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

Technics **by Panasonic**

DIRECT DRIVE AUTOMATIC PLAYER SYSTEM

SL-1350

OPERATING INSTRUCTIONS



Read these instructions completely, before operating this set.

Thank you for selecting the SL-1350, DIRECT DRIVE AUTOMATIC PLAYER SYSTEM.
To help you obtain the maximum performance from this player, we recommend that you read these instructions carefully.

1 PARTS IDENTIFICATION

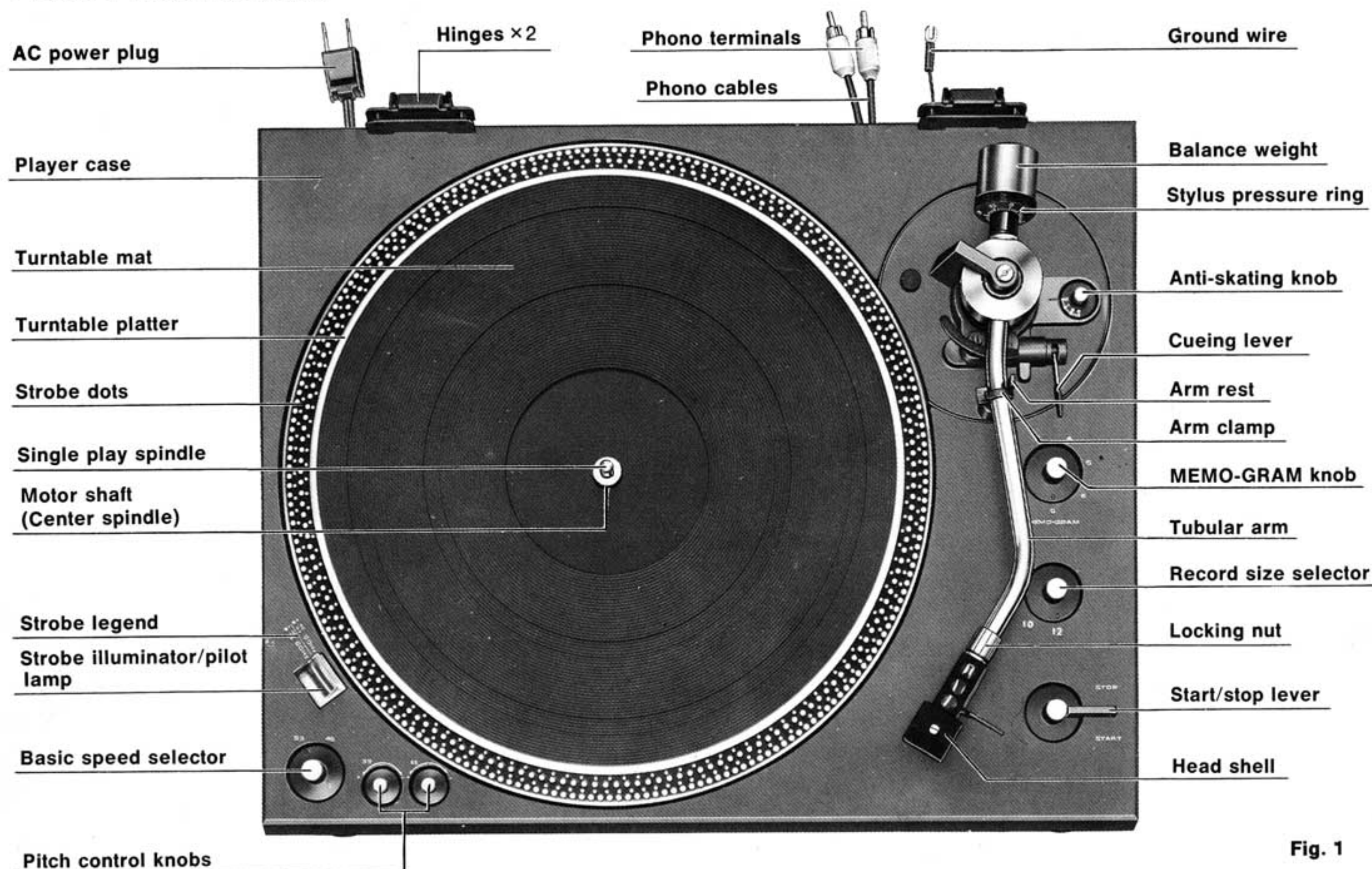


Fig. 1

2 BEFORE USE

1 CHECK TO MAKE SURE YOUR PLAYER IS PACKAGED AS PER THE LIST BELOW

Player unit	1	Turntable mat	1
Dust cover	1	Balance weight	1
Turntable platter	1	Parts box (See Fig. 2).....	1

CAUTION

Never connect the AC power plug to the AC socket until assembly has been completed!

Multiple play spindle
for 45 r.p.m.

45 r.p.m. adaptor
for single play

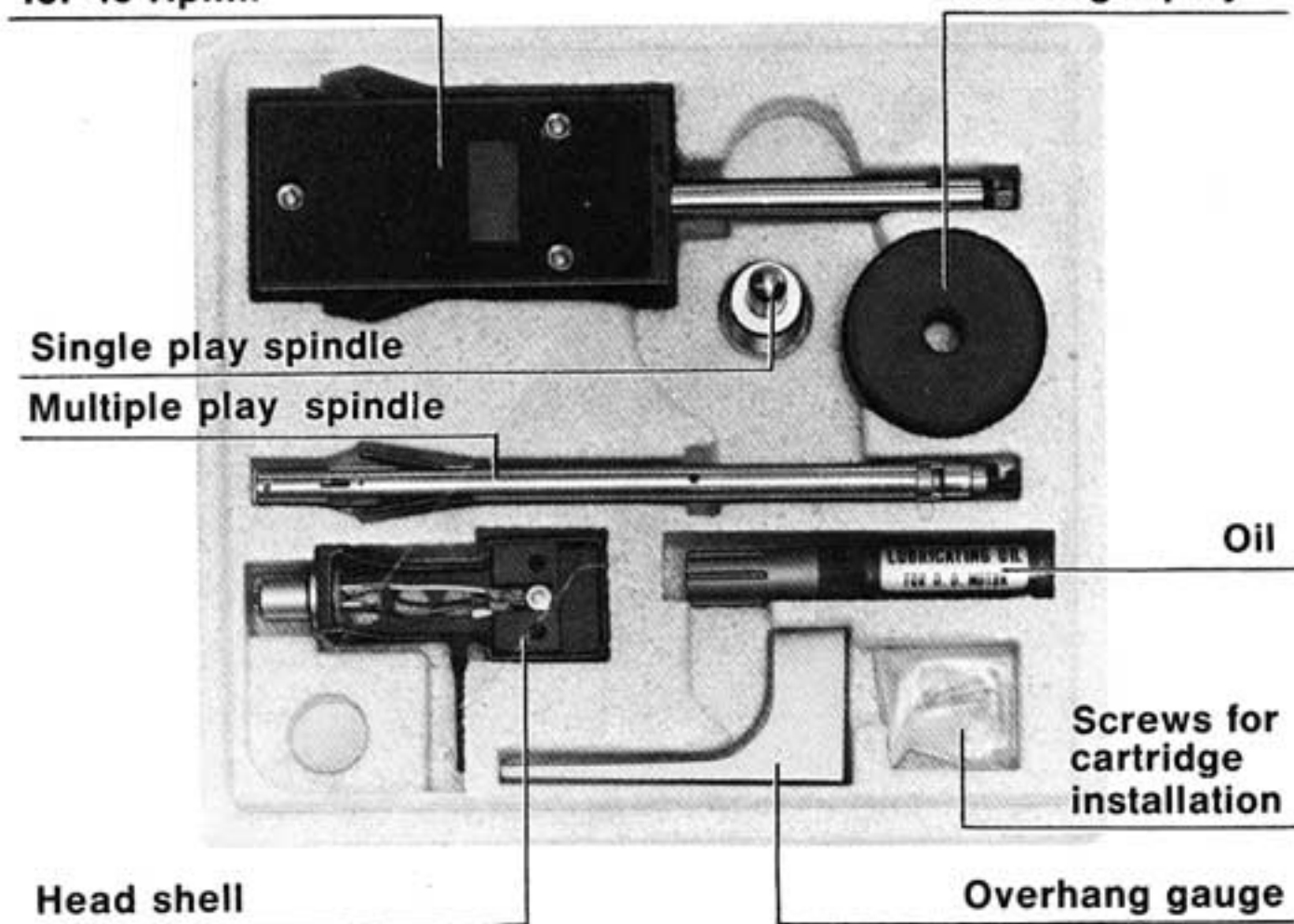


Fig. 2

2 REMOVE THE SHIPPING SCREWS (See Figs. 3 and 4)

Remove the two shipping screws and place them in the retaining holes for future use, when the unit must again be transported.



Fig. 3

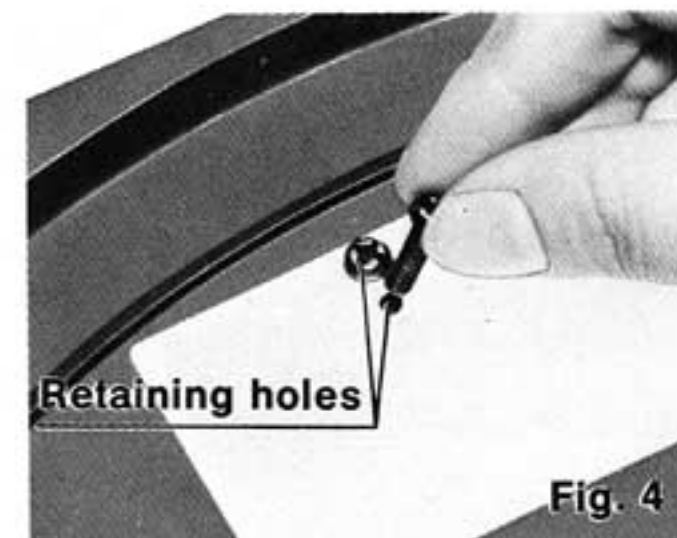


Fig. 4

3 APPLY TWO OR THREE DROPS OF OIL TO THE MOTOR SHAFT

To lubricate, open the tip of the vessel with a needle and apply two or three drops of oil to the motor shaft. (See Fig. 5)

4 REMOVE THE PROTECTIVE COVER FROM THE ROTOR OF THE TURNTABLE PLATTER (See Fig. 6)

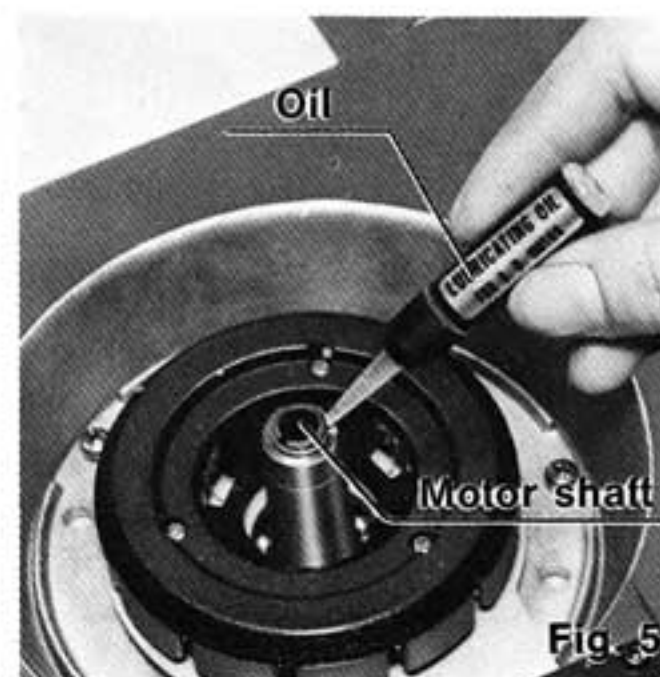


Fig. 5



Fig. 6

3 ASSEMBLY AND SET-UP

① INSTALLATION OF THE TURNTABLE PLATTER

*Place the turntable platter on the motor shaft.

*Place the turntable mat on the platter.

NOTE

This turntable employs the direct drive system.

Therefore, the rotor, which is the rotating part of the motor, is connected directly to the turntable platter. (The magnet of the motor is attached to the turntable platter.)

For this reason, to maintain the high performance described in the specifications, care should be taken to prevent any dust or iron filings from getting into and adhering to the magnet.

Also avoid dropping the turntable platter, as this may break the magnet.

② INSTALLATION OF THE CARTRIDGE (OPTIONAL)

*Connect the lead wires to the cartridge terminals as follows:

White (L+) → Left channel + Red (R+) → Right channel +
Blue (L-) → Left channel - Green (R-) → Right channel -

*Install the cartridge to the shell spacer, and tighten it with screws. (See Fig. 7)

*Insert the head shell into the gauge.

*Loosen overhang adjustment screw and move the cartridge forward or backward until the stylus tip lines up with the edge of the gauge. (See Fig. 8)

*Tighten adjustment screw without moving the cartridge.

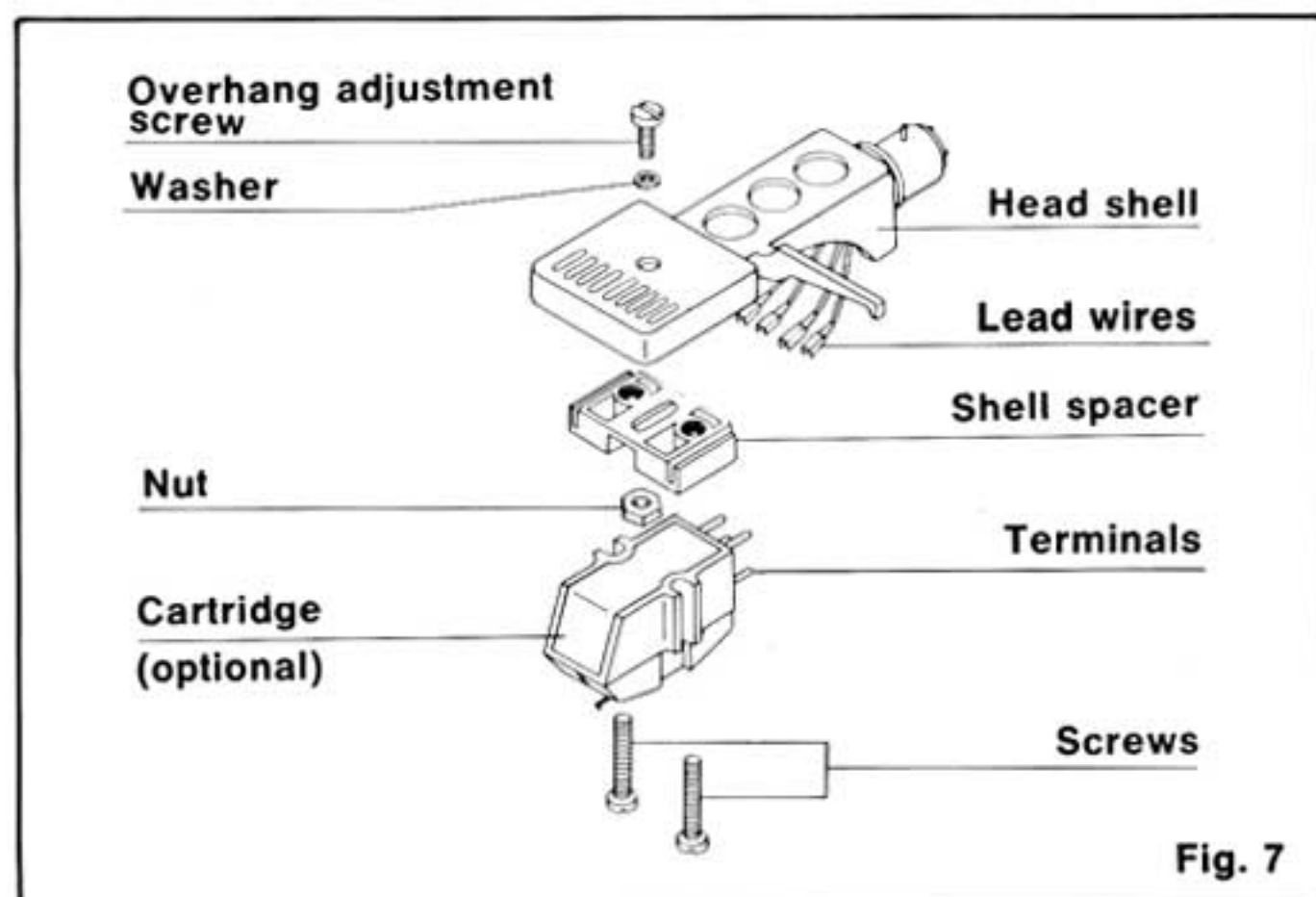


Fig. 7

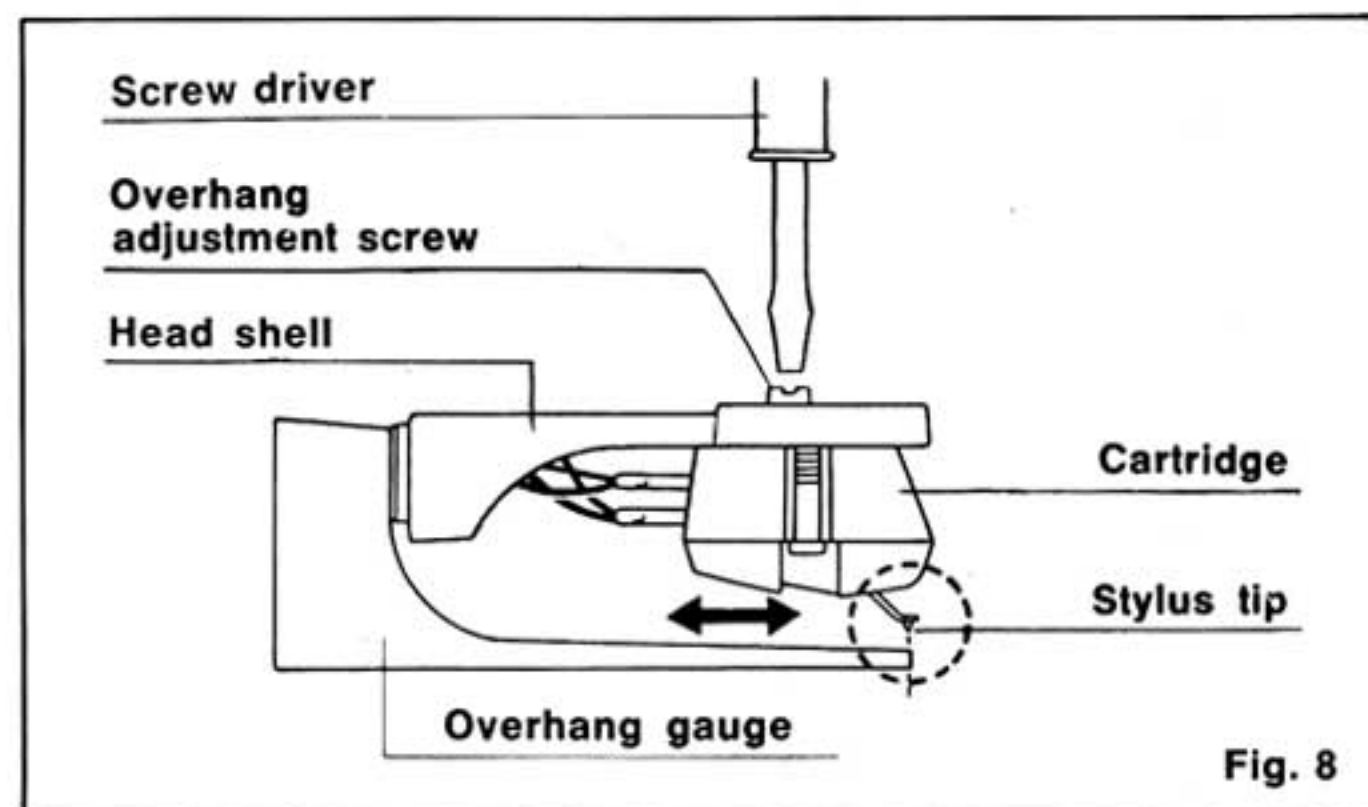


Fig. 8

NOTE

The tonearm of the SL-1350 has been designed to accommodate a wide range of differences in cartridge geometry, so that the majority of phonograph cartridges in use today may be mounted for proper overhang and proper tracking with a stack of up to six records on the platter. However, the owner should check before selecting a cartridge to make sure that it is compatible. Generally, if cartridge height is greater than 20 mm, it will interfere with tracking on the last record of a stack of six, limiting the maximum capacity to five records. If cartridge height, on the other hand, is less than 15 mm, spacers should be added to the cartridge mounting plate in the head shell. (See Figs. 9, 10 and 11)

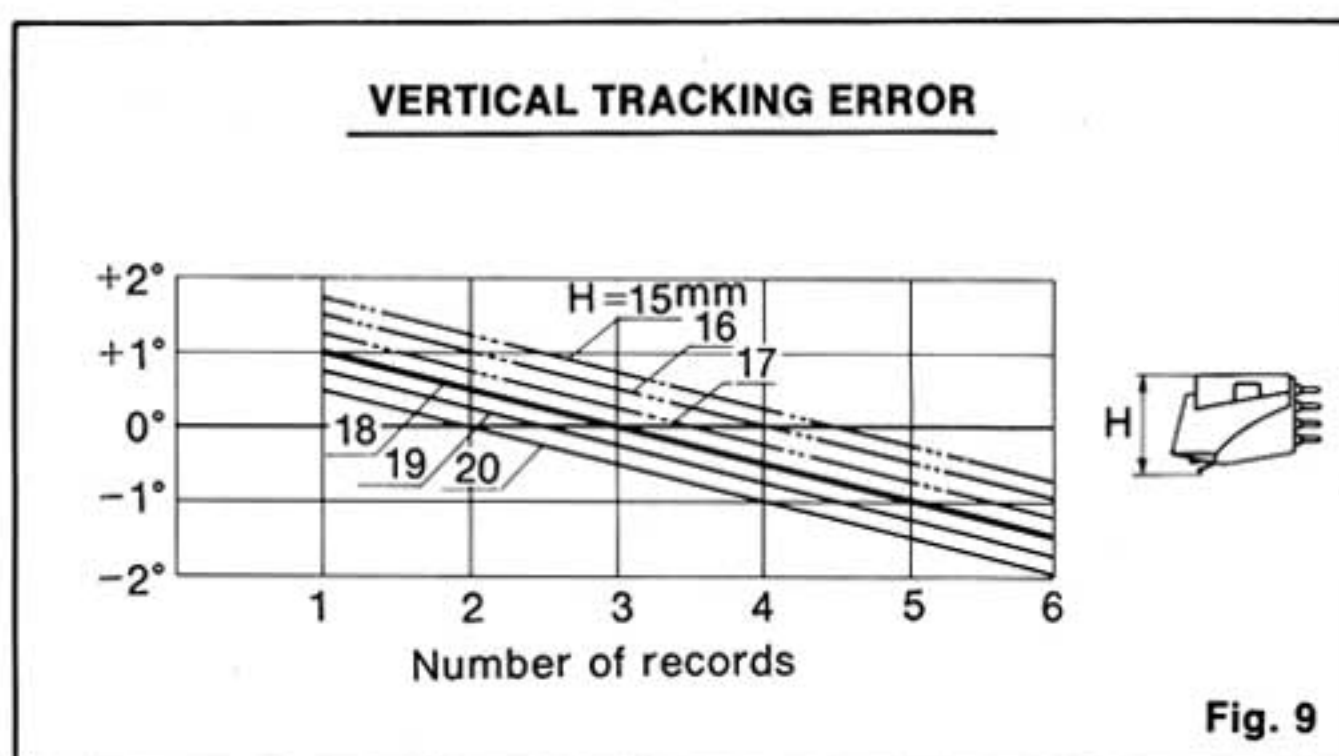


Fig. 9

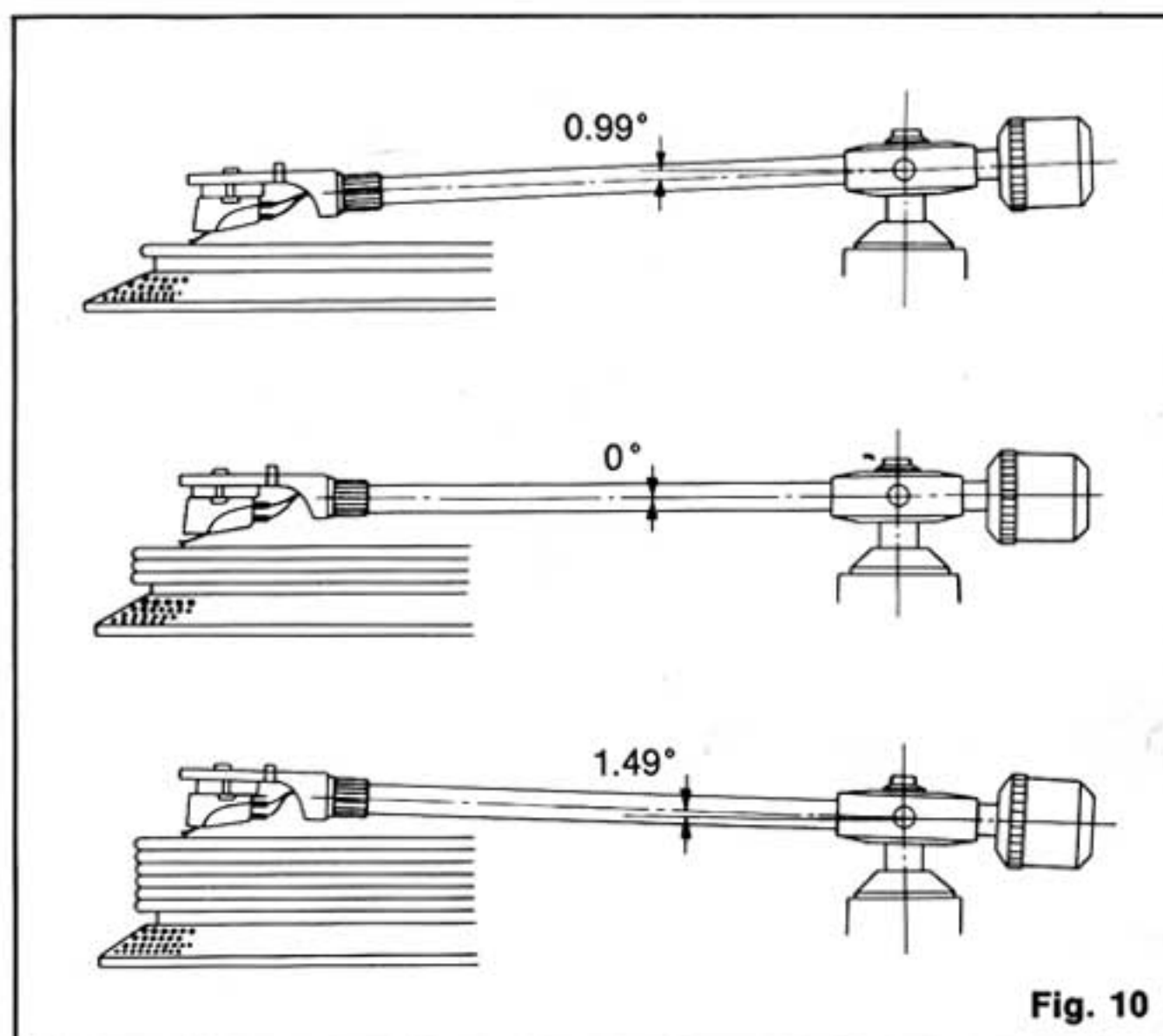


Fig. 10

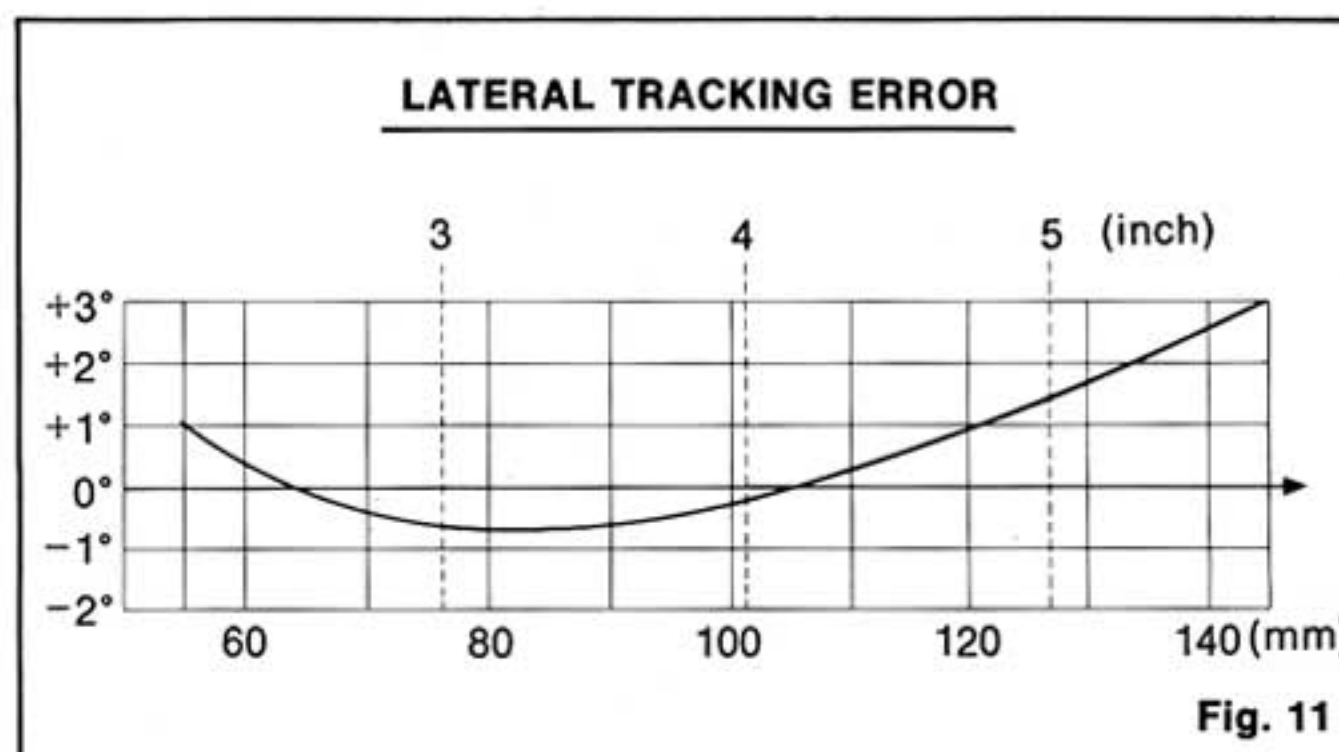


Fig. 11

③ INSTALLATION OF THE HEAD SHELL

*Insert the head shell in the end of the tubular tonearm and tighten it by turning the locking nut. (See Fig. 12)

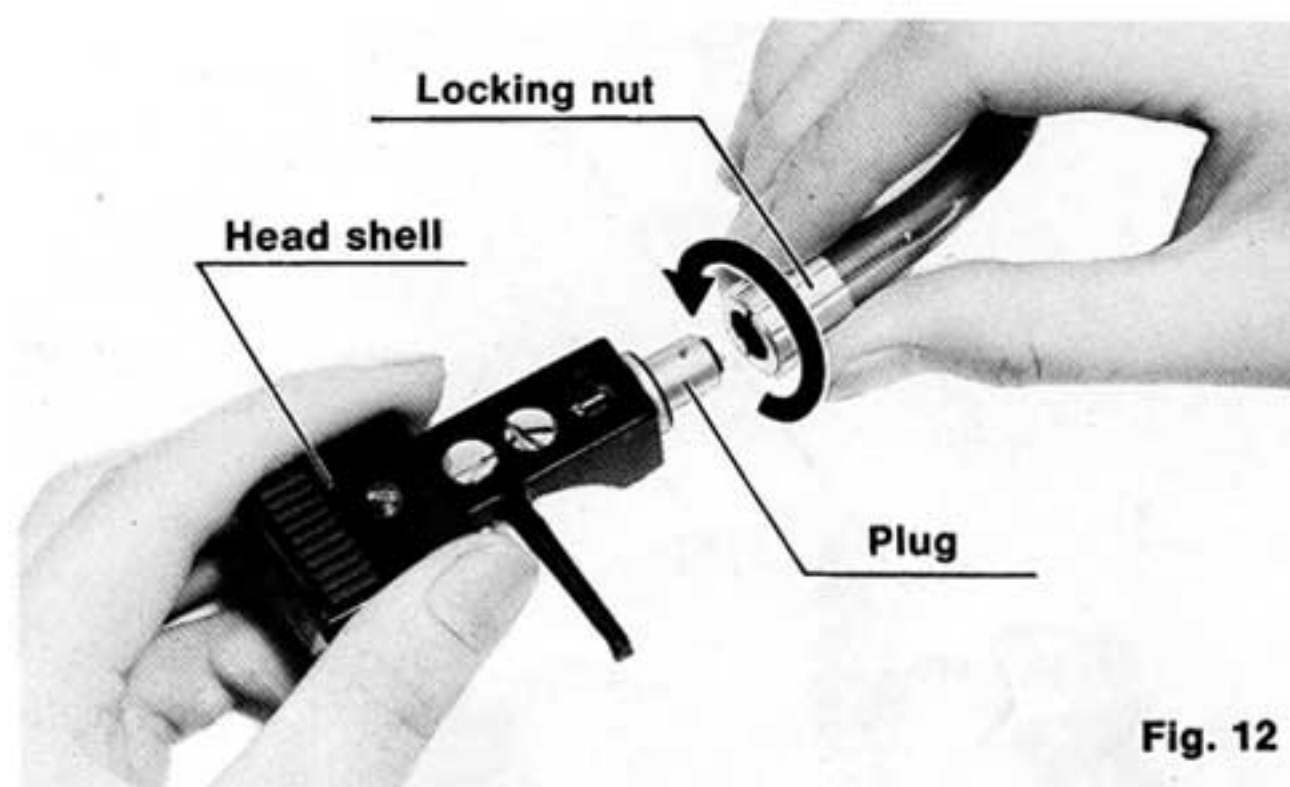


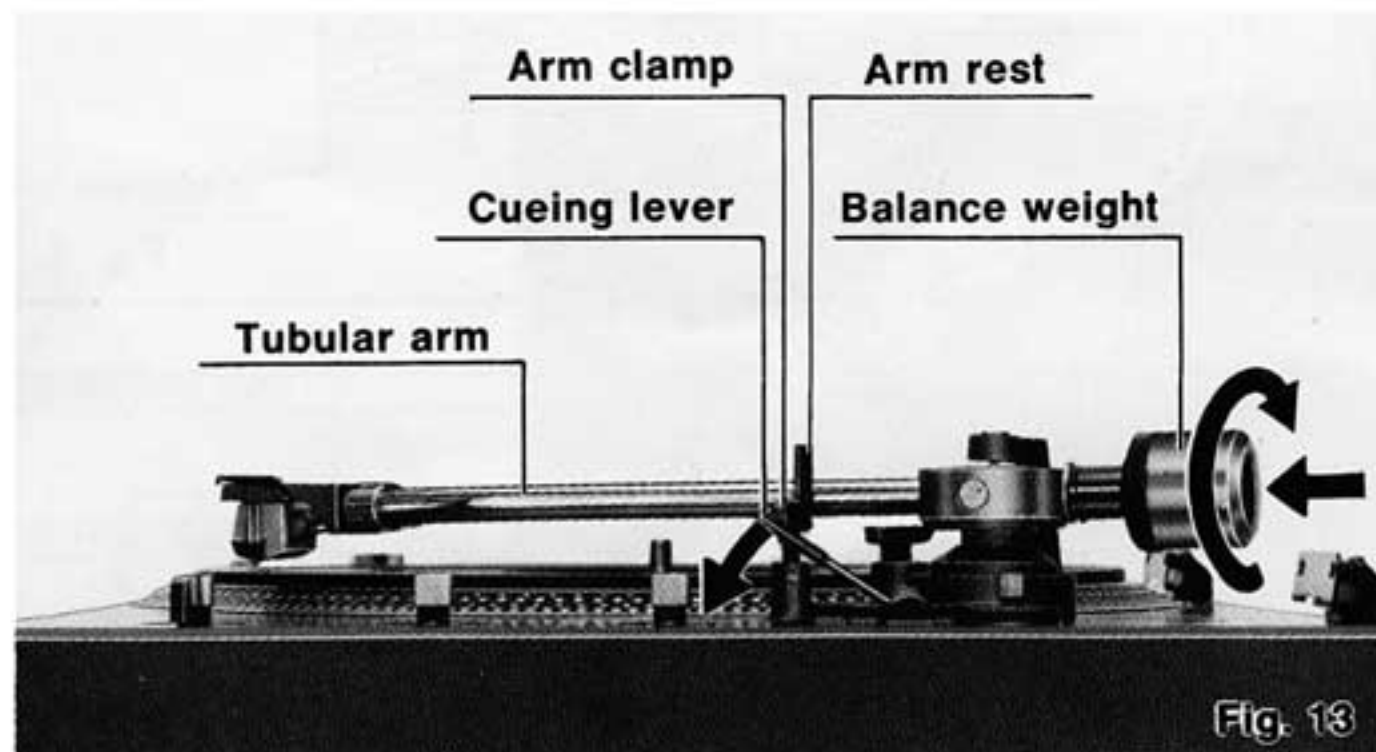
Fig. 12

④ ADJUSTMENT OF THE HORIZONTAL "0" BALANCE

*Insert the balance weight on the rear shaft of the tonearm with the numbers facing the front of the player.

*Lower the cueing lever.

*Release the arm clamp and turn the entire balance weight forward or backward until the tonearm is approximately balanced (floats freely). In this condition, stylus pressure is "0". (See Figs. 13)



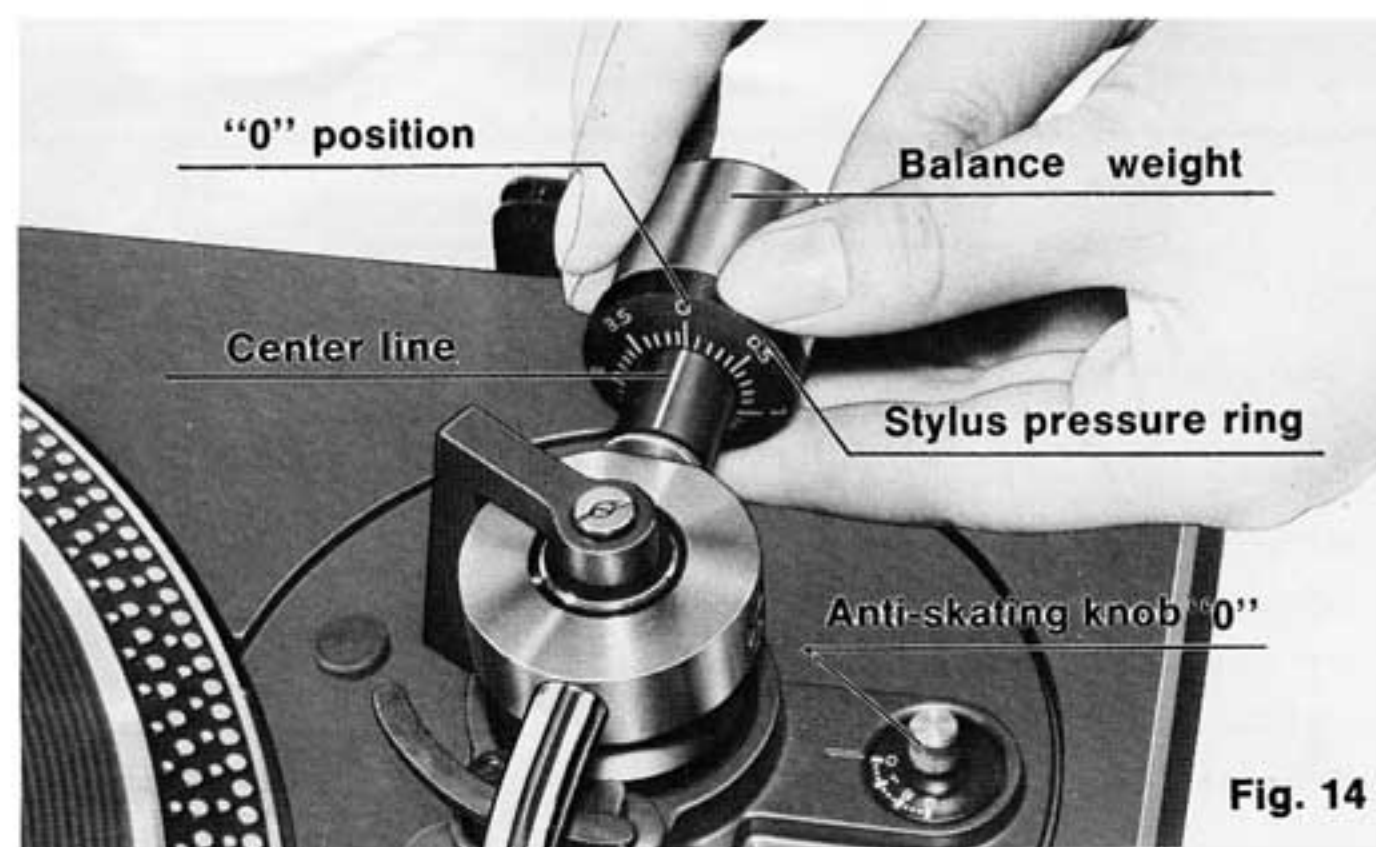
*After the arm is horizontally balanced, gently rotate the stylus pressure ring, so that the "0" lines up with the center of the rear shaft. (See Fig. 14)

*Do not move the balance weight during this adjustment.

NOTE

*Before adjustment of the "0" balance, make sure that the AC power plug is disconnected and the anti-skating knob is set at the "0" position.

*This stylus pressure ring moves in step with the balance weight so that, if you turn the balance weight, the stylus pressure ring moves with it.



⑤ ADD THE STYLUS PRESSURE AND THE ANTI-SKATING FORCE VALUE

*Turn the balance weight in the direction of arrow (Fig. 13) until the stylus pressure ring is set to the proper value for the cartridge used.

*Turn the anti-skating knob to the same value as the stylus pressure ring indicates. (See Fig. 15)



⑥ INSTALLATION OF THE DUST COVER

*Install the dust cover into the hinges. (See Fig. 16)

NOTE

*In rare cases the dust cover may become the cause of "HOWLING" from speaker vibrations. In such a case we recommend that you remove the dust cover during playing.



Fig. 16

4 PLACEMENT

- ① Use the unit in a stable and horizontal position, where there is little or no vibration.
- ② Locate the unit as far away from the speakers as possible and isolate the unit from sound radiation from them. This unit is equipped with audio insulators to minimize acoustic feedback but, if the speakers are placed too near the unit, sound vibration may be transmitted to the tonearm and result in "HOWLING" or feedback.
- ③ Do not place the unit where it is exposed to direct sun, dust, moisture or heat.

5 CONNECTIONS

① CONNECT THE AC POWER PLUG

*Connect the AC power plug to the AC wall socket or AC outlet of your amplifier.

CAUTION

*Make sure that the AC line voltage corresponds to the turntable's requirements before connecting the AC power plug. (120 V AC 50 or 60 Hz)

*Never connect to a DC power socket.

② CONNECT THE PHONO OUTPUT TERMINALS

*Connect the output terminals to the corresponding channels of your amplifier.

OUTPUT TERMINALS		AMPLIFIER
L (White)	→	L Channel
R (Red)	→	R Channel
E (Spade lug)	→	GND or chassis

NOTE

*Be sure to connect the ground wire to the amplifier ground terminal or chassis. If this connection is not made properly, "HUM" will result.

6 HOW TO PLAY

(MANUAL PLAY OF A SINGLE RECORD)

- ① Install the single-play spindle to the motor shaft. (See Fig. 17)
- ② Set the speed selector to the record speed corresponding to the record which you want to play (See Fig. 18)

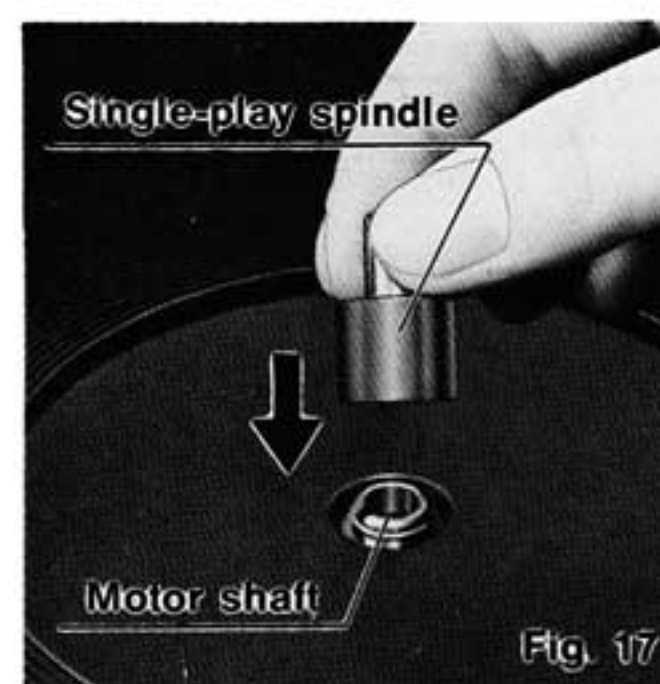


Fig. 17

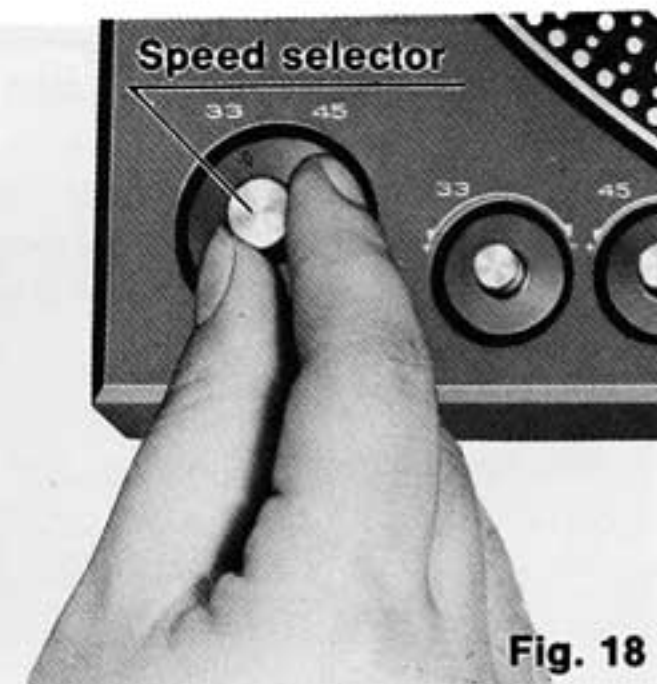
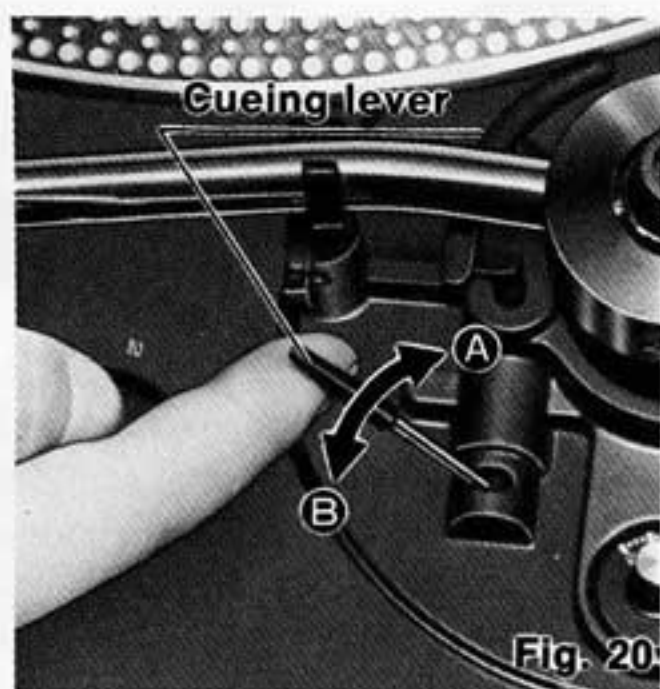
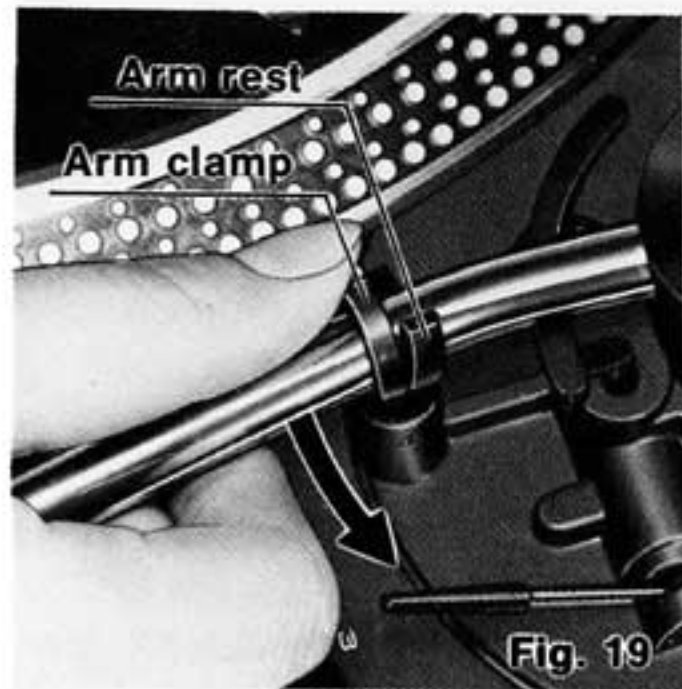


Fig. 18

- ③ Release the arm clamp and raise the cueing lever. (See Figs. 19 and 20)
- ④ Move the tonearm over the lead-in groove (or over any other desired groove), and then lower the cueing lever. The tonearm descends slowly on the record and play will begin.
- ⑤ When play has finished, the tonearm returns to the arm rest automatically and the unit will shut off automatically, too.



NOTE

*Of course, you may return the tonearm to its rest directly by hand. The unit also will shut off automatically.

*The **"MEMO-GRAM"** knob may have shifted to the right between "0" and "6" during transport or while unpacking, thereby preventing proper starting.

Please check position of **"MEMO-GRAM"** knob and set it to the "0" position to assure proper operation.

You will feel a slight click when the knob is in its proper position. (See Fig. 21)

*If you want to play a 45 r.p.m. record with a large center hole, use the 45 r.p.m. adaptor supplied for single play.



Fig. 21

(AUTOMATIC PLAY OF A SINGLE RECORD)

- ① Install the single play spindle and set the speed selector in the same manner as for manual play.
- ② Set the record size selector to the diameter of the record which you want to play. (See Fig. 22)
- ③ Release the arm clamp and pull the start/stop lever to the start position. The tonearm will then move automatically over the lead-in groove and descend slowly to the record. (See Fig. 23)
- ④ When play has finished, the tonearm returns to its rest automatically and the unit will shut off automatically, too.

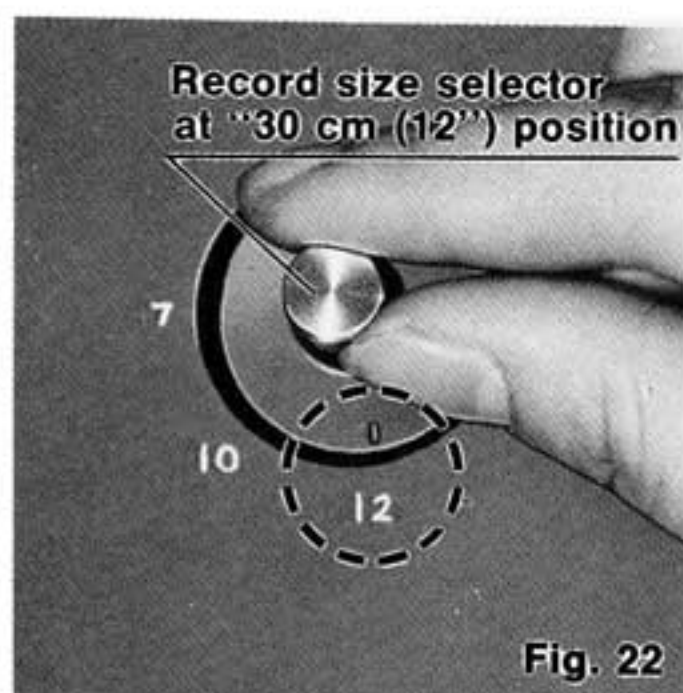


Fig. 22

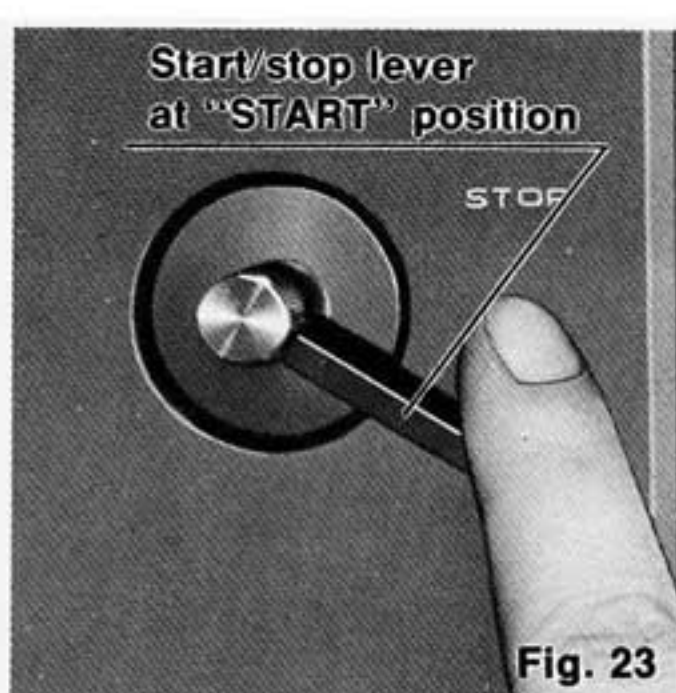


Fig. 23

(REPEAT PLAY USING THE "MEMO-GRAM" KNOB)

This unit employs a unique function of the **"MEMO-GRAM"**. You can play a single record from one to six times automatically by setting this knob to the desired position.

- ① Set the **"MEMO-GRAM"** knob to the desired number which you want to play. (See Fig. 24)
The strobe illuminator/pilot lamp will light and the turntable platter will rotate.

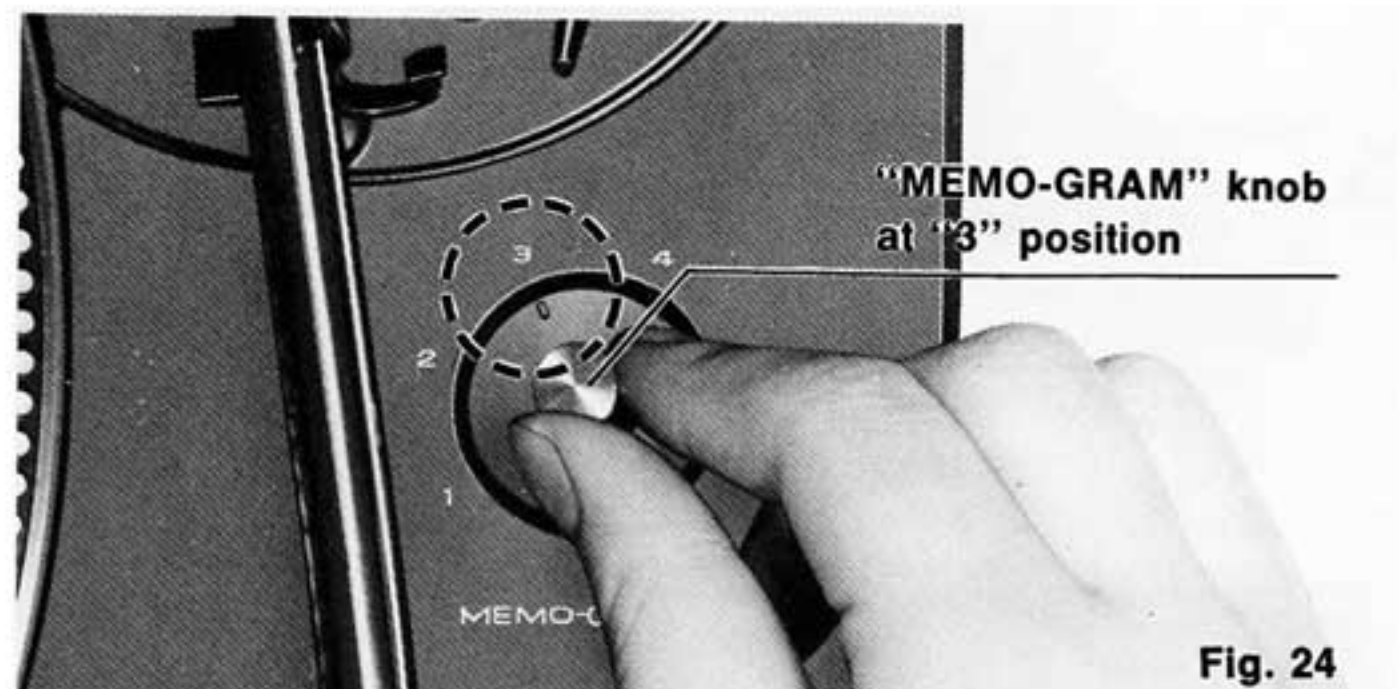


Fig. 24

- ② Pull the start/stop lever to the start position. The tonearm moves as in automatic play, and play will begin. After the number of plays selected has finished, the tonearm will return to its rest and the unit will shut off automatically.

In addition, the **"MEMO-GRAM"** knob will be reset to the "0" position automatically.

NOTE

*You may rotate the **"MEMO-GRAM"** knob in either direction, clockwise or counterclockwise.

*You may change the setting of this knob to any other numbered position while the tonearm is on the record.

*Do not touch this knob while the arm is cycling.

*If you want to check or adjust the pitch controls, set this knob to any position other than "0".

(AUTOMATIC PLAY FOR UP TO 6 RECORDS)

This unit employs a unique umbrella type of spindle which can stack as many as six records of the same size.

You can select the number of the records (or repeat play of the last record) with the **"MEMO-GRAM"** knob.

- ① Insert the multiple-play spindle, aligning the key on its base with the slot of the motor shaft. (See Figs. 25 and 26)
Then, rotate it clockwise pushing downward until it stops. (A "click" is heard.)

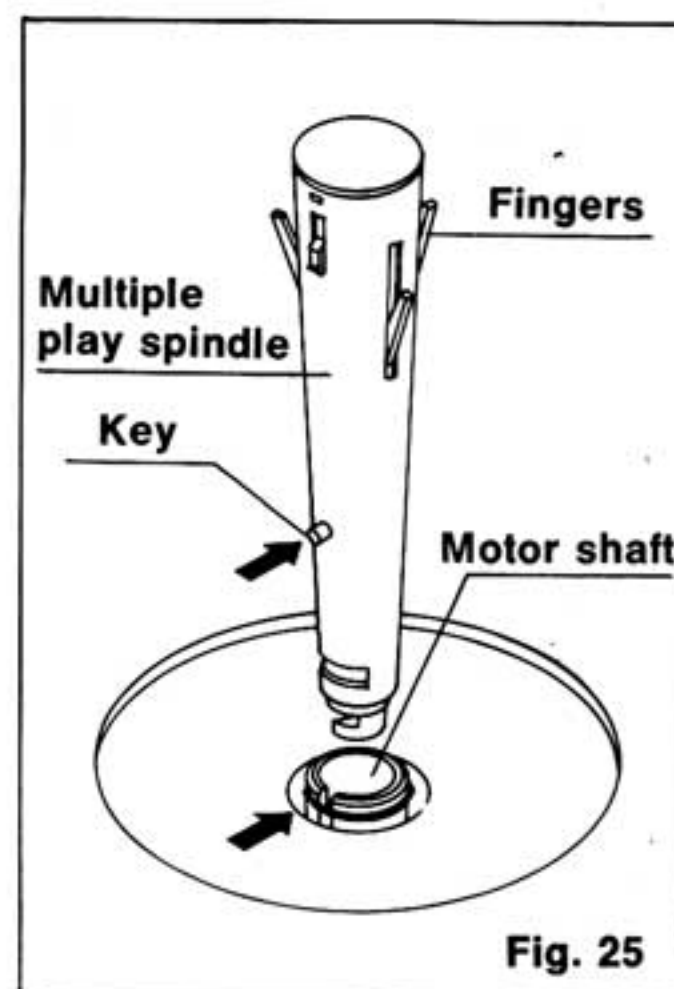


Fig. 25

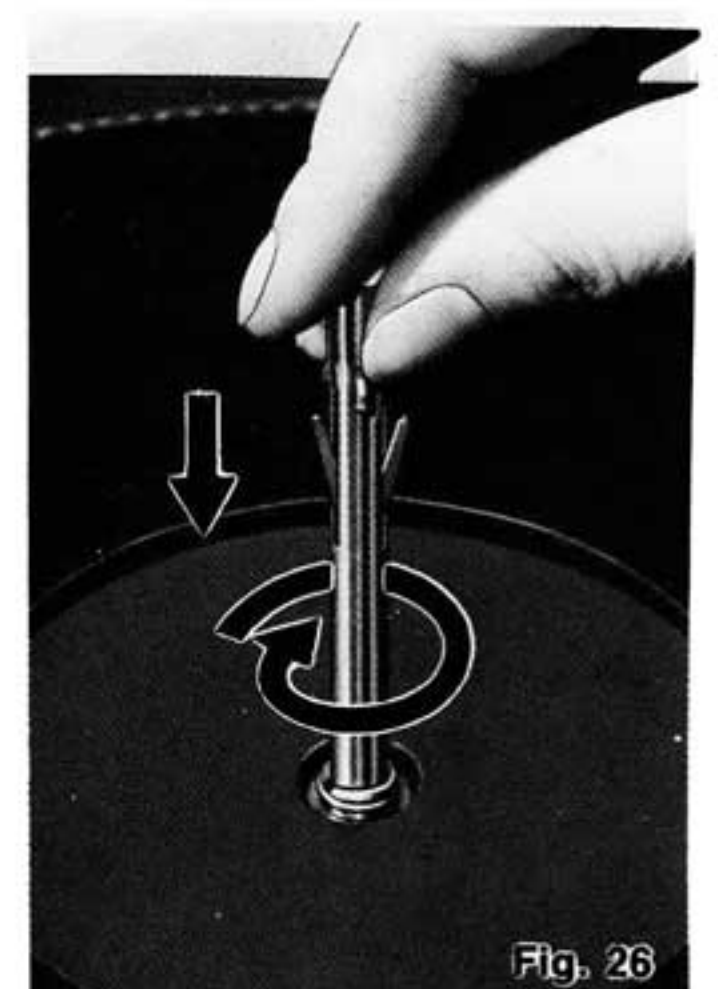


Fig. 26

- ② Stack records of the same size on the fingers of the multiple play spindle.
- ③ Count the number of records stacked, and set the **"MEMO-GRAM"** knob to the number corresponding to the records; i.e., when you stack three records, set the **"MEMO-GRAM"** knob to the "3" position. (See Figs. 27 and 28)



Fig. 27

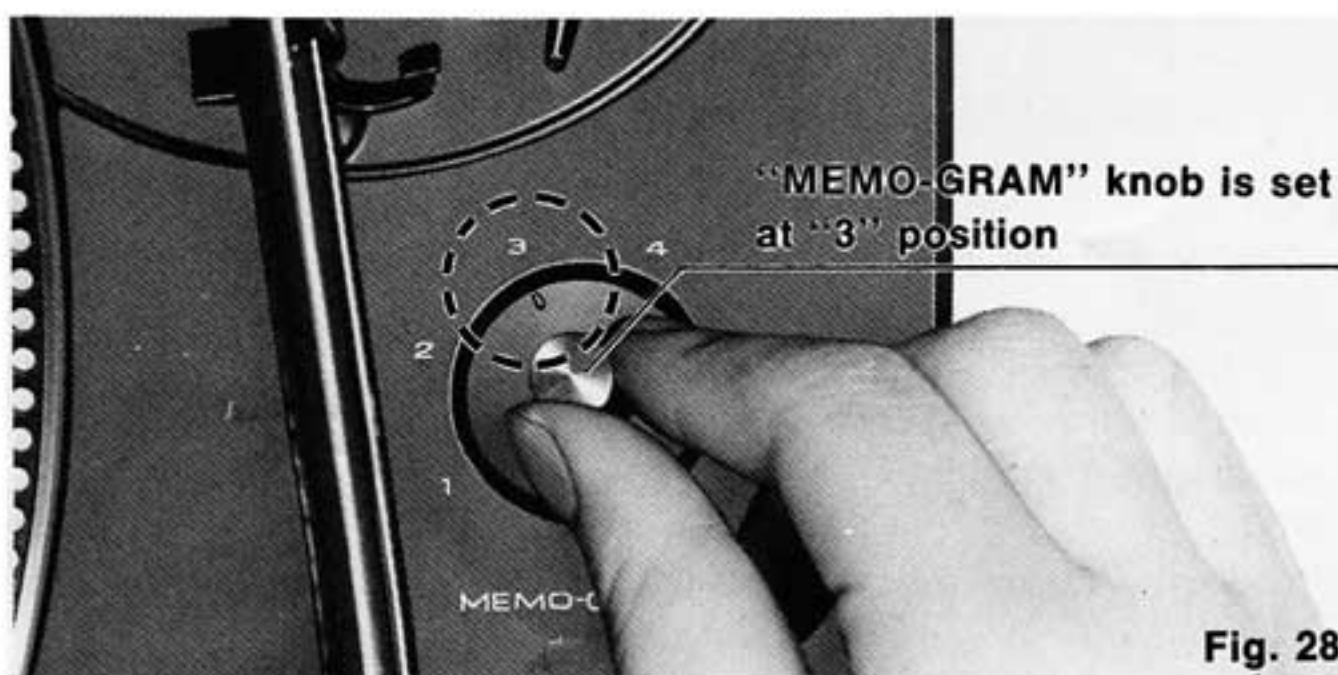


Fig. 28

- ④ Make sure that the record size selector and speed selector are set to the proper position, and also lower the cueing lever.
- ⑤ Pull the start/stop lever to the start position. Play will begin automatically.
- ⑥ After the last record has played, the tonearm will return to its rest and the unit will shut off automatically.

NOTE

- *Never remove the multiple play spindle before removing all records from it.
- *Never touch the multiple play spindle while the automatic mechanism is operating.
- *When you stack six records on the spindle and the "MEMO-GRAM" knob is set at the "4" position, the unit will shut off after four records have played.

(MULTIPLE PLAY PLUS REPEAT PLAY OF THE LAST RECORD)

*If you want to play less than six records and repeat the last record one or more times, simply set the "MEMO-GRAM" knob to the number of records plus the number of additional plays desired; i.e., if three records are stacked on the spindle and you want the last record to repeat three times, then, set the "MEMO-GRAM" knob to the number "6". (See Figs. 29)

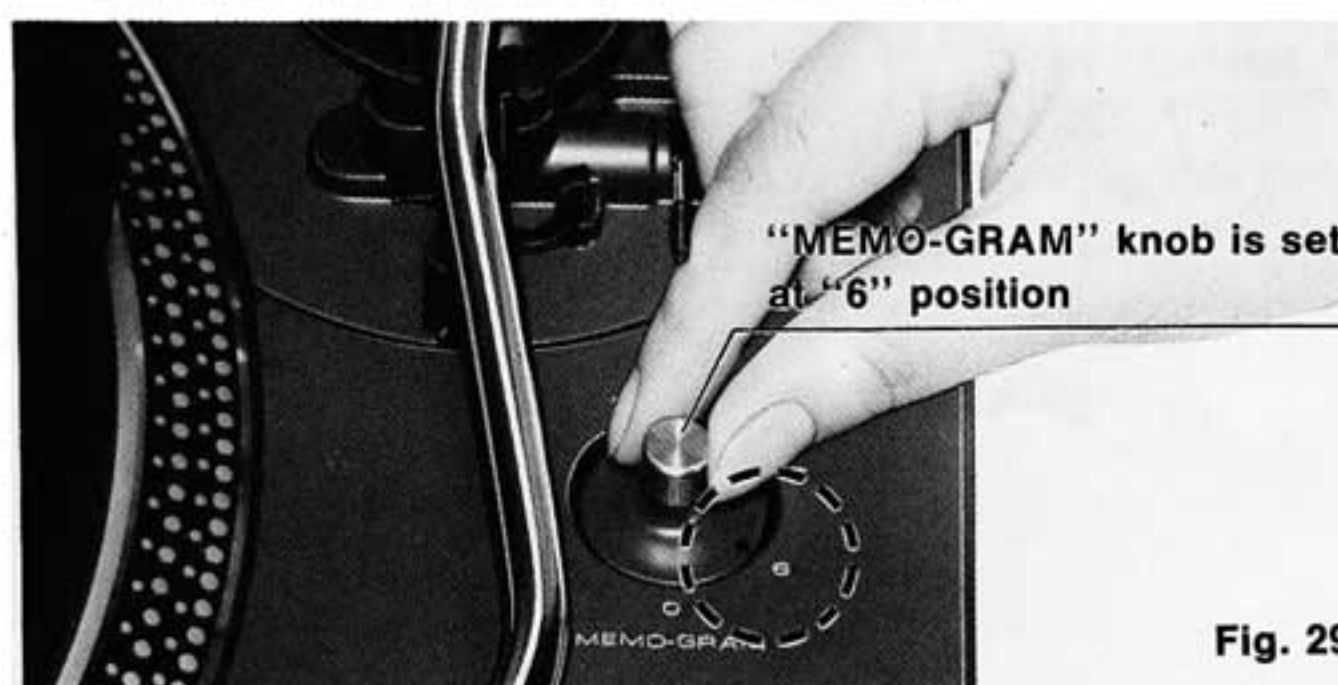


Fig. 29

(STOP OR INTERRUPT PLAY)

- *When you want to interrupt play for any reason, raise the cueing lever, causing the tonearm to lift up off the record.
- *When you want to resume play, lower the cueing lever. The tonearm will descend slowly to the same groove.

*When you want to stop the play, set the "MEMO-GRAM" knob to "0", push the start/stop lever to the stop position. The tonearm will return to its rest and the unit will shut off automatically.

NOTE

- *The unit will stop only when the "MEMO-GRAM" knob is set to the "0" position.
- *If this knob is set at any position other than "0", play is continued by the number of times indicated, even if you push the start/stop lever.

7 NOTES

- ① Be sure to release the arm clamp before operating the start/stop lever.
- ② Be sure the "MEMO-GRAM" knob is set to an appropriately numbered position before operating multiple play. For example, if six records are stacked on the spindle, the "MEMO-GRAM" knob should be set to the "6" position.
- ③ Do not grasp or hold the tonearm during operation of the automatic mechanism.
- ④ The stylus set-down position is adjusted for standard size records only (7", 10" and 12"). Manual operation only should therefore be used for non-standard records.
- ⑤ Never remove the turntable platter unnecessarily. The turntable platter of this unit also plays the part of the rotor of the motor. Needless removal may result in a deterioration of characteristics caused by the attraction of dust or iron filings to the magnet rotor. If you must remove it for any reason, be sure to disconnect the AC power plug.
- ⑥ Use the cueing lever for a single play only.

- ⑦ When you play manually set "MEMO-GRAM" knob to "0". If set to any other position the turntable will not shut off after a single play but will repeat play 1, 2 or more times according to the "MEMO-GRAM" knob setting.
- ⑧ When used as manual turntable with single play spindle.
AUTO START.....Set "MEMO-GRAM" knob to the desired number of times you want to play the record.
 "1" turntable will shut off after 1 play, "2" after 2, etc.
MANUAL START.....Set "MEMO-GRAM" knob to "0" if you want the turntable to shut off after the initial play.
 Set knob to "1" or "2" etc, if 1 or 2 or more additional plays (repeats) are desired.

8 ADJUSTMENTS

① PITCH CONTROLS (See Fig. 30)

*Turn either knob clockwise or counterclockwise, as necessary, to reduce or increase the speed of turntable rotation.

Counterclockwise rotation...The speed of the turntable platter will increase. Rotate counterclockwise if the strobe dots illuminatory/pilot lamp, seem to be "falling back"; i.e., seem to be moving counterclockwise. When the dots appear to be stationary, turntable speed is accurate.

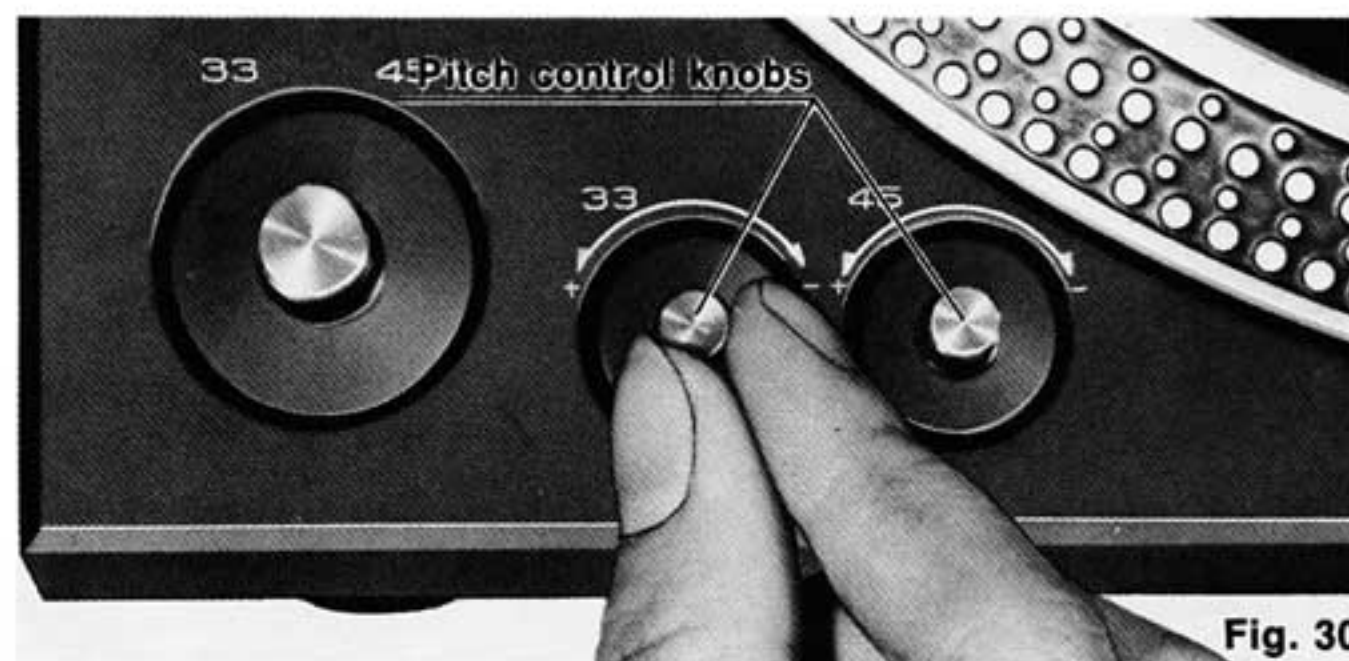


Fig. 30

Clockwise rotation...The speed of the turntable platter will decrease. Rotate clockwise if the dots seem to be "running ahead"; i.e., seem to be moving clockwise, until they appear stationary.

NOTE

Any change in powerline frequency will also cause a change of the fluctuation rate of the neon lamp or fluorescent lamp used for illumination of the strobe dots.

In such case the strobe dots will appear to move very slightly. Under normal conditions, the powerline frequency from electric utility companies is extremely stable without frequency fluctuation. Under certain abnormal conditions, however, changes in line frequency have been observed, averaging to about 0.2% when measured over a period of time.

If this happens, the strobe dots will move very slowly. Such change in line frequency will in no way affect the quality of the sound reproduction, as line frequency change does not change the rate of turntable rotation.

2 SPEED ADJUSTMENT (See Fig. 31)

If for any reason, the speed adjustment cannot be made by the pitch control knobs, turn these screws clockwise or counterclockwise with a (–) screwdriver.

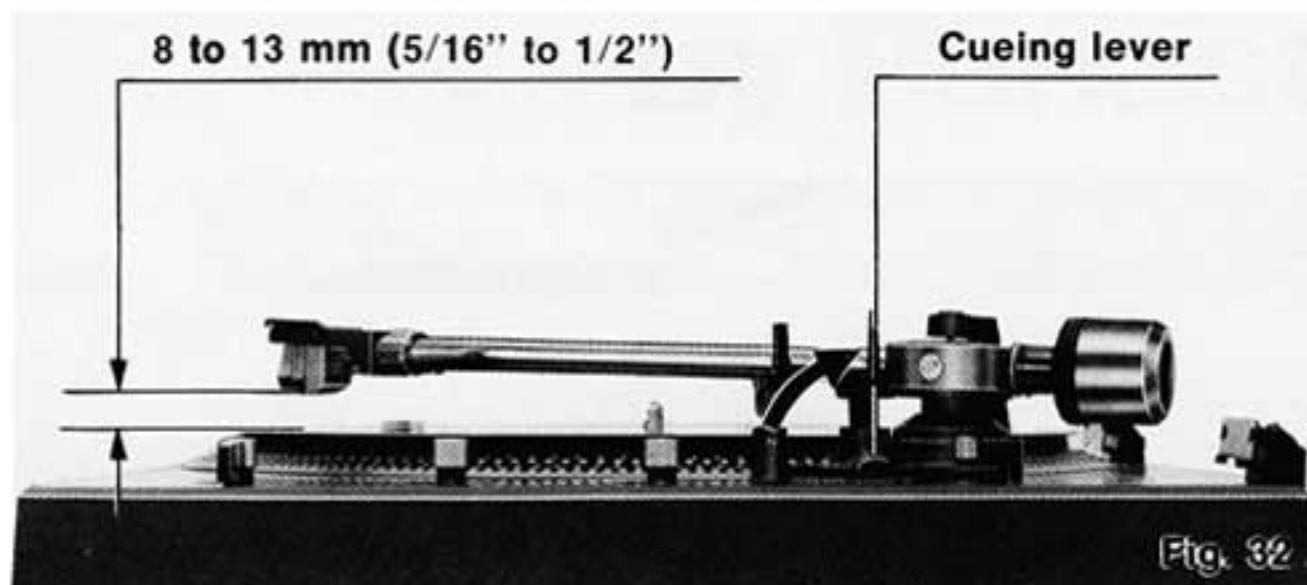
Clockwise The speed will slow down.

Counterclockwise The speed will speed up.



3 ARM LIFT HEIGHT (CUEING LEVER) (See Figs. 32 and 33)

The space between the stylus tip and record surface, when the cueing lever is raised, has been adjusted from 8 to 13 mm (5/16" to 1/2")



If, for any reason, it is not correct, turn the adjustment screw clockwise or counterclockwise while pushing down on the arm lift.

NOTE

*Be sure to push down on the arm lift when you turn this screw.

Clockwise to lower the arm.

Counterclockwise to raise the arm.



4 STYLUS SET-DOWN POINT (See Fig. 34)

*To be adjusted if the tonearm fails to set-down at the right starting point at the beginning of the record.

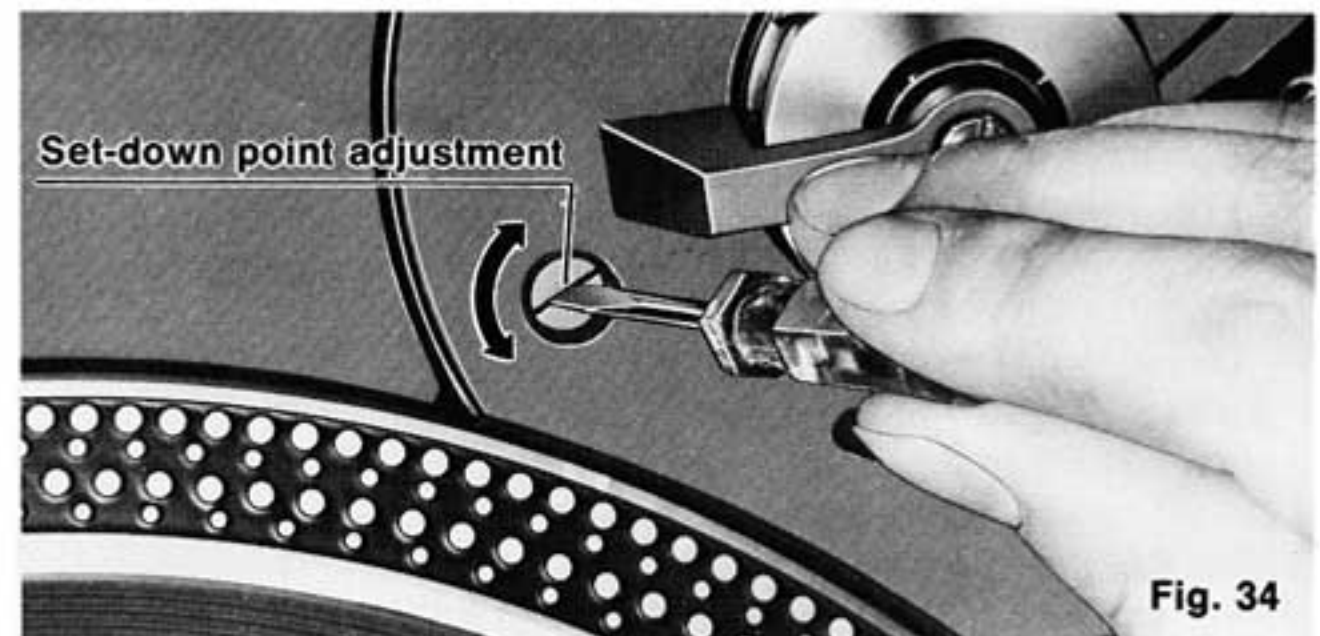
Rubber cap above adjustment must be removed.

Clockwise rotation This will move the set-down point inward, toward the record center.

Counterclockwise

rotation This will move the set-down point outward, away from the record center.

NOTE: DO NOT TURN. JUST PUSH IN DIRECTION OF ARROWS.



5 TONEARM RETURN POINT (See Fig. 35)

*In some cases, the tonearm will tend to return to its rest position before playing has finished. In other cases, it may fail to return to the rest position even after playing the last groove of the record.

*Rotate this screw to correct for either condition.

Clockwise rotation The tonearm will return to its rest later.

Counterclockwise

rotation The tonearm will return to its rest earlier.



9 MAINTENANCE

1 WIPE THE DUST COVER AND PLAYER CASE WITH A SOFT, DRY CLOTH

*Do not use cleaners containing alcohol, benzine or thinner. If, for any reason, oil adheres to the dust cover, remove the dust cover and wipe it with a cloth moistened with a mild soap and water solution.

2 APPLY TWO OR THREE DROPS OF OIL TO THE MOTOR SHAFT

*Disconnect the AC power plug and remove the turntable platter.

*Lubricate by applying two or three drops of oil to the motor shaft. (See Fig. 5)

NOTE

*It is sufficient to lubricate approximately once every 2,000 hours of use. Do not apply too much oil, nor more frequently than necessary.

*Never use any other type of oil.

The bearing parts of this unit are designed with an ultra-precise finish to prevent "WOW and FLUTTER".

A special oil has been used to maintain the high performance efficiency of this unit by forming a uniform film of oil over the parts. For this reason, use only the oil included with this unit for its lubrication.

PARTS NUMBER OF THIS OIL IS : SFWO 010

10 FEATURES

(TURNTABLE SECTION)

① TURNTABLE PLATTER ITSELF IS THE ROTOR OF THE MOTOR

This model realizes the ultimate simplification of the direct drive system: the turntable platter itself is part of the motor.

The platter is directly connected to the motor. There is no reduction or transmission mechanism, such as a belt or idler. Besides, this brushless DC motor rotates at the same speed as the records, so that wear of parts is reduced to the extreme minimum. Thus high performance, as described in the specifications, can be maintained, and also there is no "WOW and FLUTTER" caused by a transmission mechanism. The rumble is also extremely low.

② THE FINEST, FIRST-CLASS PLAYER AS A MANUAL ~PLUS REPEAT-PLAY AND MULTIPLE-PLAY FUNCTIONS

This model can be simply operated as a first-class manual-play instrument by inserting an included single-play spindle. In addition it can be used in such automatic functions as auto-start, auto-return, auto-stop and available auto-repeat play.

When you insert the multiple-play spindle, you can enjoy multiple-record play (record-changing) up to as many as six records.

③ THE SMOOTHEST AND QUIETEST AUTOMATIC MECHANISM IN COMBINATION WITH PRECISION PARTS AND INGENIOUS CONSTRUCTION

The automatic mechanism on this unit has succeeded in achieving the least mechanical rattle and clatter during automatic operation.

In order to avoid the noise caused by automatic operation, precision molded plastic parts are used. In addition each function knob is finished precisely for gentle, feathertouch operation. There is no skipping or skating caused by control manipulation.

④ NO EFFECT FROM FLUCTUATION OF THE POWER-SUPPLY FREQUENCY

Since the motor of this unit is of the DC brushless type, rotation speed does not depend on stability of the power-supply frequency. Thus, there is no effect from electro-magnetic vibration.

⑤ EFFICIENT LOW-POWER OPERATION

The motor power consumption is only 0.1 W, and total power consumption is less than 6.5 W. This is most important in terms of longer life and reliability. This means more than the saving of electrical power; it means less heat, less vibration, less stress on the control circuitry and less evaporation of lubricants. The result is not merely longer motor life, which may be achieved in other direct-drive designs, but longer life of the entire component assembly.

⑥ ELECTRONIC STABILIZATION CONTROL

This unit includes special circuitry to stabilize speed electrically. Speeds stability is extremely good.

⑦ EASY-VIEW STROBE ILLUMINATOR/PILOT LAMP

Two sets of strobe dots appear on the tapered rim for 33-1/3 and 45 r.p.m. at both 50 and 60 Hz line frequency.

The prism strobe illuminator lights up when power is on, serving as a pilot lamp. The combination of prism lamp and tapered strobe rim result in easy viewing from any position.

⑧ UNIQUE, DURABLE STRUCTURE OF ALUMINUM DIE-CAST PLAYER CASE

High quality and high performance can be found in the profile design.

The player case of this unit is made of die-cast aluminum and it is integrally combined with the stator of the drive motor, so that it is extremely resistant to howling. Besides, four insulated legs suppress harmful vibration.

⑨ RUGGED CONSTRUCTION FOR LONG LIFE

The automatic mechanism of this unit has withstood an amazing continuous-play durability test of 230,000 cycles.

This unit works more accurately and reliably than any conventional automatic player.

(TONEARM SECTION)

① HIGH-QUALITY UNIVERSAL TONEARM

The tonearm of this unit is a low-friction design, built especially for low-tracking-force, high-compliance cartridges. The tonearm will track as low as 0.25 gram to make use of the finest lightweight cartridges. In addition, you can easily change the head shell.

② SENSITIVE "S" SHAPED GIMBAL-SUSPENDED EXTRA-LONG TONEARM

The "S" shape of the tonearm ensures perfect lateral balance. Four pivot bearings enhance the rotational sensitivity of the gimbal-suspension. Both vertical and horizontal sensitivities are very low.

Effective length of the arm is 9-1/16", the longest of any arm used in automatic-play or record-changing turntables.

This is not only important with respect to lateral tracking error, but equally important in the vertical plane. The angular error that results from differences in depth of the cartridge used or differences in the thickness of the record stack on the turntable platter is minimized, without auxiliary adjustments, as is the error produced by warped records (warp wow), for which no practical means of auxiliary adjustment has been developed.

③ STURDY YET LOW-MASS HEAD SHELL OF DIE-CAST ALUMINUM

The precision-crafted, low-mass head shell is of die-cast aluminum and employs the universal-type 4-pin connector. Gold-plated contacts prevent hum and other problems.

The easy insertion adjustment for exact stylus overhang permitted by the design avoids the problems of slide-in type head shells.

④ UNIQUELY DESIGNED OVERHANG GAUGE ACTS AS SHELL STAND

This unique accessory is designed not only as an overhang adjustment gauge, but also as a head shell stand.

You can easily adjust overhang by inserting the head shell into the gauge.

⑤ PRECISE AND EASY-TO-ADJUST ANTI-SKATING DEVICE

A single precise, anti-skating scale counteracts skating force for all types of styli, eliminating the need for more than one such calibrated scale. It is a great convenience for real audio fans.

⑥ FEATHER-TOUCH CUEING DEVICE

Feather-touch cueing device is viscous-damped for gentle descent. The tonearm will set down on the groove you desired by using the cueing lever, thus protecting the stylus tip from damage.

⑦ EASY ADJUSTMENT OF STYLUS PRESSURE

The stylus pressure adjustment is easy because of its helical type of movement. Just turning the balance weight can adjust the stylus pressure accurately.

⑧ LOW-CAPACITANCE PHONO CABLES

To avoid high-frequency loss, low-capacitance phono cables are used. Ideal for later conversion to CD-4.

⑨ FREE STOP TYPE HINGES

The dust cover can stay open at virtually any angle, and can be removed from the hinges.

NOTE

Use the head shell designed for this set.

If any other head shell design is used, especially one having a large finger lift as shown in the picture, can not play in multiple play.

