



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

Fazantendreef 17-19

8251 JR Dronten

T: 0321 769022

E: [info@pick-upnaalden.nl](mailto:info@pick-upnaalden.nl)

W: [www.pickupnaalden.com](http://www.pickupnaalden.com)

W: [www.pickupnaald.com](http://www.pickupnaald.com)

Facebook: [www.facebook.com/pickupnaalden](http://www.facebook.com/pickupnaalden)

Twitter: [twitter.com/Pickupnaalden](https://twitter.com/Pickupnaalden)

Google+ : [plus.google.com/114738445546162436900](https://plus.google.com/114738445546162436900)

# DENON

Hi-Fi Component

## OPERATING INSTRUCTIONS SERVO-CONTROLLED DIRECT DRIVE RECORD PLAYER

**DP-790**  
**DP-790W**



**NIPPON COLUMBIA CO., LTD.**

## IMPORTANT TO SAFETY

### WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

### CAUTION:

1. To prevent electric shock, do not remove bottom covers. Let qualified service men service your appliance.
2. If a needle, hair pin, coin or other metal object slip into a clearance or inside space of the set, it may cause electric shock or trouble. Exercise care not to do so.
3. Do not damage the power cord by placing a heavy object on it, nor pinching it between angular objects to prevent hazard. Do not cut and splice the power cord.

Each product of the DENON Hi-Fi Component Series, the fruit of a ripe experience in producing professional audio equipments enjoying reputation among radio and TV stations all over Japan, is designed and crafted for these dedicated audiophiles and music lovers.

Models DP-790 and DP-790W are ones of the high-performance record players of this DENON Hi-Fi Component Series, each consisting of a servo-controlled direct drive turntable and a universal tonearm mounted on a wooden cabinet.

You will find a truth on this record player engineered by DENON, a brand for professional audio equipment.

In order that you may enjoy the full benefit of the DENON DP-790 or DP-790W record player, please read these instructions carefully and use it accordingly.

## **MODEL NAMING**

Models DP-790 and DP-790W are different only in the cabinet colour. A Japanese SEN-grain cabinet is used for the DP-790 and a walnut-grain for the DP-790W. Except for the colour, these two models are identical in specifications and operation.

## — TABLE OF CONTENTS —

MAIN FEATURES .....	4
NAMES OF PARTS .....	6
SETUP AND ADJUSTMENT .....	7
CONNECTIONS .....	13
OPERATION .....	13
MAINTENANCE AND READJUSTMENT .....	15
SPECIFICATIONS .....	17

## — INSIDE PACKAGE —

Before setup, check all the following parts and accessories.

1. Main body (phono motor and cabinet)
2. Turntable platter
3. Turntable rubber mat
4. Dust cover
5. Tonearm counter weight
6. Head shell
7. Head shell accessories (for cartridge mounting)
8. Screw driver (for tonearm adjustment etc.)
9. 45 rpm record spindle adaptor
10. Stroboscope disk
11. Operating instructions

## **GOOD CARE KEEPS GOOD PERFORMANCE**

1. The speed detecting magnetic head is mounted very close to the magnetic coating on the inside surface of the turntable platter. DO NOT under any circumstances LOOSEN THE SCREWS fixing this head in place. Also be very careful when mounting or removing the turntable platter NOT TO SCRATCH THE MAGNETIC COATING with the magnetic head.
2. DO NOT BRING A MAGNET close to the magnetic coating of the turntable platter, NOR SCRATCH the coating, NOR WIPE IT WITH A SOLVENT (such as paint thinner, trichloroethylene, or toluene). If you do, the unit may not be able to maintain proper speed.
3. The tonearm will not move beyond the limits which range from the arm rest to the final record groove and a little extra. DO NOT FORCIBLY MOVE the tonearm.
4. If the power is switched ON with the turntable platter removed off, the motor will run without control at high speed, possibly causing trouble.
5. AVOID a place directly exposed to SUNRAYS OR EXTREME HEAT.
6. Also AVOID a place where VERY MOISTY OR DUSTY.
7. KEEP the player system AWAY FROM THE SPEAKER SYSTEM to avoid howling problems.
8. The motor bearings are filled with a special oil, so there is NO NEED FOR ANY LUBRICATION.

### **ALTERATION OF THE RATED VOLTAGE AND FREQUENCY**

The rated voltage and frequency for Model DP-790 and DP-790W correspond to the main's voltage and frequency used in the country to which it is shipped. (The rated voltage and frequency are shown on the rating label on the set.) If it is necessary to alter the rated voltage and/or the rated frequency, CONTACT YOUR DENON DEALER.

## **MAIN FEATURES**

### **1. DIRECT DRIVE**

The turntable platter is directly driven by the motor shaft. Since it employs no drive transmission devices such as belts or idlers, there is almost none of the wow, flutter, or ramble caused by such mechanisms. Direct drive also reduces the number of parts which are subject to friction and wear, so the high performance characteristics of the new unit will last for a long period of use.

### **2. SPEED DETECTION USING MAGNETIC RECORDING**

Through the long experience in magnetic recording, DENON established its own servomechanism by detecting recorded pulses on a magnetic coating applied to the inside circumference of the turntable platter.

In addition to this unique servomechanism, DENON developed a special method of recording these pulses accurately. Since the error of the recorded pulse width can be kept less than 0.01%, a high resolution detecting frequency (as high as above 500 Hz) allows a higher gain and greater stability of the servo circuit. The result is superior response and stability characteristics, and high performance with wow and flutter less than 0.03% w.r.m.s. (weighted root mean square)

### **3. AC SERVO MOTOR**

DENON series high performance turntables utilize an AC motor. Moreover, by devoting attention even to the waveform of motor driving current, extra-ordinary smooth operation has been attained, with superb characteristics of wow, flutter and ramble.

### **4. SPEED ALMOST UNAFFECTED BY LOAD CONDITIONS AND EXTERNAL CONDITIONS**

The exclusive DENON recording method employed for detecting speed allows a high gain and stability in the servo system. Any change in load conditions such as stylus pressure or the position

of stylus on the record, or external conditions such as fluctuations in voltage or frequency of the power supply or temperature change, have practically no effect on the turntable speed. Speed adjustment knob, which is click-stopped at normal speed, is conveniently used for pitch tuning in the range of  $\pm 3\%$ .

#### **5. COMBINED POWER AND SPEED SWITCH**

The rotating speed is switched by changing the circuit electronically. The speed selector switch is coupled with the power switch so that one touch controls the rotation and power on/off at the same time.

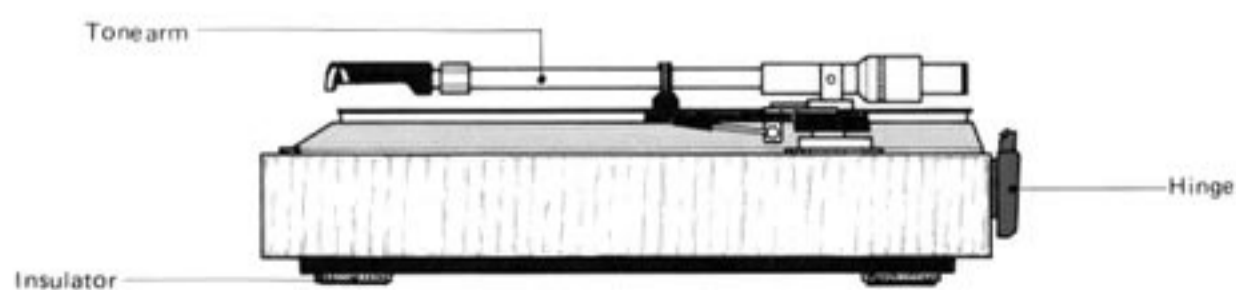
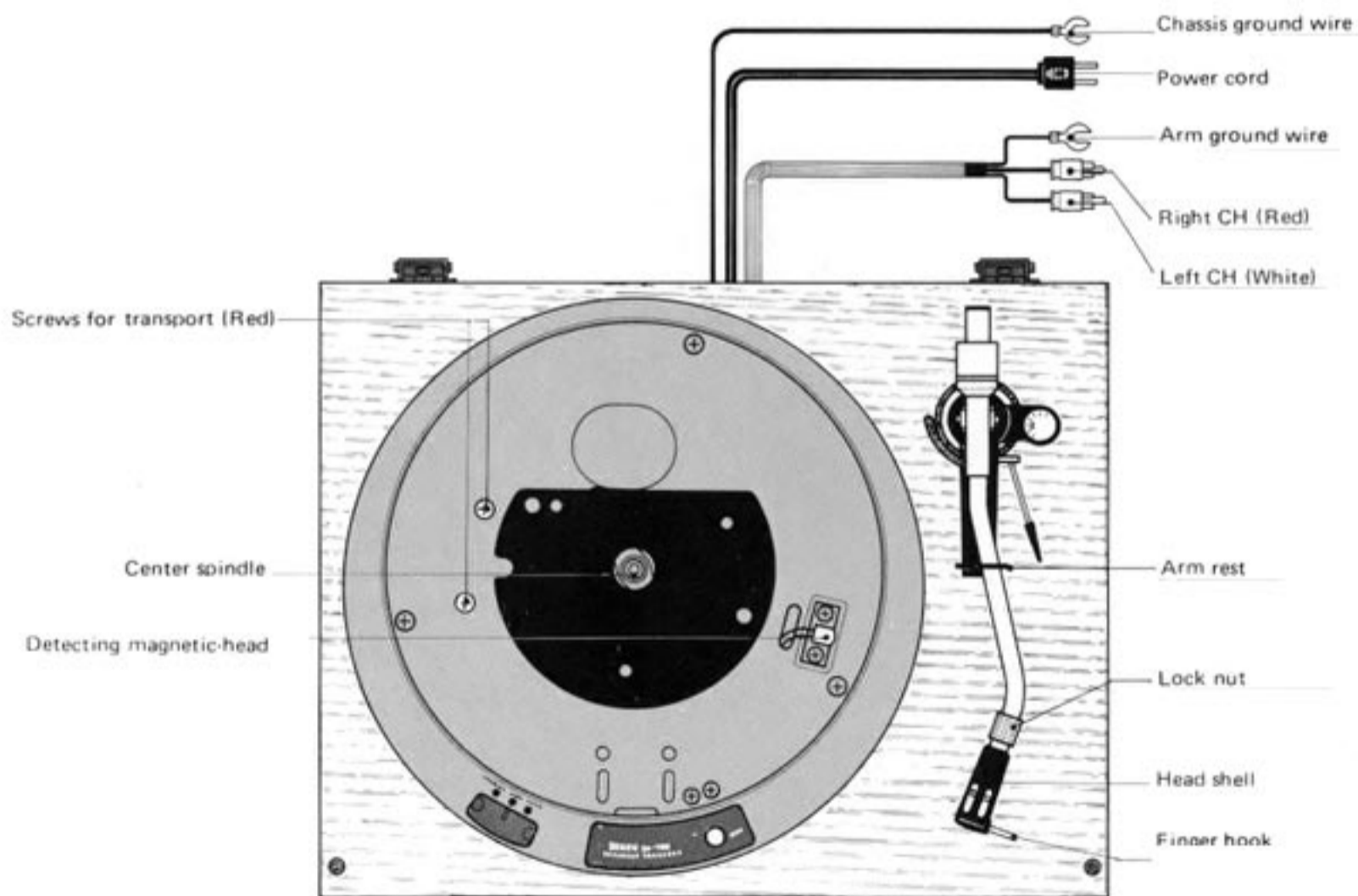
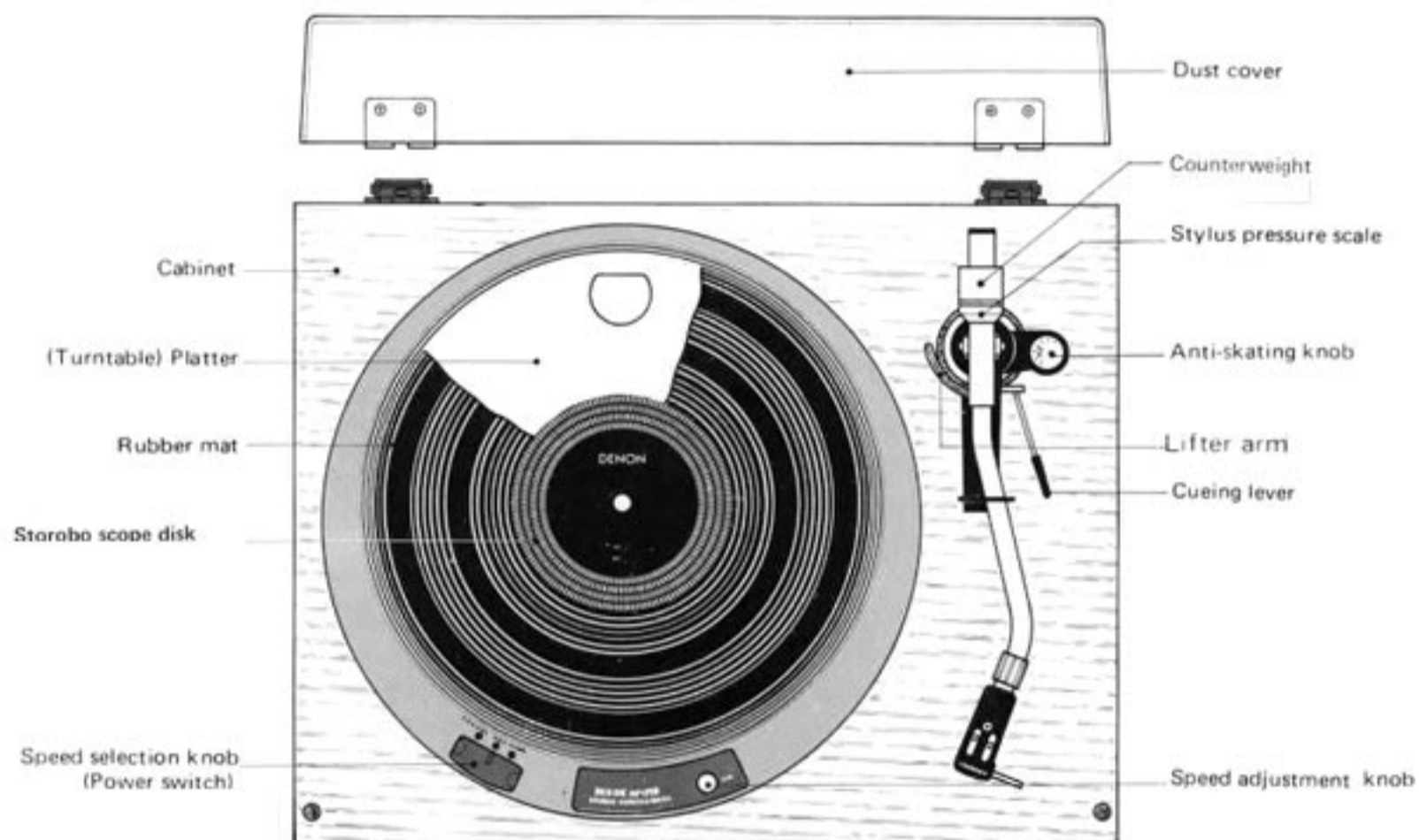
#### **6. SIMPLE AND EASY-TO-USE TONEARM**

A universal tonearm with head shell is S-shaped for lateral balance, light in weight and rigid in structure. It is provided with a direct reading stylus pressure scale. The pivot section uses the high precision bearings, the tempered and polished pivot, and other high accuracy parts which give the tonearm high sensitivity and excellent tracking ability. Also, thanks to the anti-skating mechanism, skating of the stylus when it is lowered onto the record, and drifting of the tonearm, etc., are well eliminated, giving greater tracking stability.

#### **7. HOWLING PREVENTION**

DENON has devised a special elastic material (viscoelastic material) of just the very right viscosity, which is placed between the cabinet and the base of the tonearm, to isolate the tonearm from vibrations through the cabinet. In this and other ways, such as using high-quality insulating materials, and inserting reinforcing materials in the cabinet, great care has been taken to prevent howling.

# NAMES OF PARTS



## SETUP AND ADJUSTMENT

### 1. MOUNTING THE TURNTABLE PLATTER

- 1) Before mounting the platter, remove the two red clamp screws which have fastened the power transformer during transit.

**NOTE:** If the turntable is used without removing these screws, power transformer vibrations may be directly transmitted to the platter. In case of shipping the equipment again, fasten the power transformer with the clamp screws.

- 2) To attach the platter to the motor shaft, place your fingers through the two holes in the platter as shown in Fig. 1 and gently lower the platter onto the motor shaft. When removing the platter, hold it in the same manner and lift it straight up off the shaft.

**NOTE:** At this point, wipe off grease from the motor shaft with a soft cloth.

- 3) After the platter has been mounted in place, place the rubber mat over the platter, centering it on the spindle (motor shaft).

### 2. ATTACHING THE COUNTERWEIGHT

- 1) With the stylus pressure scale facing front as

shown in Fig. 2, slide the counterweight from the rear end of the tonearm to the pin (white projection).

- 2) Push in the pin with your fingertip, lightly push the counterweight to conceal the pin under the stylus pressure scale.

- 3) After the pin has been concealed, turn the

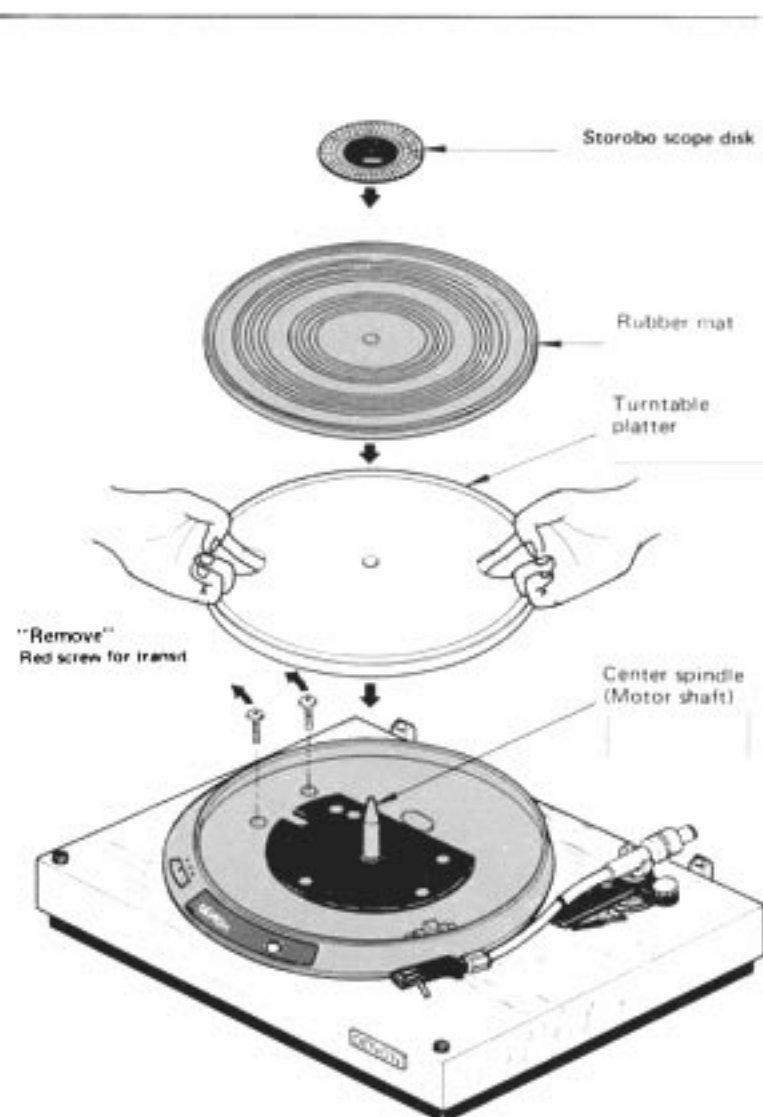


Fig. 1 Mounting the Turntable Platter and Rubber Mat

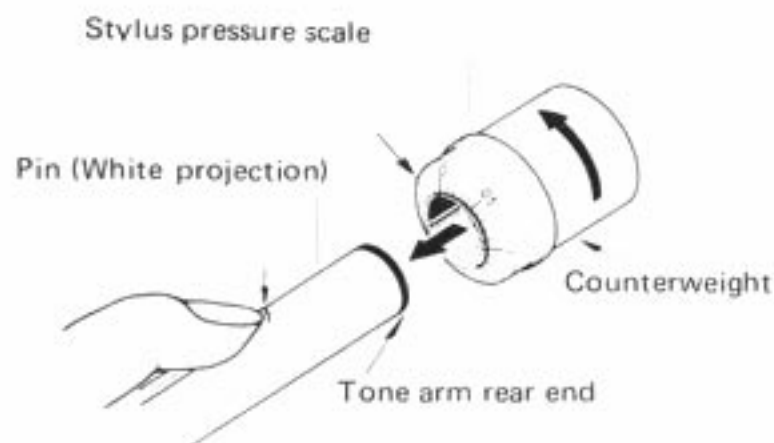


Fig. 2 Attaching the Counterweight

counterweight in the arrow direction (Fig. 2) while lightly pushing it so that it will be moved until the tonearm rear end is exposed as shown in Fig. 9.

### 3. MOUNTING YOUR CARTRIDGE IN THE HEAD SHELL

- 1) The head shell uses the E.I.A. standard 4P connector. The following items are included with this unit for mounting the cartridge on the head shell:

screws (M2.6 x 10)	2 pcs.
screws (M2.6 x 16)	2 pcs.
nuts	2 pcs.
nylon washers	2 pcs.
spacer	1 pc.

Fig. 3 shows how it is mounted. Almost any cartridge on the market can be mounted on this shell, but the way of fixing may vary with a particular cartridge, so follow carefully the mounting instructions accompanying your cartridge.

**NOTE:** Refer also to the instructions of the cartridge for maintenance and servicing.

- 2) As two pairs of screws different in length are prepared as accessories, select one of them

suitable for your cartridge. Determine the position of the fixing screw head either to face upper side of the shell or to the body of the cartridge, so that the stylus protection cover can be suitably on. Utilize the nylon washers attached not to injure the shell.

**NOTE:** The spacer is recommended to be used for improved shell to cartridge contact and stability.

- 3) As shown in Fig. 3 the lead wires are colour-coded; red for right channel (hot), green for right ground, white for left channel (hot) and blue for left ground. Carry out connections correctly, paying enough attention to the con-

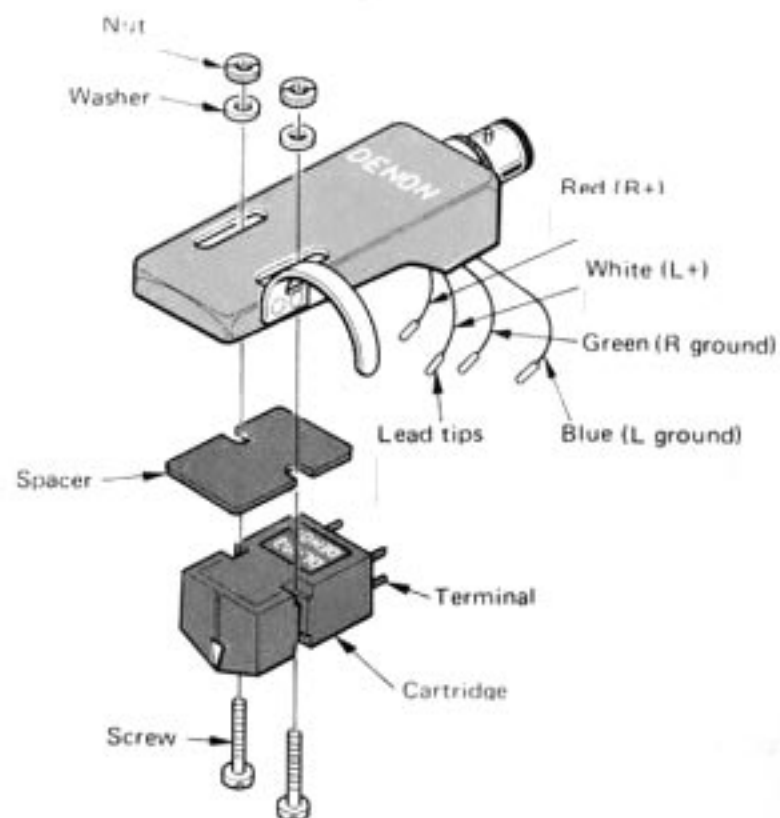


Fig. 3 Mounting the Cartridge in the Head Shell

nection of the terminals on the cartridge side. A wrong connection may cause reversed-channels, abnormal sound image position or hum noise.

- 4) When installing the cartridge, first fix it lightly with screws so that it can be moved slightly. Bring the shell and cartridge parallel to each other lengthwise (Fig. 4) and perpendicular to each other viewed from front (Fig. 5). And then fasten the cartridge securely with the stylus point at the position as shown in Fig. 6 to obtain a proper overhang for the tonearm of this unit.

#### 4. ATTACHING THE HEAD SHELL TO THE TONEARM, AND DETACHING

- 1) Align the guide pin on the connector portion of the head shell with the slot in the tip of the tonearm, and slide the head shell in, as shown in Fig. 7.
- 2) Turn the lock nut in the direction shown by the arrow in Fig. 7, and firmly tighten the head shell to the tonearm.
- 3) To remove the head shell from the tonearm, turn the lock nut in the direction opposite the arrow, and gently slide the head shell off.

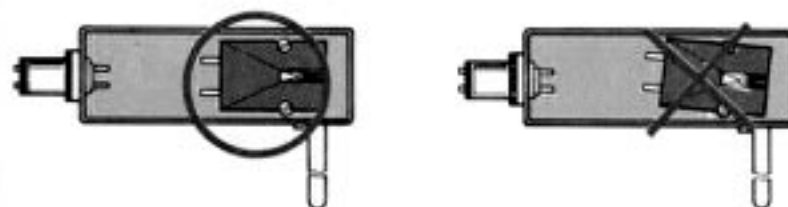


Fig. 4 Cartridge Alignment A)



Fig. 5 Cartridge Alignment B)

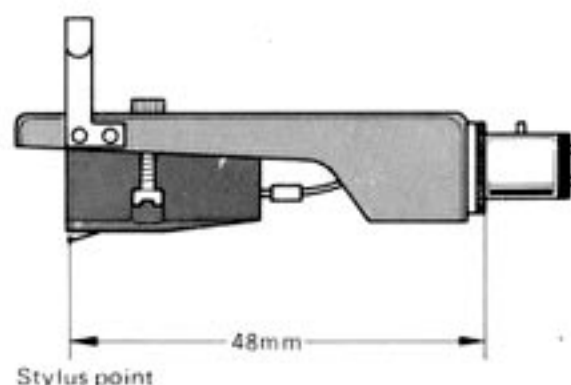


Fig. 6 Stylus Tip Position

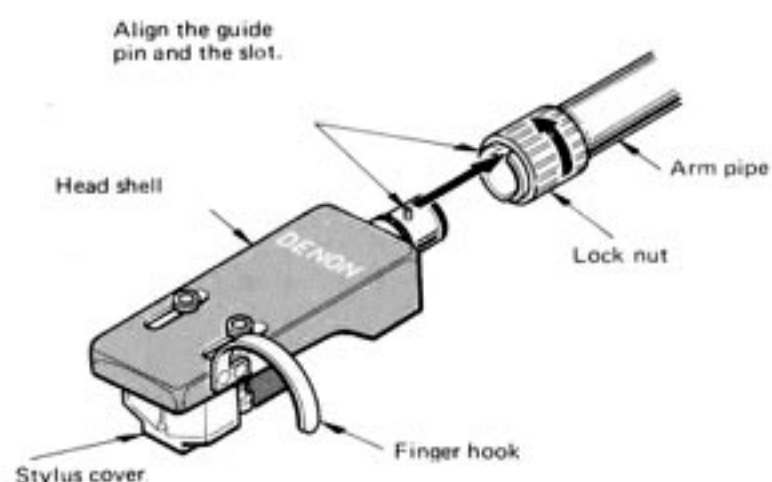


Fig. 7 Attaching the Head Shell

## 5. ADJUSTING THE TONEARM HEIGHT

Place a record (recommended not new) on the rubber mat and bring the stylus on the record without turning the turntable. The cueing lever must be lowered. Check whether the tonearm and the record are parallel to each other. If not, loosen the two screws on the back of the arm base (Fig. 8) with a screw driver, and raise or lower the tonearm to obtain a parallel. After the adjustment, retighten the screws securely.

**NOTE:** To avoid stylus damage, do not remove the stylus protection cover during adjustment, except when you place the stylus on the record to check the parallel.

## 6. ADJUSTING THE STYLUS PRESSURE

Adjust the stylus to the correct pressure as mentioned below. (Fig. 9,10).

- 1) Remove the stylus cover from the cartridge.
- 2) Set the anti-skating knob to "0" on the scale. (Fig. 9)
- 3) Lower the cueing lever, remove the tonearm from the arm rest, turn the counterweight so that the tonearm will balance horizontally. (If

the shell end is down, turn the counterweight opposite to the arrow direction as shown in Fig. 9, and if the shell end is up, turn the

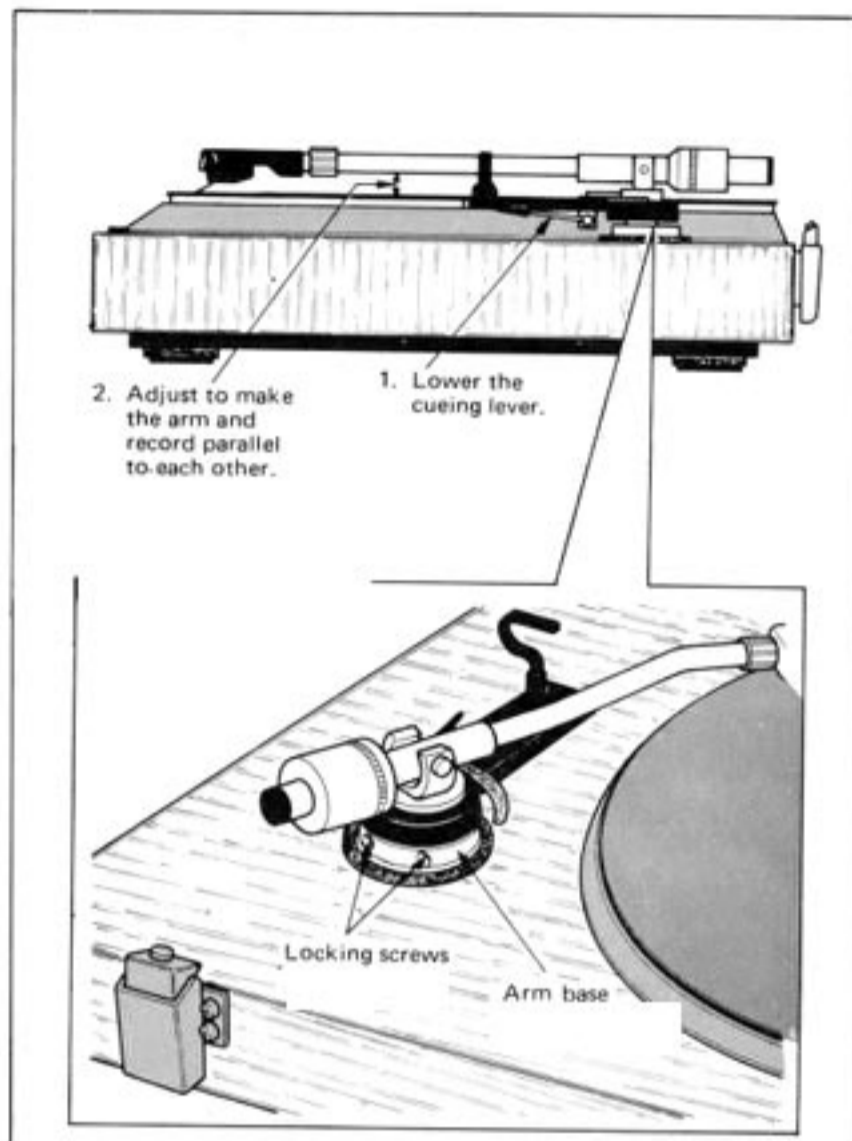


Fig. 8 Tonearm Height Adjustment

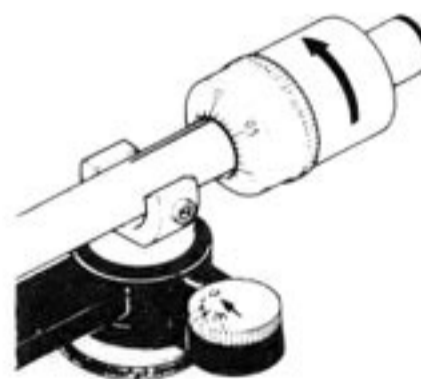


Fig. 9 Horizontal balance with Antiskating set to 0.

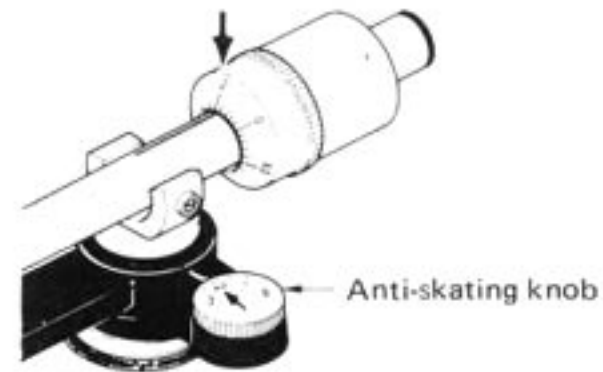
counterweight in the arrow direction in the figure.)

**NOTE:** Hold the finger hook with your fingertip to prevent the shell from falling until the stylus hits the rubber mat, or from jumping up. Release lightly the finger hook momentarily and see if the tonearm is horizontally balanced.

- 4) Keep the counterweight from turning and turn only the stylus pressure scale until the "0" on the stylus pressure scale is in line with the tonearm reference line. (Fig. 9) (Since the tonearm is brought to horizontal balance by this time, the stylus pressure will be zero now.)
- 5) Turn the counterweight to the arrow direction until your desired stylus pressure 2 grams, for instance as in Fig. 10 is set in line with the tonearm reference line. (The counterweight and the stylus pressure scale are coupled with friction to each other so that, when the counterweight is turned, the stylus pressure scale will turn together with it, however contrarily, as the stylus pressure scale is turned, the counterweight will not turn, because the friction between the counterweight and the tonearm body is larger than the friction between the counterweight and the stylus pressure scale.)

## 7. ADJUSTING THE ANTI-SKATING KNOB

Adjust the anti-skating knob until the scale on the anti-skating knob and the pointer indicate the same number as the stylus pressure for the cartridge you are using. Fig. 10 shows the position of the anti-skating knob for a stylus pressure of 2 grams.



**Fig. 10 Stylus pressure and Antiskating set to 2 grams.**

## 8. INSTALLING THE DUST COVER AND ADJUSTING ITS STOP ANGLE

- 1) Align the slots of the dust cover fittings with the tabs on the hinges, and slide them firmly in the arrow direction shown in Fig. 11. When removing the dust cover, open it all the way and then pull it off the hinges in the opposite direction of the arrow.

**NOTE:** If the dust cover fittings are not pushed completely onto the hinges, the dust cover will not close completely. When mounting or removing the dust cover, grip the cover close to the fittings as shown in Fig. 11.

- 2) The dust cover hinges are adjusted at the factory so that the dust cover will stay at approximately  $45^{\circ}$  when it is opened. If you wish to adjust this angle, turn the adjusting screw on the bottom of each hinge with a Philips screwdriver as shown in Fig. 12. Turning the screw clockwise (seen from bottom) decreases the stop angle, and turning it counterclockwise increases it.

## 9. ADJUSTING THE INSULATOR HEIGHT

The insulators (rubber feet) can be individually



Fig. 11 How to Hold the Dust Cover when Attaching and Detaching it



Fig. 12 Mounting the Dust Cover and Adjusting the Stop Angle

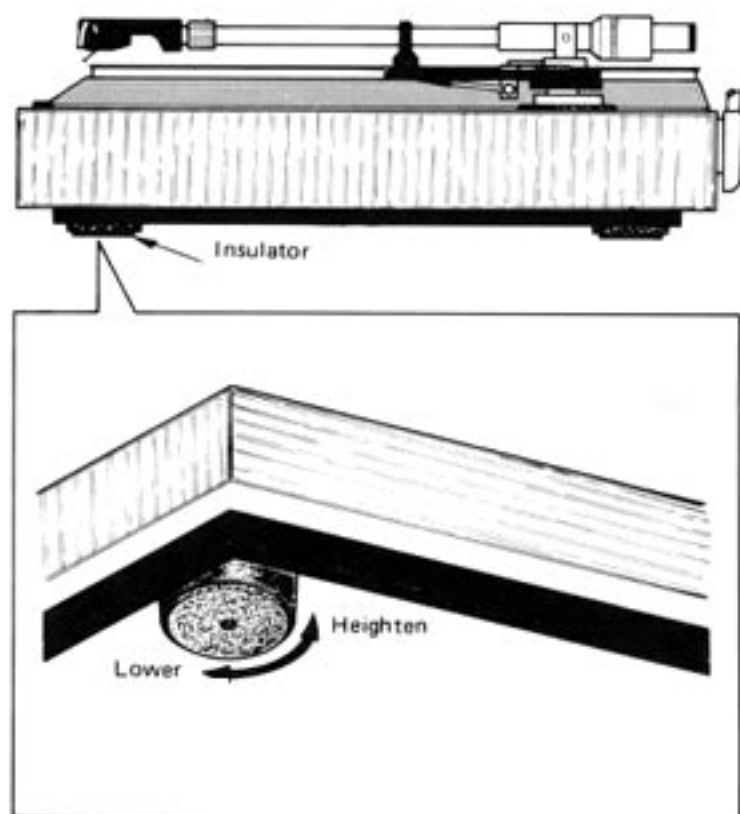


Fig. 13 Insulator Height Adjustment

adjusted. After placing the set where you are going to use it, adjust the height of each insulator until the rubber mat is level. (Fig. 13)

## CONNECTIONS

After assembling your set, make the following connections. (See Fig. 14)

- 1) Correctly connect the output cord pin plugs to your amplifier's PHONO input jacks, making sure that its LEFT (white) and RIGHT (red) pins are connected to the LEFT and RIGHT jacks respectively.
- 2) Connect the Y-shaped lugs of the arm ground wire built into the output cord and of the sep-

arate chassis ground wire to your amplifier's GND (ground) terminal.

**NOTE:** The chassis ground wire may not be provided for models fitted with three core power cord.

- 3) Connect the power cord plug to a power outlet whose voltage is identical with the voltage specified for the set.

## OPERATION

### 1. SPEED SELECTION AND POWER ON-OFF

The speed selection knob is interlocked with the power switch. When the speed selection knob is moved to "33" or "45" as appropriate to the speed specified on your record, the power will be switched on to start turning the platter.

When the speed selection knob is moved back to the OFF position, power will be switched off and the platter will stop.

### 2. SPEED ADJUSTMENT

The speed adjustment knob is provided with a click-stop. When bringing the dot on the knob toward the "normal" indication, the knob will be

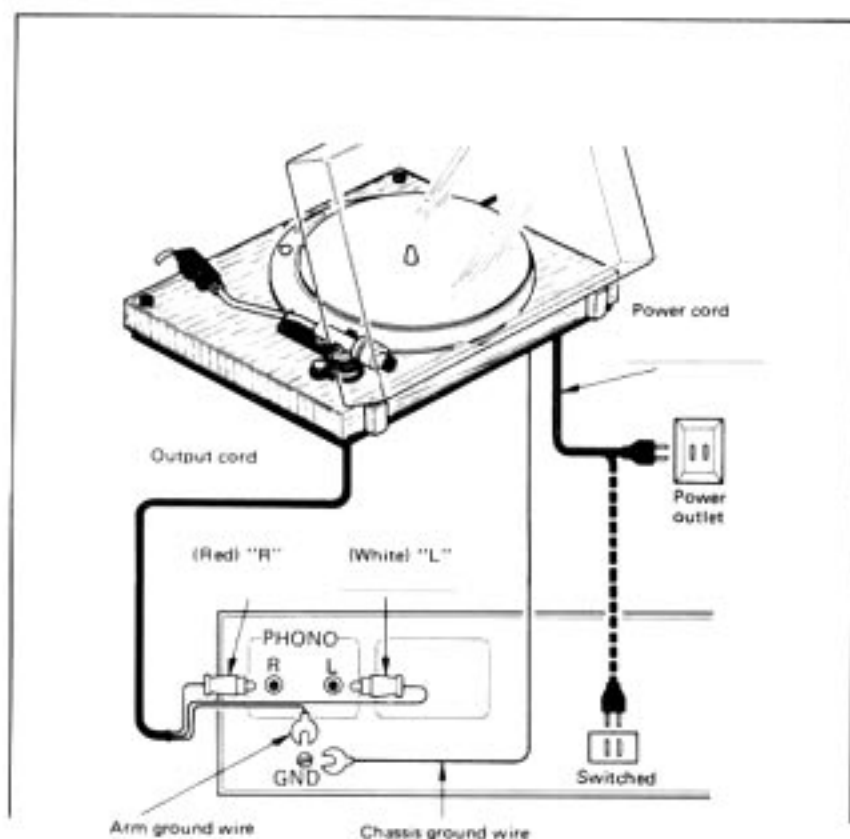


Fig. 14 Wire Connection

lightly locked. The turntable speeds are pre-set to nominal 33-1/3 and 45 r.p.m. at this position before shipment.

For normal use, a record can be played with a negligible speed error at this click-stop position. When a pitch tuning or tempo timing is desired, turn the knob clockwise to "+" direction to increase speed and counterclockwise to "-" direction to decrease speed. The variation range is over  $\pm 3\%$  of both "33" and "45" nominal speeds.

**NOTE:** When the strobo scope is played on the turntable and observed under a fluorescent lamp, an appropriate pattern to the selected speed will appear still as the speed adjustment knob is at the click-stop position.

Should the appropriate strobo pattern be considerably running at the click-stop position, refer

to "READJUSTING THE NORMAL SPEED" on page 16.

**NOTE:** Care should be taken to avoid accidental drop of the strobo scope disk on a record. It is not advisable to play through a record with the strobo scope on it.

### 3. HOW TO USE THE CUEING LEVER

The cueing lever is used when placing the stylus on your record or lifting it off the record after or during the play.

First raise the cueing lever, hold the finger hook on the head shell, bring the stylus over the record and then lower the cueing lever. Its oil damped mechanism will slowly lower the stylus on the record. (Fig. 15)

After the record has been played, or when you wish to stop it on the way, slowly raise the cueing lever so that the stylus will leave the record surface.

**NOTE:** If the cueing lever is held down with your hand when it is lowered, the lifter arm will not lower because it is structurally so made. The lifter arm begins to lower when your hand is off it.

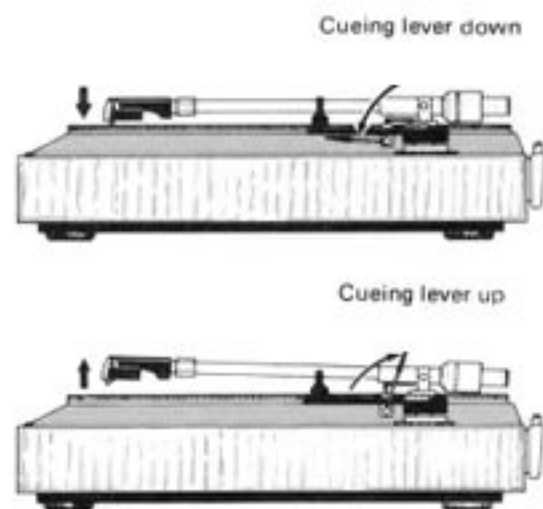


Fig. 15 How to Use the Cueing Lever

## **MAINTENANCE AND READJUSTMENT**

### **1. CLEANING OF RECORD SURFACE AND STYLUS**

If a record is played with dust staying on the record or on the stylus, the stylus will not be able to perfectly trace the groove. This does not only deteriorate tonal quality but also quickens record and stylus wear. Use a quality cleaner for records and a stylus brush for the stylus tip to take off dust.

### **2. EXCHANGE OF CARTRIDGE**

It is one of the pleasure to play with different cartridges. It will be more convenient if you obtain a new cartridge shell together with the cartridge itself. Individual cartridge can be mounted on its own shell with proper stylus position free from repetition of delicate assembling. (A DENON shell is recommended because of its rigidity and lightweight.)

**NOTE:** When a different cartridge is plugged, the weight will be different and so will be the stylus pressure. Do not forget to adjust the stylus pressure. Refer to "ADJUSTING THE STYLUS

PRESSURE" on page 10, 11.

Also adjust the tonearm height if necessary. Refer to "ADJUSTING THE TONEARM HEIGHT" on page 10.

### **3. LUBRICATION**

As stated in the precautional note, there is no need for any lubrication.

### **4. READJUSTING THE NORMAL SPEED**

While the speed adjustment knob is at the click-stopped normal position, the strobo pattern may sway back and forth or slightly run in either direction when observed with the attached strobo scope under a fluorescent light. This is considered due more to a main's frequency than to rotating speed variation.

A little or very slow pattern movement will give practically no problem. In case the pattern flow is fast at normal position, it is re-adjustable by the speed control preset resistor at the bottom

(Fig. 16) as follows:

- 1) Place the strobo scope on the rubber mat.
- 2) Set the speed adjustment knob at the click-stop normal position.
- 3) Slide the speed selection knob to "33" and adjust the speed control preset resistor through the hole indicated as 33 with a small screw driver to obtain a still strobo pattern.
- 4) Change over the speed selection knob to "45" and do the same thing through the hole for 45.

## 5. READJUSTING THE ARM LIFTER

The arm lifter has been adjusted prior to shipment, but if the cartridge stylus will not land on the record when the cueing lever and lifter arm are lowered, or if the stylus remains on the record even when the cueing lever is raised and so is lifter arm, loosen the lifter cylinder fixing screw and raise or lower the cylinder (Fig. 17). Make an adjustment, when the cueing lever is lowered, so that the clearance between the lifter arm and

the arm pipe will become 0.5 mm to 1 mm. After this adjustment, retighten the screw securely.

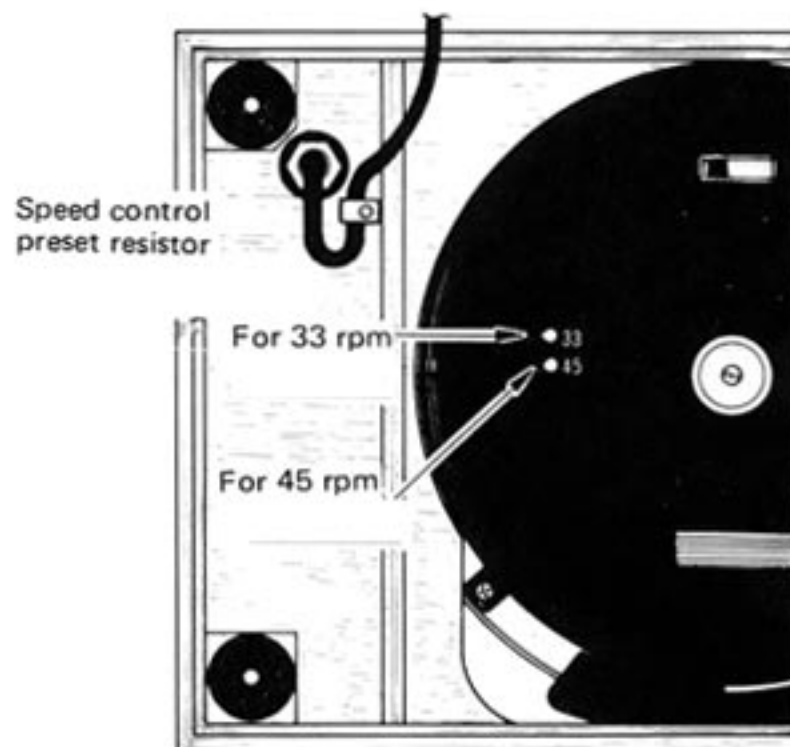


Fig. 16 Speed Readjustment

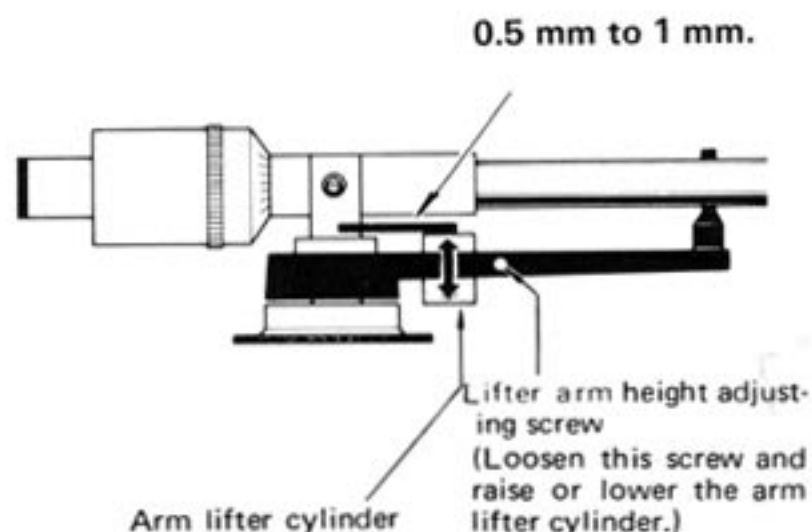


Fig. 17 Arm Lifter

## SPECIFICATIONS

### ● PHONO MOTOR

**Driving system:** Servo controlled direct drive

**Speed:** 33-1/3 rpm and 45 rpm

**Speed adjusting range:** More than  $\pm 3\%$

**Wow and flutter:**

Less than 0.018% wrms<sup>1)</sup>

**S/N ratio:** More than 75 dB (DIN-B)

**Starting characteristic:**

Less than 1/2 turn to reach normal speed  
(at 33-1/3 rpm)

**Turntable platter:**

1.1 kg aluminium diecast, 300 mm in diam.

Mass of inertia of 160 kg.cm<sup>2</sup>

**Motor:** AC torque motor

**Speed control system:**

Frequency detection servo system

### ● TONEARM

**Type:** Static balance type

**Effective length:** 244 mm

**Overhang:** 14 mm

**Tracking error:** Less than 2.5°

**Stylus pressure range:**

0 to 2.5g (1 degree corresponding to 0.1g),  
direct reading

**Applicable cartridge weight:** 5 to 11g

**Shell weight:** 8.5g excluding accessory

**Arm height adjusting range:**

42 to 47 mm (from cabinet surface to  
arm pipe center)

**Head shell connector:**

EIA standard 4P connector

**Arm lifter:** Oil damp type

### ● GENERAL

**Rated voltage and frequency:**

120, 200, 220, 230, 240V, 50/60 Hz  
(Rated voltage and frequency are selected  
to match those used in the country where  
the set will be used. They are shown on  
the rating label on the set.)

**Power consumption:** 16W

**Dimensions:**

485 mm (W) x 405 mm (D) x 170 mm (H)  
(with dust cover closed)

**Weight:** 10.7 kg

- The above specifications and outward appearance are subject to change for improvement without notice.

**Note 1):** Measured by DENON method using a magnetic pulse wheel.

---

# DENON

---

**NIPPON COLUMBIA CO., LTD.**

No. 14-14, AKASAKA 4-CHOME  
MINATO-KU, TOKYO 107 JAPAN  
TELEX: JAPANOLA J22591  
PHONE: (03) 584-8111

5118025105  
Printed in Japan