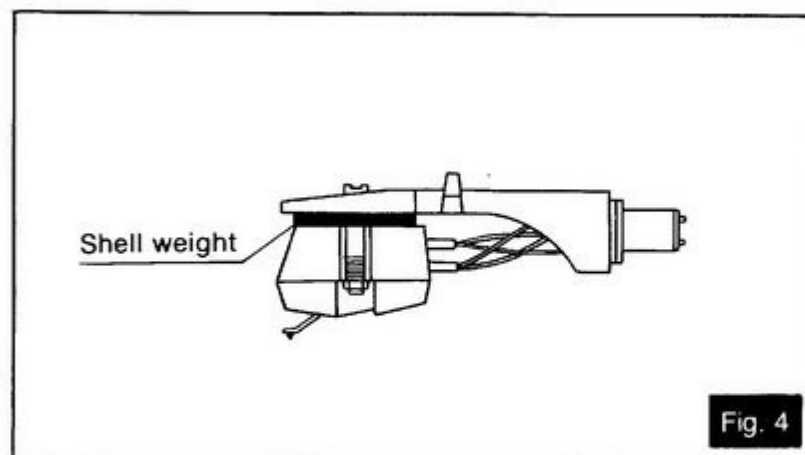
When you install a cartridge, refer to the operation instructions of that cartridge.
During installation, attach the stylus protector to guard the stylus tip from damage.

- 1 Connect the lead wires to the cartridge terminals.
The terminals of most cartridges are color coded. Connect each lead wire to the terminal of the same color.
White (L+)..... Left channel +
Blue (L-)..... Left channel -
Red (R+)..... Right channel +
Green (R-)..... Right channel -
- 2 Install a cartridge to the headshell, and tighten it with screws provided with the cartridge. (See Fig. 3.)



Note:

- Use the shell weight only for a light weight cartridge. (Less than 6.0 g) (See Fig. 4.)

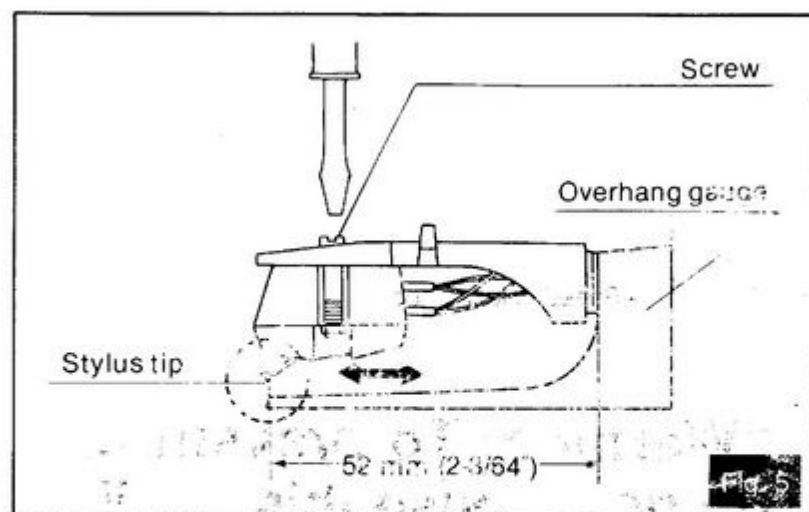


③ Adjustment of overhang (See Fig. 5.)

- 1 Insert the headshell into the gauge.
- 2 Loosen the mounting screws and move the cartridge forward or backward until the stylus tip lines up with the edge of the gauge.
- 3 Tighten the screws without moving the cartridge

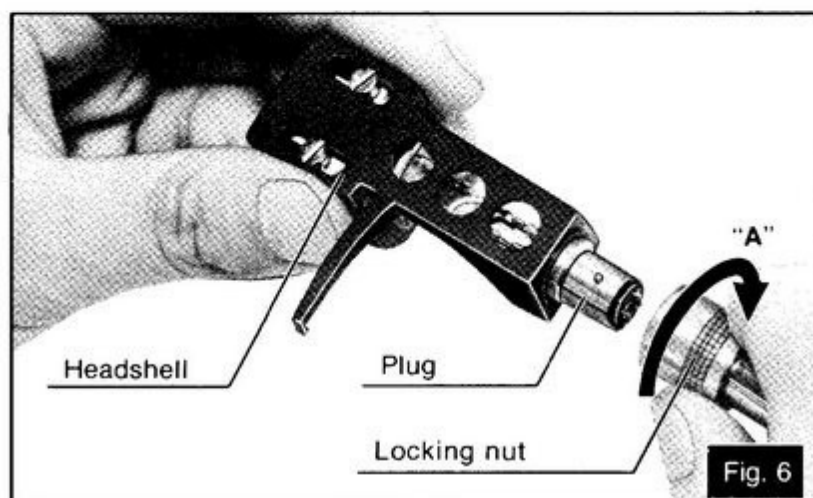
Note:

- Your cartridge is now adjusted for lowest tracking error and minimum distortion.
- This gauge is exclusively designed for this tonearm.



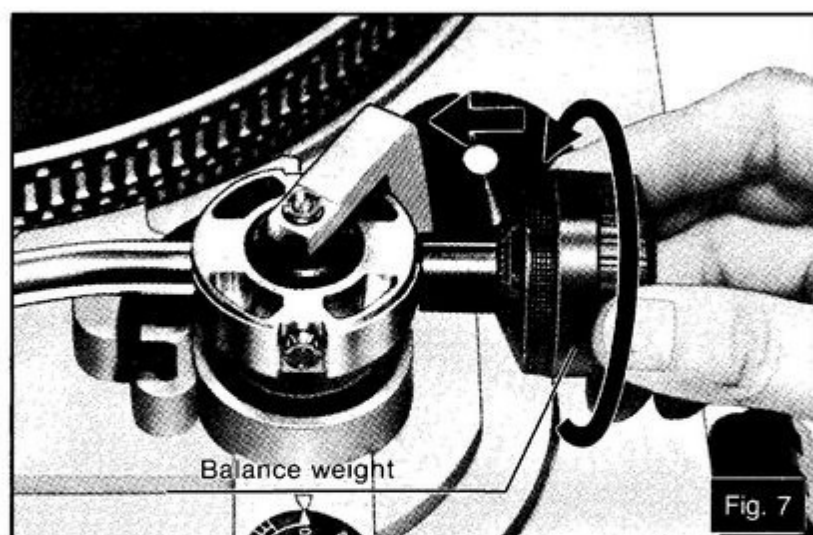
④ Installation of headshell (See Fig. 6.)

Insert the headshell into the front end of the tubular arm, and turn the locking nut clockwise (in the direction shown by the arrow "A"), with the headshell firmly held horizontally.



⑤ Installation of balance weight (See Fig. 7.)

Place the balance weight on the rear shaft of the tonearm.



⑥ Adjustments of horizontal zero (0) balance and stylus pressure

- 1 Before adjusting horizontal zero (0) balance, check the following:

Make sure that the speed select knob is in the "•" (neutral) position.

Make sure that the cueing knob is in the "V" position.

Make sure that the anti-skating control knob is at "0" position.

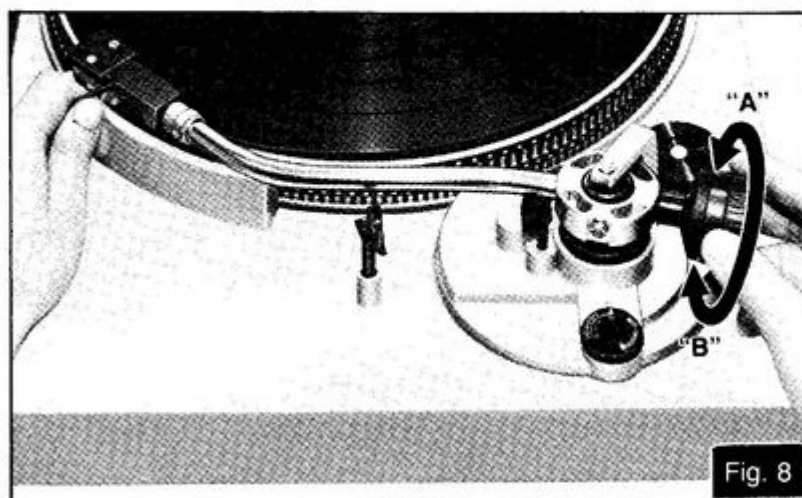
Note:

- There are cases where the tonearm may sway or float slightly at the "0" position due to the highly sensitive rotational properties of the tonearm. This movement is normal and may be ignored.

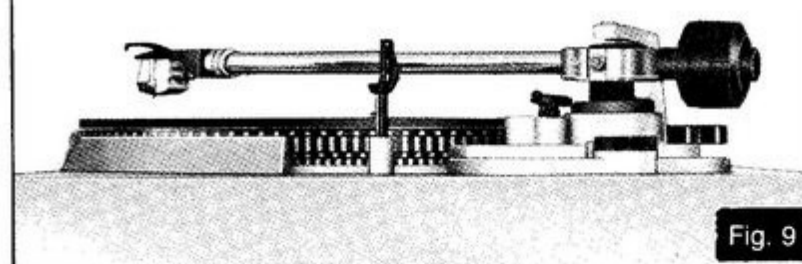
- 2 Remove the stylus protector, if your cartridge has a detachable one. Be careful not to touch your fingers to the stylus tip.
- 3 Release the arm clamp and lift the tonearm from the arm rest to free it.

Turn the entire balance weight clockwise (indicated by the arrow "A") or counterclockwise (indicated by the arrow "B") until the tonearm is approximately balanced horizontally (floats freely).

(See Figs. 8 and 9.)



Horizontally balanced state



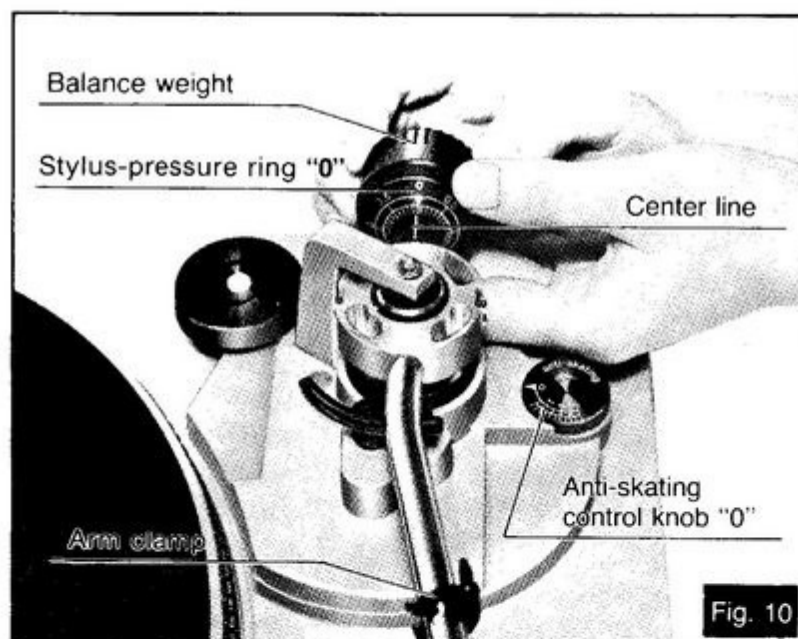
Note:

- During the adjustment of the horizontal zero (0) balance, be careful that the stylus tip of the cartridge does not contact the turntable mat or turntable base.

- 4 After the tonearm is horizontally zero (0) balanced, temporarily refasten the tonearm with the arm clamp.

- 5 Hold the balance weight stationary with one hand as shown in the picture, and rotate *only* the stylus-pressure ring to bring the numeral "0" of the ring into alignment with the center line on the tonearm rear shaft.

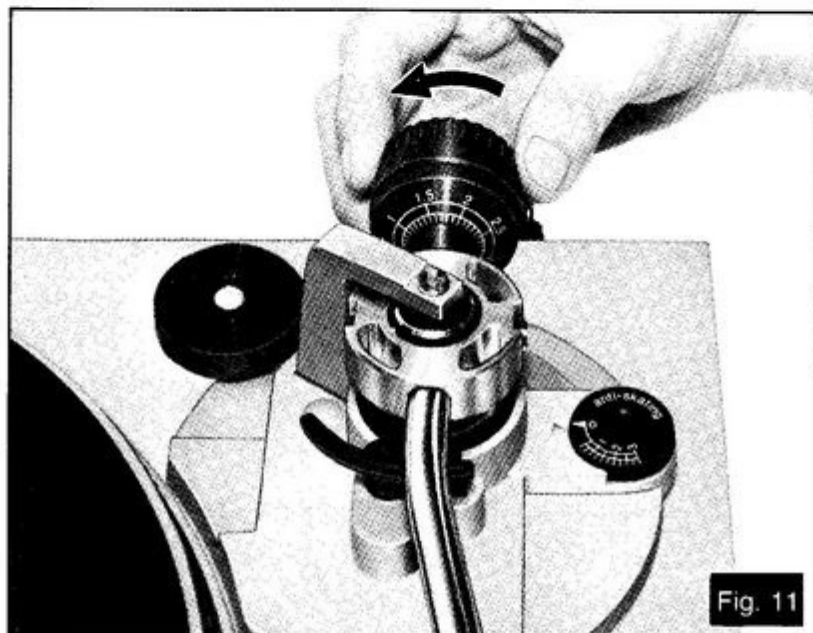
The adjustment of the horizontal zero (0) balance is now completed. (See Fig. 10.)



- 6 After adjusting the horizontal zero (0) balance, turn the balance weight clockwise in the direction of the arrow and align to the correct stylus pressure. (See Fig. 11.)

(Follow the cartridge manufacturer's recommendation.)

As the stylus-pressure ring moves in step with the balance weight, proper stylus pressure can be selected by directly reading the graduated ring.



Note:

- Set the stylus pressure to the maximum recommended value for your cartridge in cases where the record has an extremely high recording level, or where the unit is operated in a room at low temperature, or in places in which the unit is subjected to vibrations.

7 Adjustment of anti-skating control

Set the anti-skating control knob to the same value as the stylus pressure. (See Fig. 12.)

Note:

- When a cartridge with integral dust brush is used, follow the cartridge manufacturer's recommendation for adjusting both stylus pressure and anti-skating force.

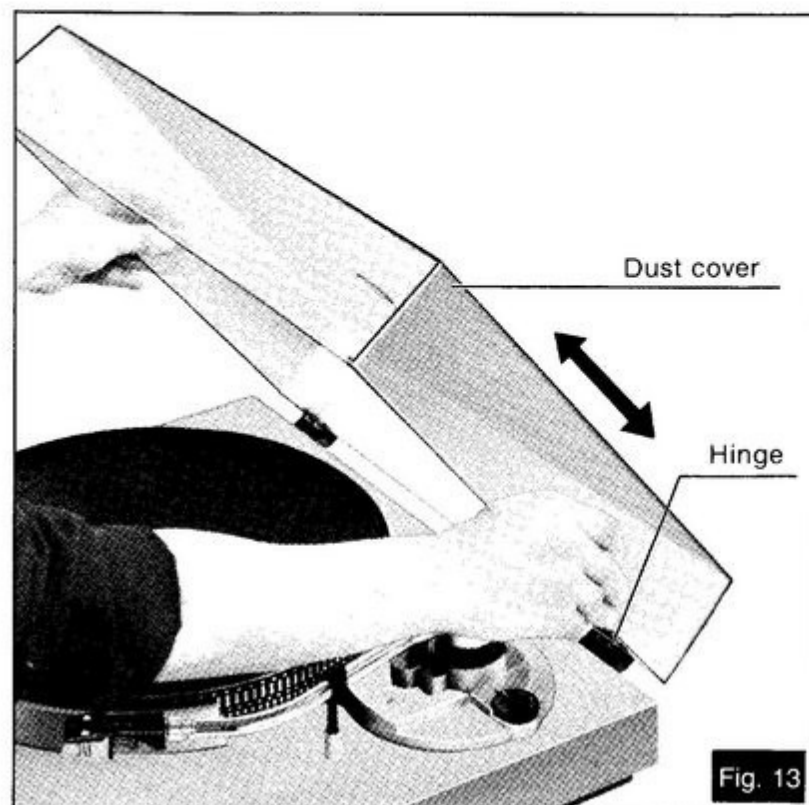


8 Installation of dust cover

Place the dust cover into position from directly above, holding it at both sides. For detaching the dust cover, be certain first to raise it as illustrated before removal. (See Fig. 13.)

Note:

- Opening or closing of the dust cover during play should be avoided. This may not only cause undesired vibrations, but also result in skipping of the stylus.
- If you must open the dust cover during play, do so as gently as possible.



Placement

- Place the unit in a stable and horizontal position, where there is little or no vibration.
- Locate the unit as far away from the speakers as possible and isolate the unit from sound radiation from them.
- Do not place the unit where it is exposed to direct sun, dust, moisture or heat.
- Keep it in a well ventilated place.

Connections

- Connect the AC power plug.

Connect the AC power plug to an AC wall socket (120 V, AC).

- Connect the output terminals.

Output terminals	Amplifier or Receiver
L(White)	L Channel
R(Red)	R Channel
GND(Spade lug)	GND

Note:

- Be sure to connect the ground terminal firmly to the amplifier or receiver. If this connection is not made or is loose, a power source "HUM" will result.

How to operate

- 1 Place a record on the turntable mat.
- 2 Set the speed select knob to the desired record speed.
(See Fig. 14.)

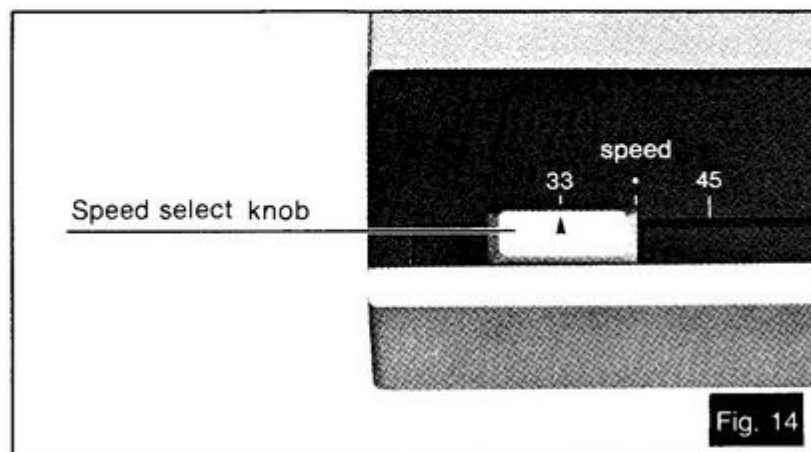


Fig. 14

- 3 Remove the stylus protector, if your cartridge has a detachable one.
- 4 Release the arm clamp.
- 5 Set the cueing knob to the "▼" position. (See Fig. 15.)
- 6 Move the tonearm over the record and set the cueing knob to the "▲" position. (See Fig. 16.)
The tonearm will descend slowly onto the record and play will begin.

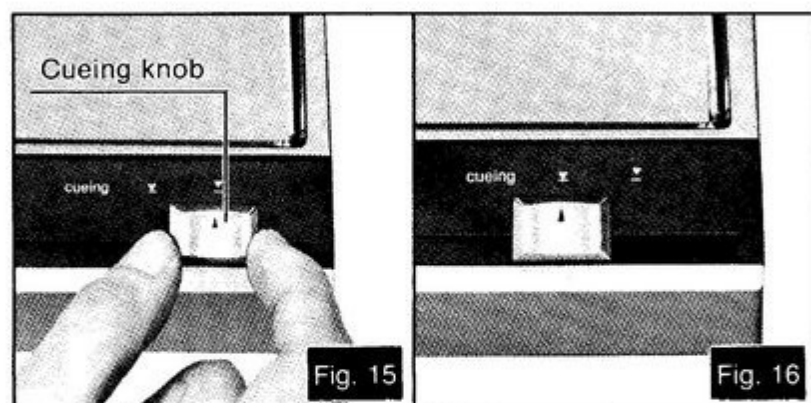


Fig. 15

Fig. 16

- 7 When play is finished, the tonearm will automatically return to the arm rest (auto-return), and the turntable platter will stop rotation.
The turntable platter will continue to rotate briefly due to its own inertia.

Note:

- After play is completed, fasten the tonearm with the arm clamp and set the speed select knob to the "•" position.

■ When you play a 45-rpm record with a large center hole

place the 45-rpm adaptor on the center spindle. Set the speed select knob to the "45" position.

■ How to stop play

Set the start/stop knob to the "stop" position. (See Fig. 17.)

The tonearm automatically returns to the arm rest, and the turntable stops rotating.

Of course, the unit will automatically shut off even when the tonearm is manually returned to its arm rest directly.

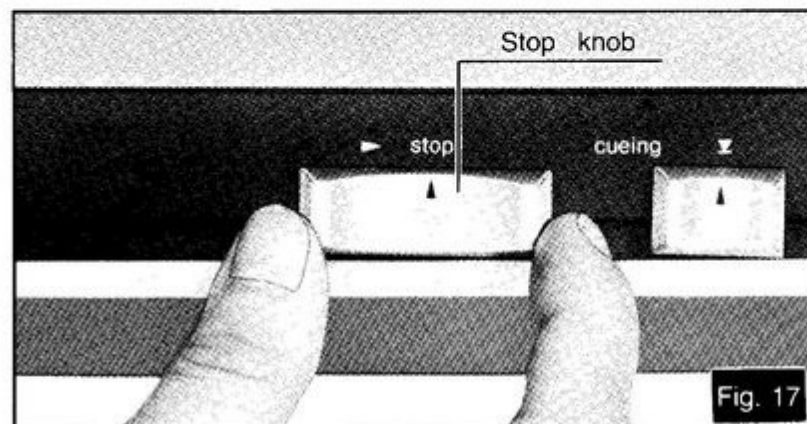


Fig. 17

■ How to suspend play

Set the cueing knob to the "▼" position.

The stylus tip of the cartridge will be lifted from the record.

■ If the unit is not to be used for some time

Secure the tonearm with the arm clamp.

Attach the stylus protector, if your cartridge has one, to guard the stylus from damage.

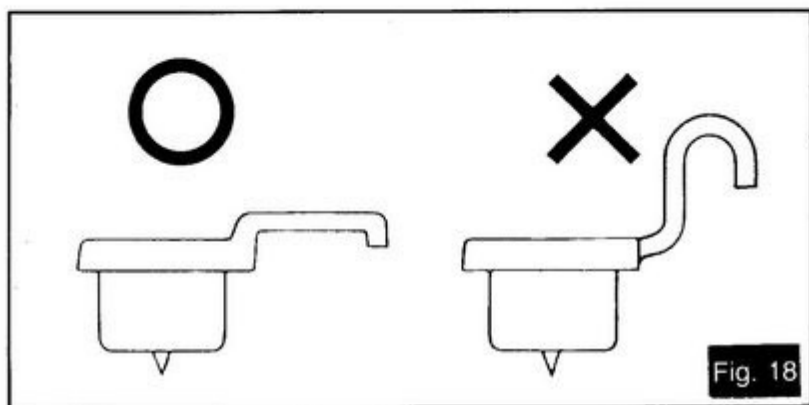
Close the dust cover.

Notes and maintenance

- ❶ Do not grasp or hold the tonearm during operation of the automatic-return mechanism.

- ❷ When using other headshells, make sure that the headshell configuration is compatible. (See Fig. 18.)

When other types of headshells are employed, the handle portion of the headshell may strike against the inner upper surface of the dust cover during automatic motion of the tonearm. In such a case, we recommend that the dust cover be left open during play.



- ❸ Before detaching or attaching the headshell, be sure to turn the power of the amplifier or receiver off.

Detaching or attaching the headshell with the volume control turned up may cause damage to the speakers.

- ❹ Dust and dirt should be carefully removed from stylus tip or records.

Dust and dirt on the stylus tip or record may not only result in deterioration of tone quality, but also cause undue wear of the record and the stylus tip itself.

Special stylus tip brushes and record cleaners can be purchased in most electronic supply houses.

- ❺ Wipe the headshell terminals from time to time.

Dust and dirt at the headshell terminals may result in increased "HUM" noise or intermittent sound. Use soft dry cloth to clean the headshell terminals.

- ❻ Care should be exercised in handling the turntable platter.

The turntable platter has the rotor (the magnet of the motor) directly connected to it. Therefore, the turntable platter should not be removed from the center spindle unnecessarily.

Should it become necessary to remove the turntable platter, be sure first to pull the AC power plug out of the socket.

- ❼ Wipe the dust cover and turntable base with a soft, dry cloth.

Never use any cleaners containing alcohol, benzine or thinner. Use of a chemical dust cloth should also be avoided. Be sure that the dust cover is not exposed to insecticide spray.

To remove stubborn finger prints or grease spots, detach the dust cover and disconnect the AC power plug.

Use a soft cloth slightly moistened with a mild soap and water solution.

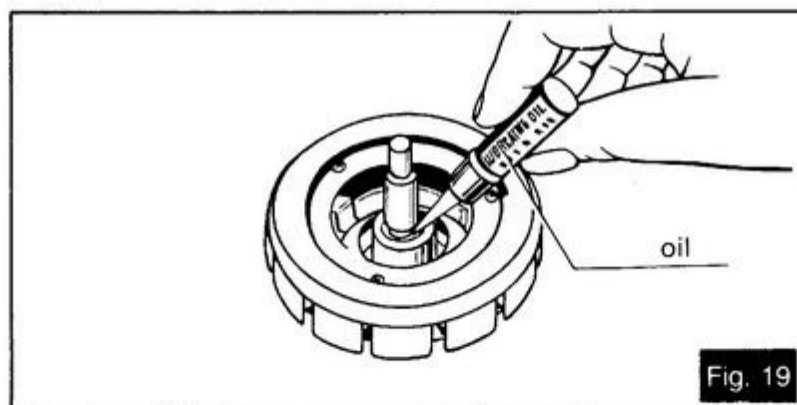
Do not wipe the dust cover during play, or the tonearm may be attracted toward the dust cover due to the generation of static electricity.

- ❽ Lubrication

Apply 2 or 3 drops of oil once after every 2000 hours of operation. (See Fig. 19.)

The time interval is much longer than that for conventional type motors (200—500 hours).

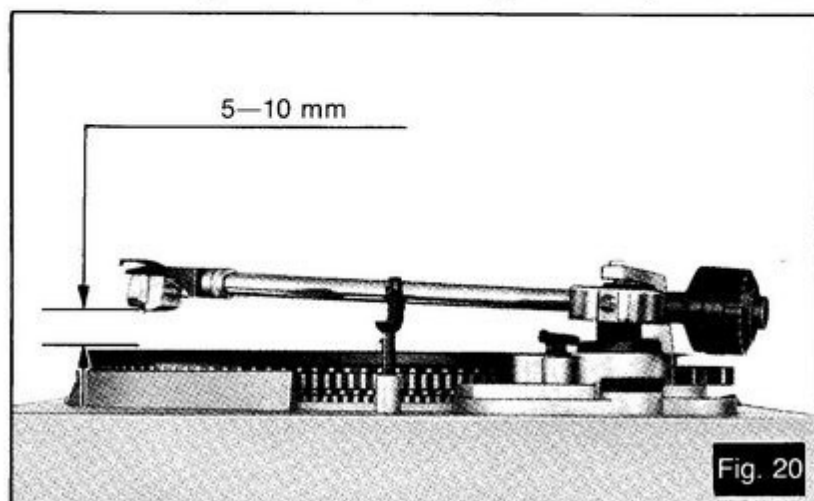
Please purchase original oil. (Part number is SFWO 010.)



Adjustments

① Adjustment of arm-lift height (See Figs. 20 and 21.)

The arm-lift height (distance between the stylus tip and record surface when cueing knob is at the "▼" position) has been adjusted at the factory before shipment to approximately 5 to 10 mm.



For using different cartridges available on the market or when further adjustments are particularly necessary, make adjustment as follows:

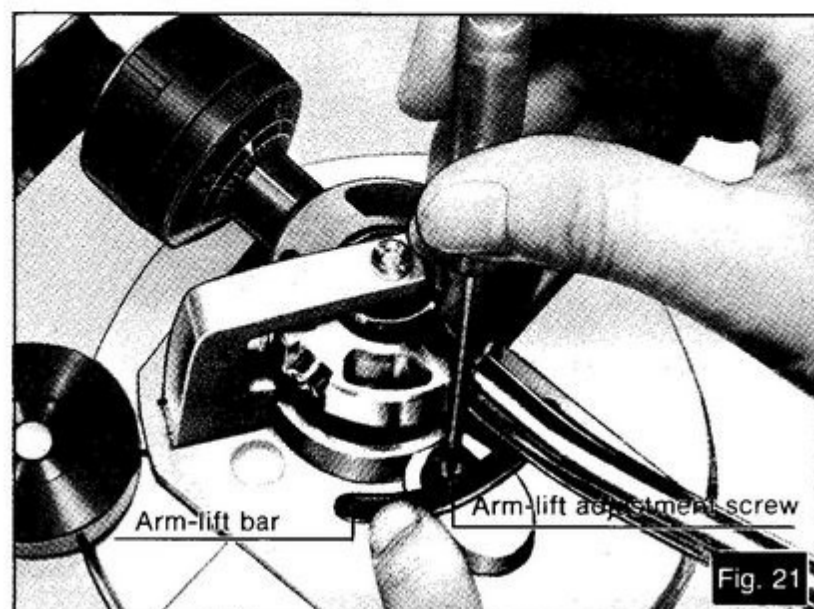
Turn the adjustment screw clockwise or counterclockwise, while pushing the arm lift down.

Clockwise rotation

—distance between the record and stylus tip is reduced.

Counterclockwise rotation

—distance between the record and stylus tip is increased.



Note:

- As the adjusting screw has a hexagonal head, be sure to make the adjustment while depressing the arm lift, or the screw will not move freely.
Also be sure that the hexagonal head retracts correctly into the arm lift when the latter is released.

② Adjustment for automatic return position (See Fig. 22.)

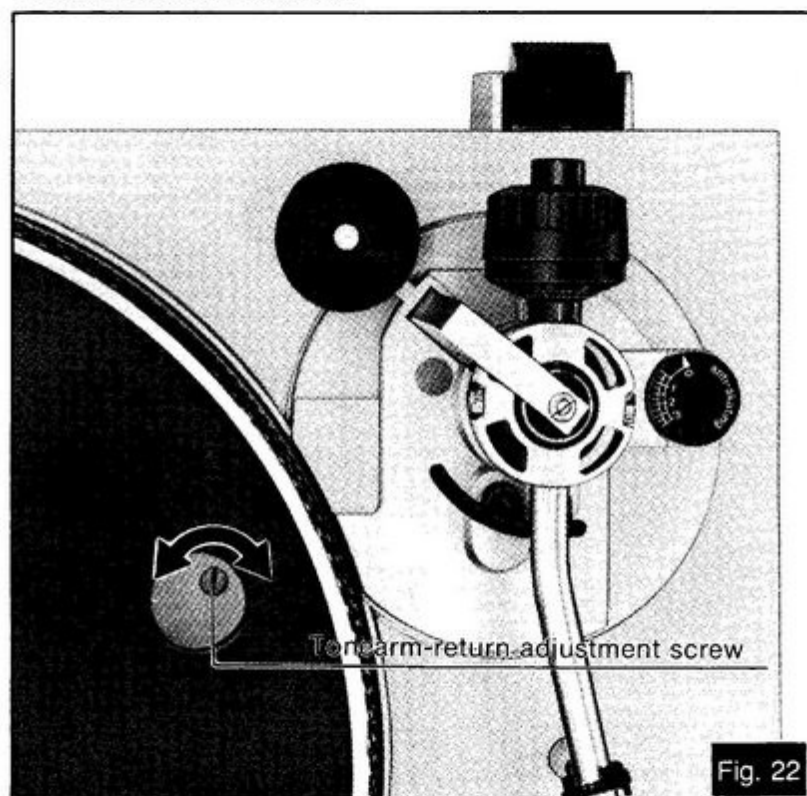
(Remove the turntable mat.)

In cases where the tonearm tends to return before the playing has finished.

—rotate clockwise.

In cases where the tonearm fails to return after the last groove of the record has been played.

—rotate counterclockwise.

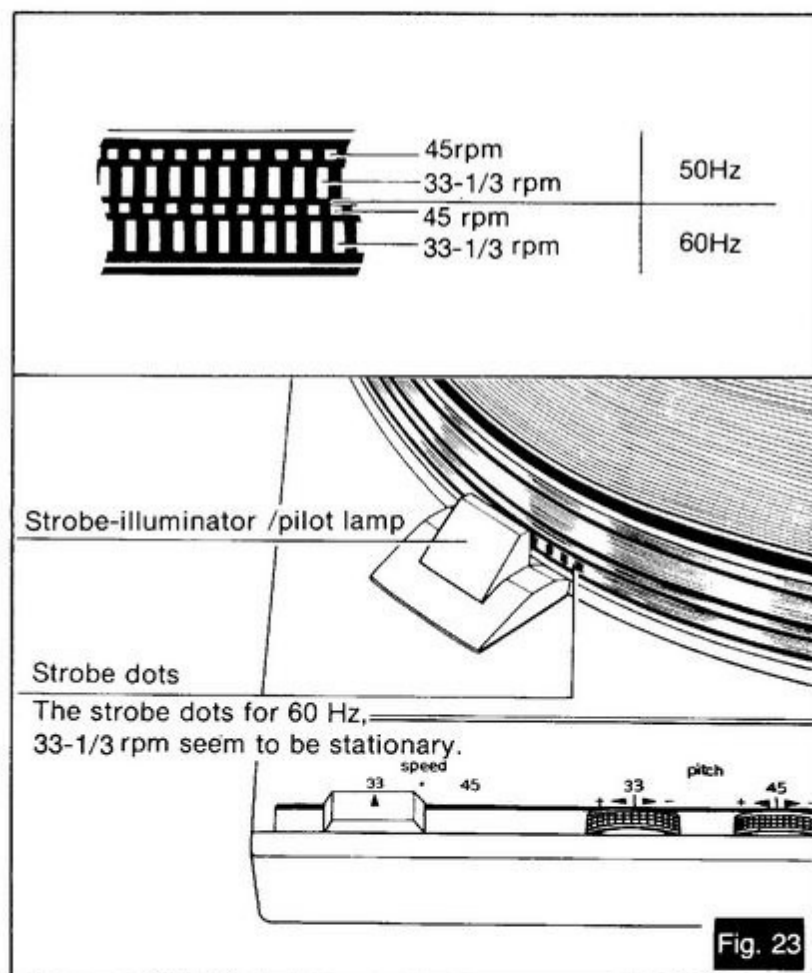


③ Speed adjustment (with pitch-control knobs)

(See Fig. 23.)

Strobe dots are set on the rim of the turntable platter according to the power-line frequency and the speed of the records. Make adjustment, referring to the strobe-dot indication.

- 1 Set the speed select knob to the speed to be adjusted.
- 2 Release the arm clamp and move the tonearm toward the record. The strobe-illuminator/pilot lamp will light up and the turntable platter will rotate.
- 3 While turning the pitch-control knobs either to the "+" side or "-" side, adjust so that the strobe dots of the turntable platter look as if they were stationary. This represents the correct speed.



"+" direction

The speed of the turntable platter will increase. Turn the knob in this direction if the strobe dots seem to be "**falling back**" i.e. seem to be moving counterclockwise. When the dots appear to be stationary, turntable speed is accurate.

"-" direction

The speed of the turntable platter will decrease. Turn the knob in this direction if the dots seem to be "**running ahead**"; i.e. seem to be moving clockwise, until they appear stationary.

Note:

Strobe dot pattern

- The strobe-illuminator /pilot lamp of this unit employs the standard commercial power source. The frequency of such power source, when actually measured, has a fluctuation of about 0.2%.

As such a fluctuation of the power source affects the strobe illuminator, the strobe dot pattern also seems to fluctuate to a certain extent. But the unit is not affected by these fluctuations of the power source, since a DC motor is employed. In other words, rotation of the platter will be constant, and slight shifts in the movement of the dots simply reflect normal drift in the power-source frequency.

Features

■ TNRC Base Material Stops Acoustic Feedback

If you have ever experienced howling—caused by acoustic feedback—you know it is the last thing you want your turntable to do. But with our original TNRC* base material, it is the last thing you'll have to worry about, even at high volume levels. This unique anti-resonant material is high-molecular compound made by mixing inorganic compounds and special materials. Compared with ordinary plastic resins or particle board, TNRC exhibits strikingly superior resonance attenuation characteristics and low amplitude of the vibration as well as excellent attenuation to the vibration of the base.

*TNRC Technics Non-Resonance Compound.

■ Ultra-Low-Speed Direct Drive Motor

The direct-drive of the SL-3200 eliminates the belts, wheels, and other drive elements required by conventional systems. These same belts and so on are notorious sources of vibration, resonance, and cyclical variations in speed. With only one moving part, the D.D. system does away with these sources of disturbance, to provide superbly smooth, constant platter rotation.

■ Integral Rotor-Platter Structure

To further simplify the turntable design, the platter and rotor are formed into a single, continuous unit. By eliminating a linkage point, this prevents the potentially disturbing effects of looseness or maladjustment between platter and rotor.

■ All Front-Panel Controls

The advancement to complete front-panel control marks a big step forward in turntable operation, not only because of the greater convenience, but also because of the greater protection from dust, as the dust cover can stay closed.

■ Tonearm Cueing Controlled from Front Panel

The tonearm is raised and lowered softly by a viscous-damped cueing lifter. Even with the dust cover closed, a cueing can be easily performed as the control is located on the front panel.

■ Automatic Tonearm Return

For greater operational convenience, the tonearm returns to the arm rest automatically.

■ Highly Sensitive Gimbal Suspension System

With the high-precision pivot bearings employed for the horizontal and vertical journals of the tonearm, in concert with the adoption of the gimbal suspension system, a high-sensitivity arm of less than 7 mg friction has been attained, thus making it possible to fully realize the performance of high-compliance cartridges.

■ Independent Pitch Controls

Permits record speed (at both 33-1/3 and 45 rpm) to be varied by up to 10%.

■ Precision Strobe Illuminator/Pilot Lamp

With the built-in strobe illuminator/pilot lamp, accurate speed adjustments can be made rapidly and easily.

■ Anti-Skating Force Mechanism

The newly designed anti-skating force mechanism ensures maximum side thrust with different cartridges and guarantees accurate center-of-the-groove tracking.

■ Light, Aluminum Diecast Headshell

■ Detachable Dust Cover

Specifications

General

Power supply:	120V, 50 or 60 Hz
Power consumption:	4W
Dimensions:	43.0 × 13.0 × 37.5 cm
(W × H × D)	(16-59/64 × 5-7/64 × 14-49/64 inches)
Weight:	6.9 kg (15.2 lb)

Turntable section

Type:	Direct Drive Automatic Turntable System (Auto-return, Auto-stop)
Drive method:	Direct drive
Motor:	Brushless DC motor
Turntable platter:	Aluminum die-cast, 30.4 cm (12")
Turntable speeds:	33-1/3 and 45 rpm
Pitch controls:	Individual adjustment controls, 10% adjustment range
Wow and flutter:	0.03% WRMS (JIS C5521) ±0.042% peak (IEC 98A Weighted)
Rumble:	-53 dB (IEC 98A Unweighted) -75 dB (IEC 98A Weighted)

Tonearm section

Type:	Universal tubular arm, static-balanced type
Effective length:	230 mm (9-1/16")
Overhang:	15 mm (19/32")
Friction:	Within 7 mg (horizontally and vertically)
Effective mass:	12 g (without cartridge)
Tracking error angle:	Within 2°32' (at the outer groove of 30 cm (12") record) Within 0°32' (at the inner groove of 30 cm (12") record)
Offset angle:	22°
Adjustable stylus pressure range:	0 to 2.5 g (stylus pressure direct reading type)
Cartridge weight range:	6 to 9.5 g
(with shellweight):	13.5 to 17 g (including headshell) 3 to 6.5 g
Headshell weight:	10.5 to 14 g (including headshell) 7.5 g

Specifications subject to change without notice.

For longer and safer use of this unit

In order to receive the best service from this unit, and for the safest operation, carefully read the following information.

■ Power source

It is very dangerous to use this unit at a voltage which is different from the rated voltage.

There is danger of combustion if the unit is connected to a power source which is different from the rated voltage.

Be very careful concerning this point.

Direct current cannot be used.

There are some places, such as ships, where direct current is used as the power source. Before connecting the unit, confirm the power source.

■ Connection of power cord

Wet hands are dangerous.

Be sure to never touch the power cord with wet hands because there is danger of electric shock. This is true, of course, of all electric equipment.

Do not pull the power cord.

Never pull the power cord to disconnect it. Always pull the plug of the cord only.

■ Location of unit

Choose a place which is not in direct sunlight.

Select a place which will assure good ventilation.

■ Never place heating equipment nearby.

Be sure to keep stoves and other sources of heat away from this unit, because heat radiated by such equipment may cause deformation of plastic parts or damage the cabinet, or, at worst, cause a fire.

■ Especially for families with children

Take care that no small items, such as metal objects, are put inside this unit.

In addition, children should be especially warned not to put anything into the ventilation holes, such as toys or a screwdriver, because these things may cause an electric shock or result in a malfunction of the unit.

■ If water spills on the unit

If water should happen to spill on the unit, from an overturned vase for example, there is danger of fire or electric shock. Disconnect the power plug from the electric outlet immediately, and contact the store from which the unit was purchased.

■ Reconstruction can cause accidents

Absolutely never try to remodel, reconstruct or repair this unit yourself. Do not attempt to touch any internal parts because to do so may result in an electric shock or other accident.

■ Be sure the power is off.

After you have finished using this unit, check once more to be sure that the power is off. If the unit is left with the power on for a long period of time, it may not only be damaged, thus shortening its useful life, but may also lead to a dangerous accident.

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