SONY DIRECT DRIVE SERVO CONTROLLED

TURNTABLE SYSTEM PSE-4000

OWNER'S INSTRUCTION MANUAL

SONY CORPORATION

SONY DIRECT DRIVE SERVO CONTROLLED TURNTABLE SYSTEM
PSE-4000

The SONY Model PSE-4000 is a walnut finished stereo player system in which the direct-drive turntable TTS-4000 is mounted. The TTS-4000 incorporates an ac servo motor furnished with a frequency generator as its speed control signal source.

The professional features of the TTS-4000 are .....
..... The turntable is directly coupled with the motor: There's no idler or belt, thus the durability of the turntable is successively improved.

..... Revolutionally ac servo-controlled system assures constant speed and vibration-free operation.

..... Exceptionally low wow-and-flutter: Less than 0.03% wrms.

..... High signal-to-noise ratio: Over 60 dB.

..... Electrically controlled speed selection and adjustments.

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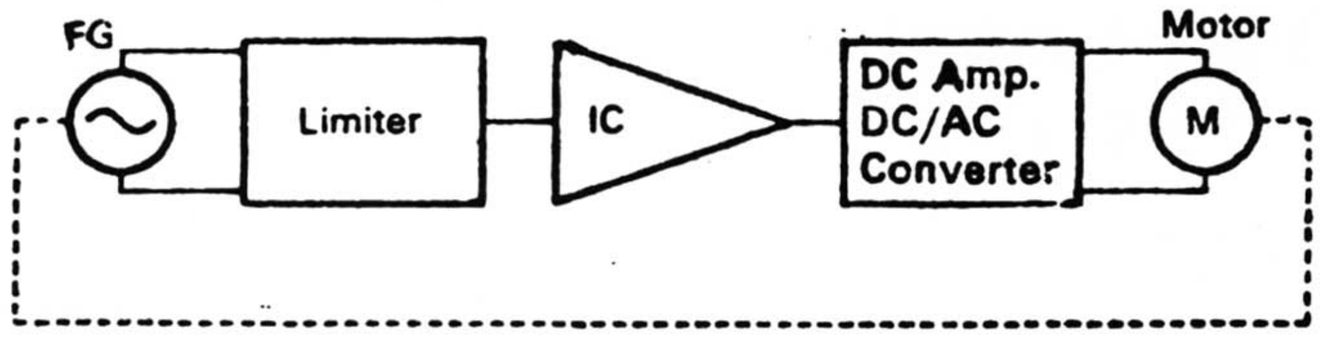
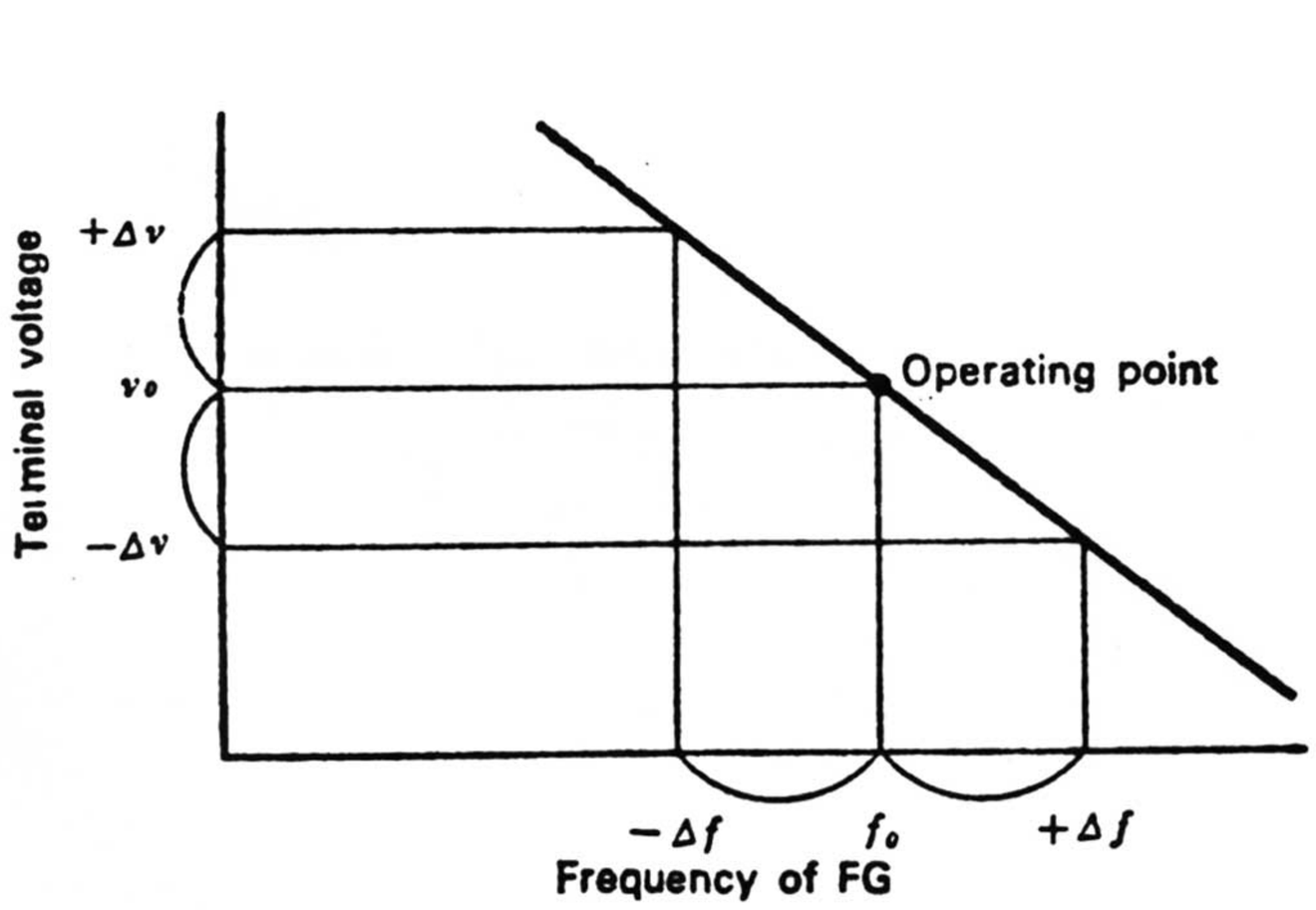
PRINCIPLE OF THE "SERVO-CONTROLLED SYSTEM"

The servo motor used in the TTS-4000 consists of an ac motor, a frequency generator (F.G.) and a servo amplifier. The F.G. output passes through the limiter to eliminate level differences and goes to the IC to be converted to a dc output proportional to input frequency. This output is amplified, and is converted into ac to drive the motor.

Frequency changes in the F.G. output —— due to motor-speed changes —— are detected by the IC, which then changes the terminal voltage of the motor. Thus, the motor speed is kept constant. The graph below shows these relationships. If the motor accelerates (or slows down) because of a certain external cause, the output frequency of the F.G. (f_0) moves by Δf to the right (or to the left). Then, the terminal voltage goes down (or up) by Δv and the motor speed is decreased (increased). Consequently the frequency generated by the F.G. returns to f_0. Thus the servo-controlled system keeps the "equilibrium condition" at f_0 and the motor operates at a constant speed.





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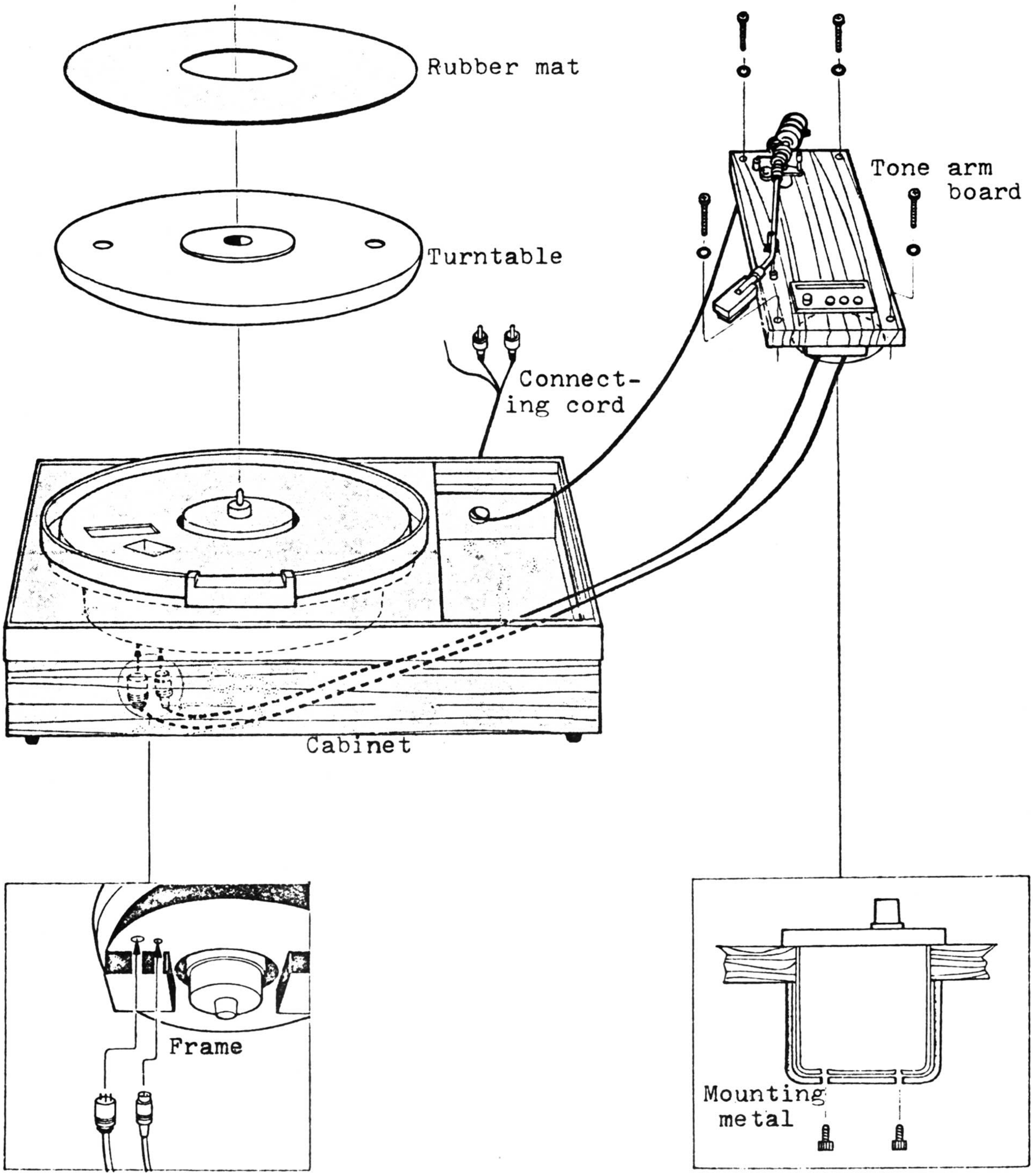
SPECIFICATIONS

Speed:	33-1/3 rpm and 45 rpm
Speed control range:	± 3%
Start-up time:	Within 1/2 revolution
Wow-and-flutter:	Less than 0.03% wrms
S/N:	Better than 60 dB
Turntable up and down motion:	Within ± 0.05 mm
Power requirements:	100 V, 117 V, 220 V or 240 V 50 Hz and 60 Hz
Power consumption:	17 watts
Turntable:	32 cm (1 ft 5/8 inches), diecast aluminum alloy 1.75 kg (3 lb 13 oz)
Weight:	18 kg (39 lb 11 oz)
Dimensions:	Cabinet 563 (w) x 212 (h) x 420 (d) mm (22-5/32 x 8-11/32 x 16-17/32 inches) Turntable 343 (maximum dia.) x 145.6 (h) mm (13-1/2 x 5-3/4 inches) Control box 116 (w) x 64.5 (h) x 66 (d) mm (4-9/16 x 2-9/16 x 2-5/8 inches)
Supplied accessories:	45 rpm adaptor (1) SONY Oil OL-2K (1) Screwdriver (1) Polishing cloth (1)

Design and specifications subject to change without notice.

INSTALLATION

1. Loosen the four screws on the tone arm board by using the supplied screwdriver and remove the board.
2. Use the mounting patterns supplied with the tone arm and the TTS-4000 to mark the mounting hole of the arm on the board.
3. Mount the control box with the use of the supplied mounting metal.
4. Mount the tone arm to the board.
5. Connect the connecting cord to the tone arm.
6. Take the connecting cord from the rear hole of the cabinet.
7. Connect the two cables of the control box to the receptacles at the bottom of the frame. Be sure to match the three-pin connector to the three-pin receptacle and the six-pin connector to the six-pin receptacle.
8. Mount the tone arm board to the cabinet and fix it with the use of the removed four screws.
9. Place the turntable on the motor by matching the center hole to the spindle.
10. Place the rubber mat on the turntable.
11. Adjust the tone arm.


Rubber mat
Turntable
Connect-
ing cord
Tone arm
board
Cabinet
Frame
Mounting
metal

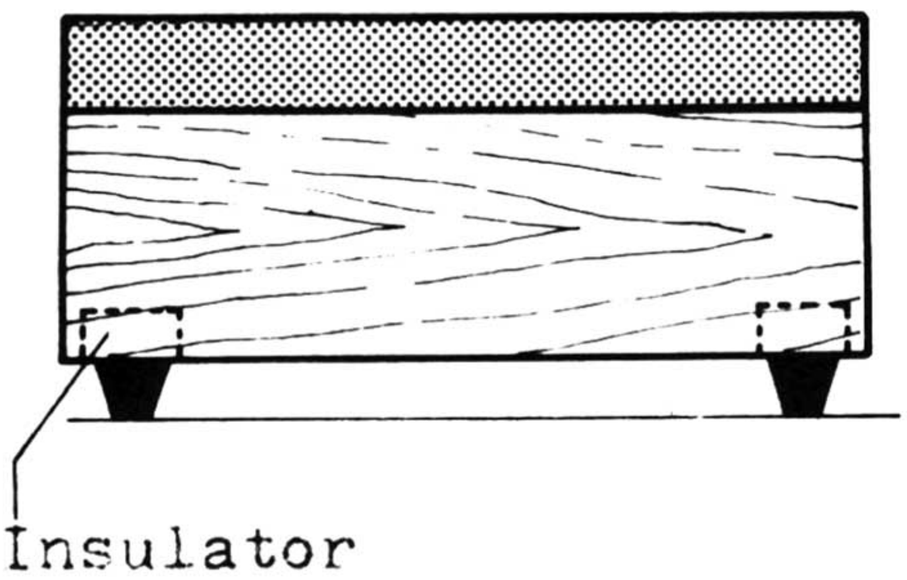
NOTE

Don't place the player in direct sunlight, or near radiators, hot-air ducts, or any other source of heat. Similarly, don't place it in any area subject to freezing temperatures.

Don't subject the turntable to shock when it is in operation. Avoid placing the unit near doors that are frequently slammed.

Before playing, be sure to remove dust from the stylus with a soft brush (stylus brush, facial brush, etc.) and clean the disc with record cleaner.

Place the player on an even surface. Don't draw it, otherwise, the built-in insulator may be leaned.



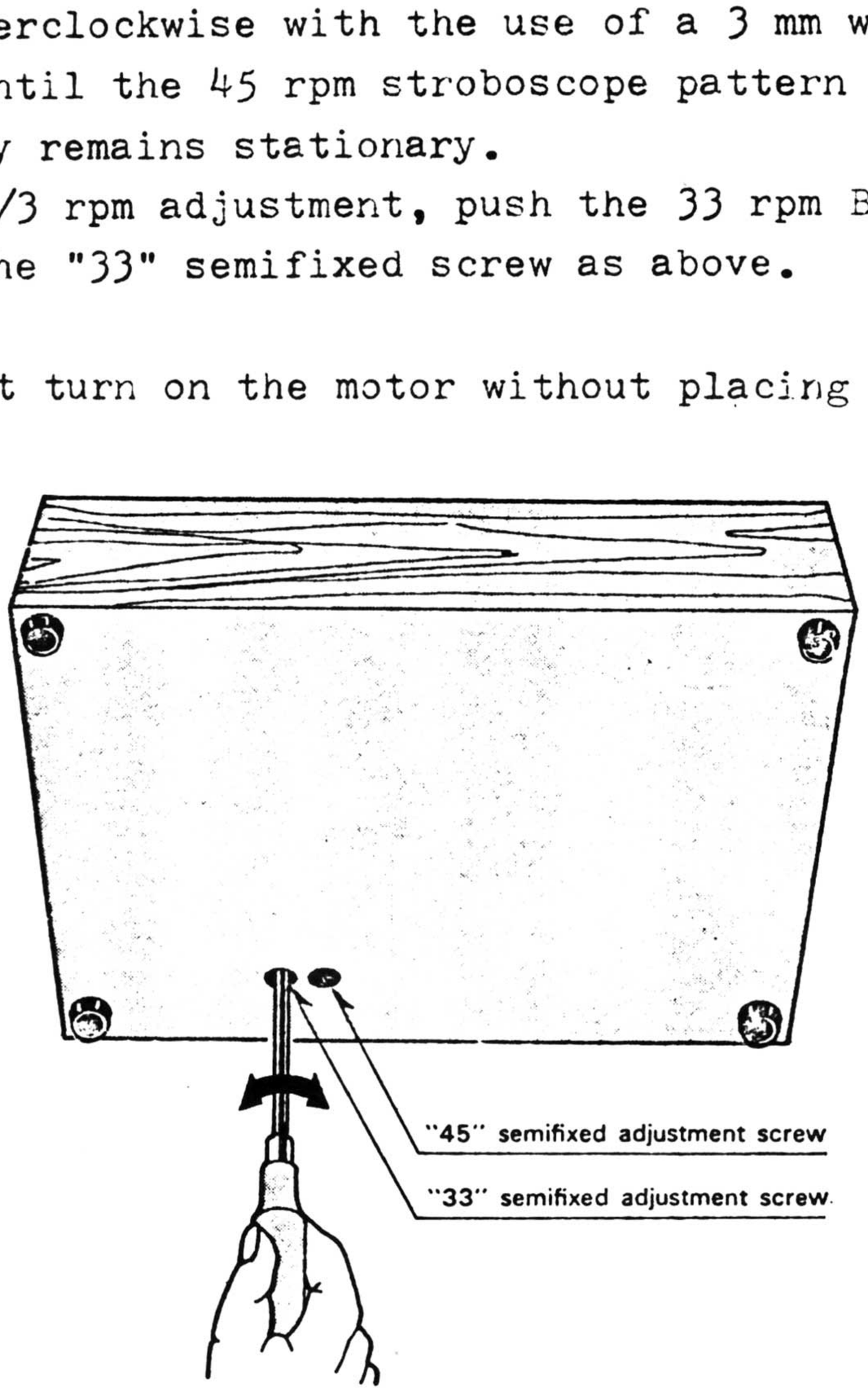
Insulator

PITCH CONTROL RANGE ADJUSTMENT

For both 33-1/3 rpm and 45 rpm, the pitch control circuit is factory preset for correcting operating speed when the Pitch Control is set to the center of its range. However, if is should happen, after transportation, that the correct speed cannot be obtained by adjusting the Pitch Control, readjust the semifixed adjustment screws at the bottom of the cabinet as follows:

1. Set the Pitch Control to its center position.
2. Connect the turntable to an ac outlet.
3. Push the 45 rpm Button.
4. Slowly turn the "45" semifixed adjustment screw clockwise or counterclockwise with the use of a 3 mm wide screwdriver until the 45 rpm stroboscope pattern for your power frequency remains stationary.
5. For 33-1/3 rpm adjustment, push the 33 rpm Button and adjust the "33" semifixed screw as above.

NOTE: Do not turn on the motor without placing the turntable.

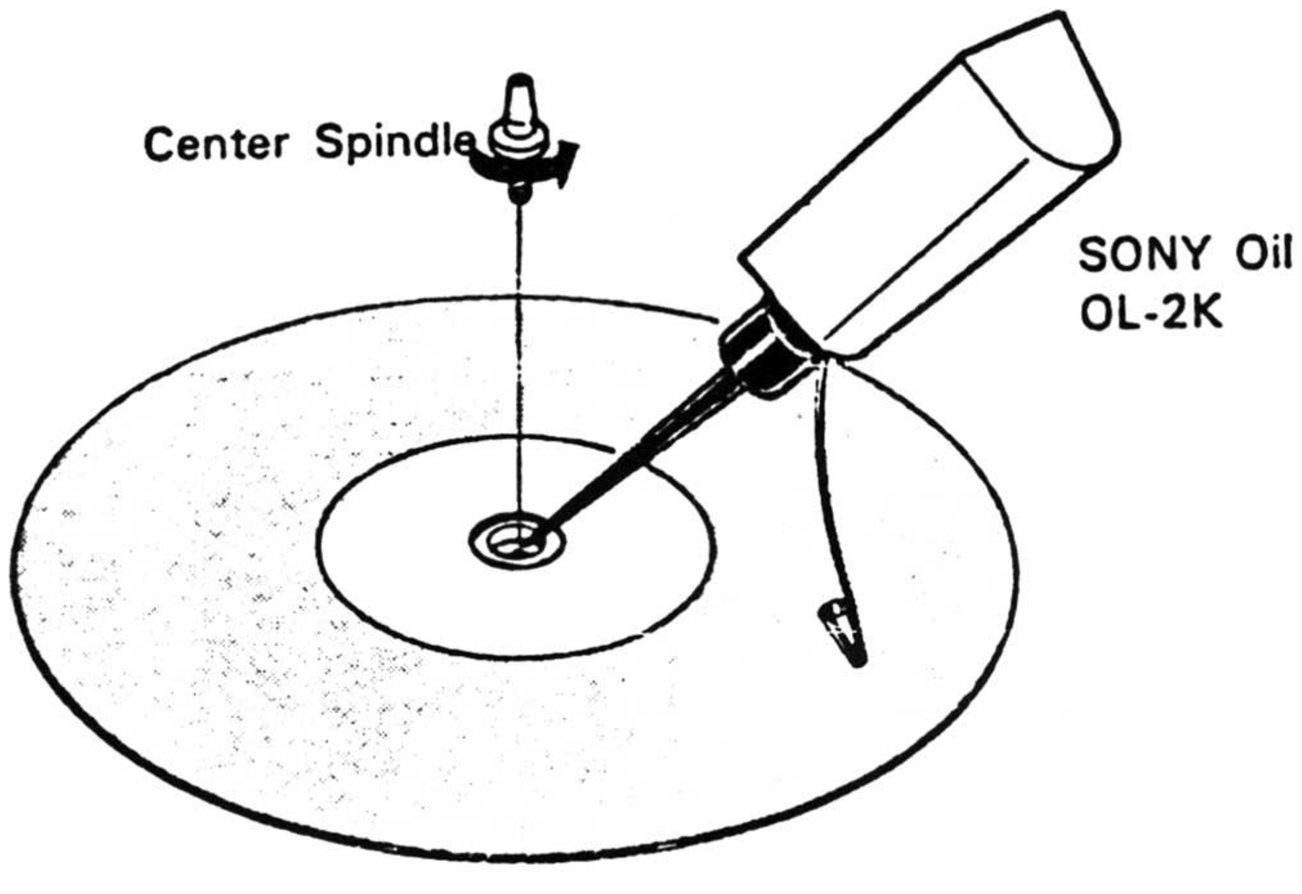


LUBRICATION

Lubricate the center spindle retainer every three months with the supplied SONY Oil OL-2K. No other parts require lubrication.

To lubricate the spindle retainer, remove the turntable spindle by turning the spindle counterclockwise. Apply two or three drops of oil to the spindle hole.

Do not lubricate excessively.



To take off the dust cover, slide it toward the right, then lift it away as illustrated.