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DIRECT-DRIVE TURNTABLE

KD - 650 600

INSTRUCTION MANUAL



This manual has been prepared for the KD-650 and KD-600. However, since the KD-600 is sold without a tone arm, the sections that apply to the tone arm should be ignored by KD-600 owners.

 **KENWOOD**

INTRODUCTION

Your choice of this product indicates that you are a devotee of excellence in sound reproduction. We appreciate your patronage and take pride in the long tradition of quality components that the name Kenwood represents.

So that you can get the most out of your KD-650/KD-600, we suggest that you take the time to read through this manual before you hook up and operate your system. This will acquaint you with operating features, and system-connection considerations, so that your listening pleasure will be enhanced right from the start. You will notice that in all aspects of planning, engineering, styling, operating convenience and adaptability, we have sought to anticipate your needs and desires.

Keep this manual handy for future reference.

FOR YOUR RECORDS

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your Kenwood dealer for information or service on this product.

Model: KD-650 Serial Number: _____

KD-600 Serial Number: _____

UNPACKING

Unpack the unit carefully and make sure that all accessories and cables are put aside so they will not be lost.

Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

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

FEATURES

- Direct Drive DC motor minimizes rumble components at the low limit of audibility.
- Precision quartz servo reference ensures unprecedented speed accuracy regardless of power frequency variations or other outside influence.
- DC servo system corrects rotational speed by comparison with the quartz reference despite variations in stylus drag or bearing friction.
- Touch-type switches provide quiet, effortless, but positive mode selection.
- Precision tone-arm (KD-650) ensures outstanding trackability for a wide range of cartridges.
- Specially developed multi-pole/multi-slot DC motor drives the heavy turntable with minimum "cogging effect" to provide exceptional rotational stability.
- Cabinet material formulated to reduce resonance and minimize acoustic feedback.
- High torque motor employs semiconductor commutation to eliminate electrical "hash" and wear found in conventional brush/commutator systems.
- Oversize tone-arm base minimizes tone-arm resonance.
- Adjustable vibration isolators facilitate precision leveling and filter mechanical vibration from the mounting surface.

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TO THE CUSTOMERS WHO PURCHASED KD-600

- Tone arm can be mounted without removing the bottom plate. To prevent an electric shock, do not open the bottom plate.

BEFORE APPLYING POWER

IMPORTANT: Read carefully before you plug this unit into a power outlet.

U.S.A. AND CANADA

- Units shipped to the U.S.A. and CANADA are designed for operation on 120 volts AC only. These units are not equipped with an AC Voltage-Selector switch and the following discussion of such a switch should be disregarded.

ALL OTHER COUNTRIES

- Units shipped to countries other than the U.S.A. and CANADA are equipped with an AC Voltage-Selector switch at the rear.

Refer to the following paragraph for the proper setting of this switch.

AC VOLTAGE SELECTOR

- This unit operates on 120 V or 220 – 240 V AC. The AC Voltage Selector is preset at the factory for the area to which the unit is to be shipped. However, to avoid damage due to an incorrect setting because of local variations or shipping errors, make the following checks.

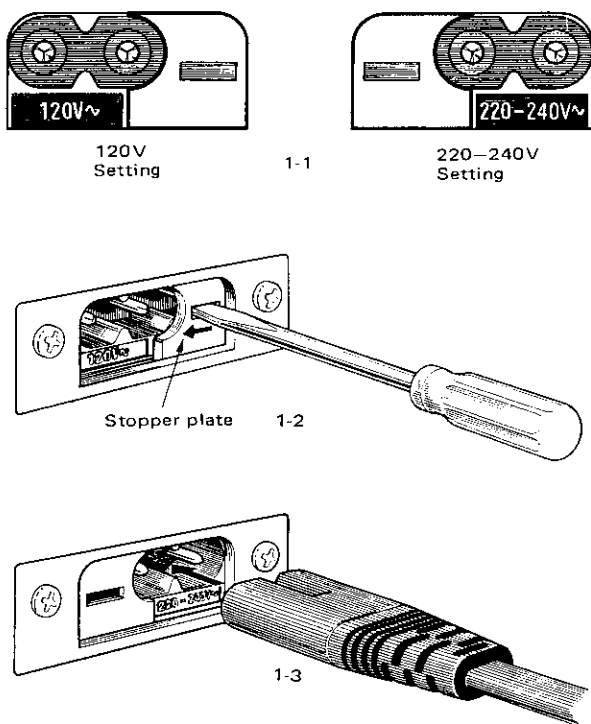


Fig. 1

- Before plugging-in this turntable make sure that the position of the AC Voltage-Selector conforms to your line (mains) voltage. If not, it must be reset. See Fig. 1-1.
- To reset the selector, slide the stopper plate to the opposite side with a screwdriver or other pointed tool. (Fig. 1-2)
- Insert power cord securely. (Fig. 1-3)

Our warranty does not cover damage caused by excessive line voltage due to the improper setting of the AC Voltage Selector.

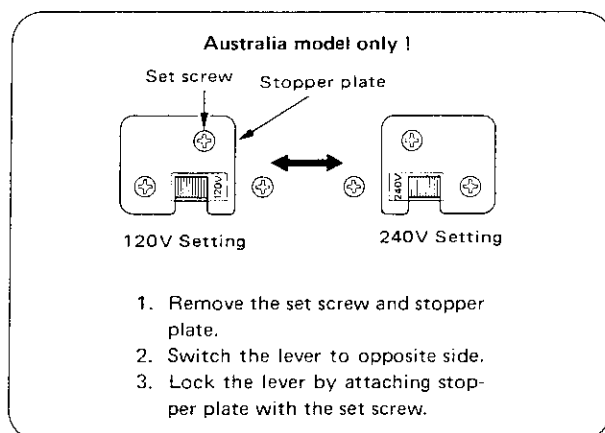
POWER FREQUENCY

This turntable is driven by a DC motor, and will work equally well on 50-Hz or 60-Hz power frequencies.

INSTALLATION

- Install the unit on a flat, vibration-free, rigid table or stand.
- Do not place the unit near a heat producing equipment such as a radiator. Avoid direct sunlight.
- The unit may not function properly when used in atmosphere of extremely low temperature. The ideal ambient temperature is over $+5^{\circ}\text{C}$.
- Do not store or use the unit in a dusty location.
- Keep the unit away from sources of magnetic fields such as TV sets, speaker systems, radios or magnetized objects.
- Operate the unit on rated power supply voltage ($\pm 5\%$).

Irregular power voltage will result in incorrect operation.



PARTS NOMENCLATURE

- Immediately after unpacking, check the parts to confirm that none are missing.
- Assemble the turntable, according to the instructions on Page 5.

- In the case of KD-600, two tone arm bases and one hexagonal wrench are supplied as accessories.
(One arm base is fitted to the unit body.)

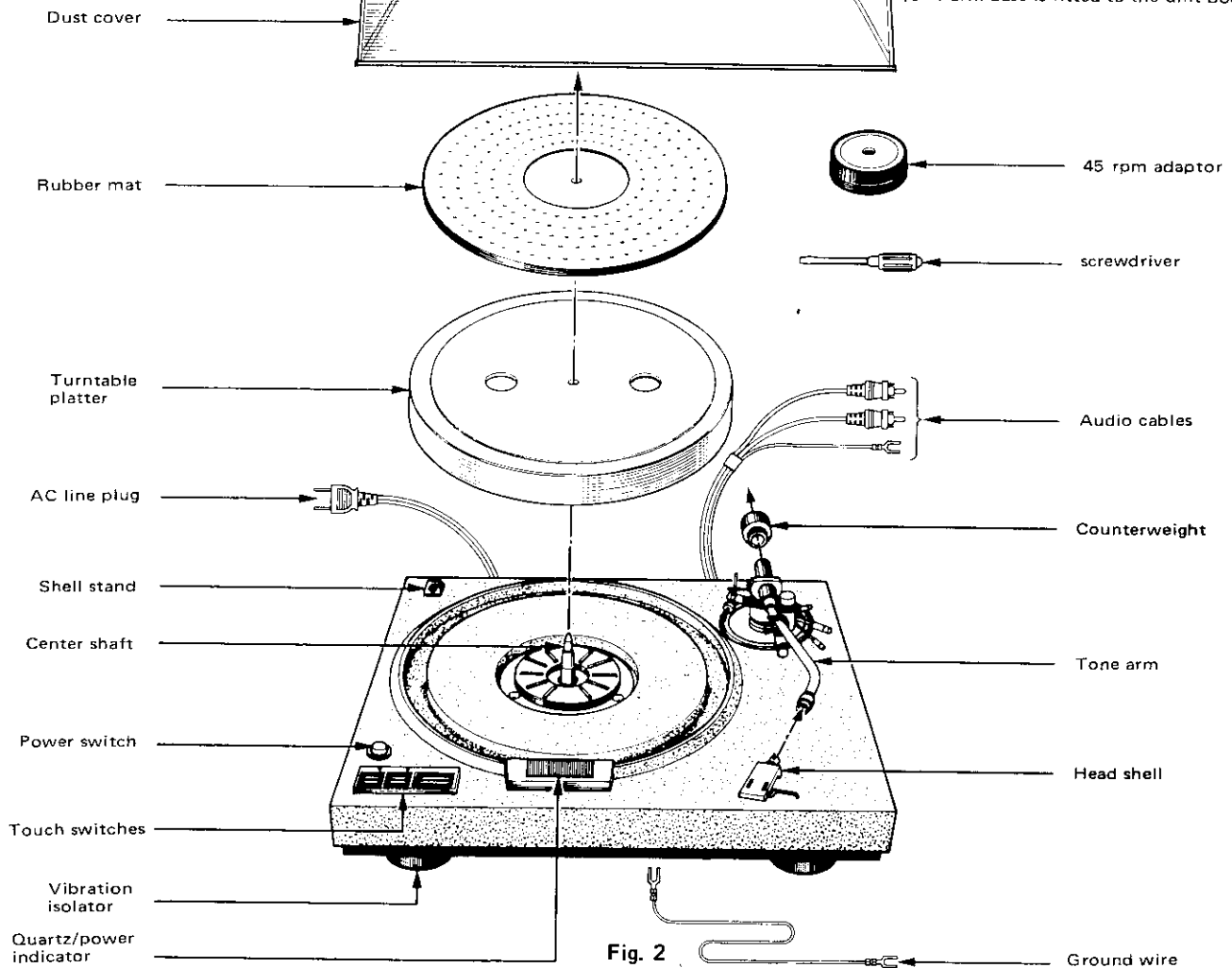


Fig. 2

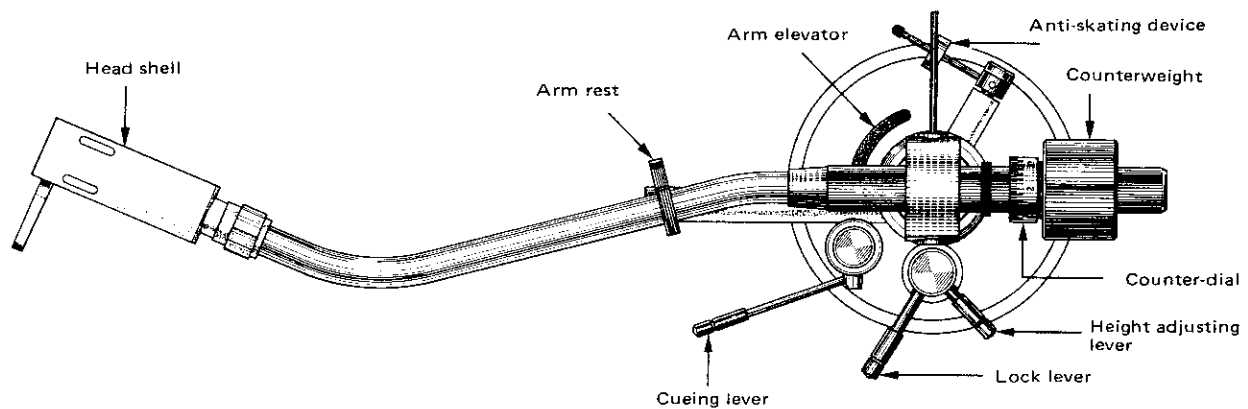


Fig. 3

ASSEMBLY

■ Assemble parts in the sequence indicated.

① Turntable Assembly Installation

This turntable assembly is quite heavy so it should be placed in its final location before proceeding. Be sure to choose the most suitable place. See "Installation" on page 3. Install the turntable assembly with its four vibration isolators turned fully clockwise.

② Connections

Connect the audio cables, ground wire, and the power supply cord to your amplifier.

Note:

Be sure to keep the power switch at "OFF". Turn off amplifier power when making connections.

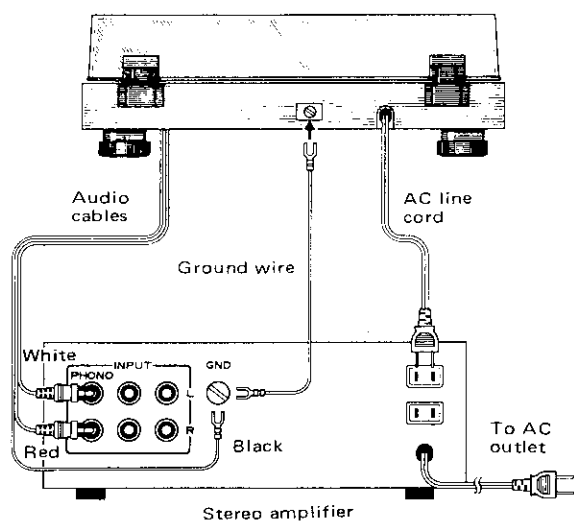


Fig. 4

③ Turntable Platter Installation

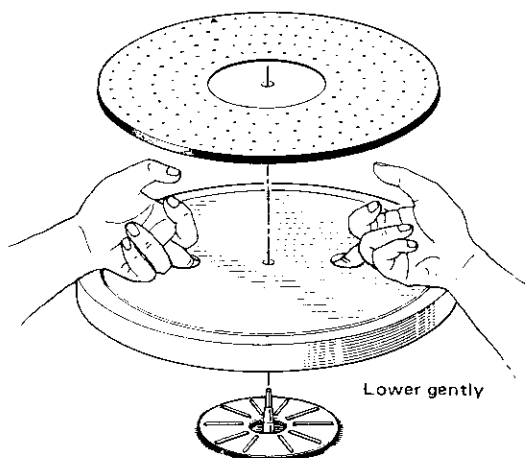
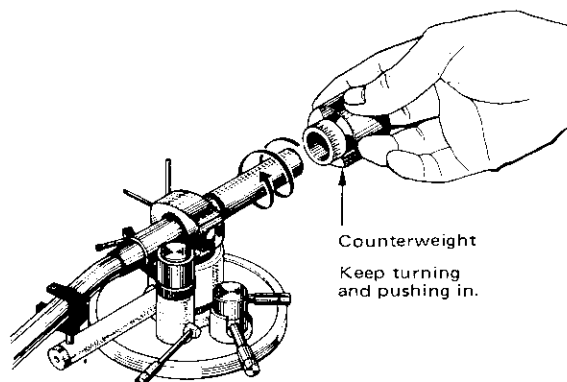


Fig. 5

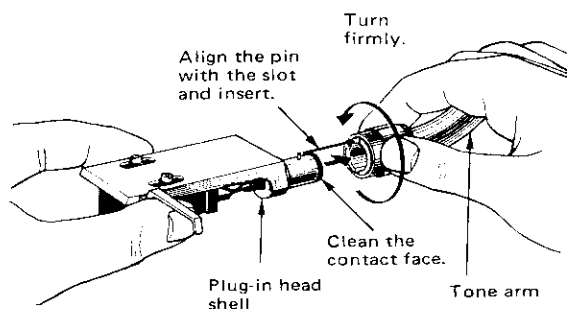
④ Counterweight Installation



After pushing the counterweight fully into place, turn it and confirm its freedom of movement.

Fig. 6

⑤ Head-Shell Installation



Refer to Page 6 for cartridge installation.

Fig. 7

⑥ Dust Cover Installation

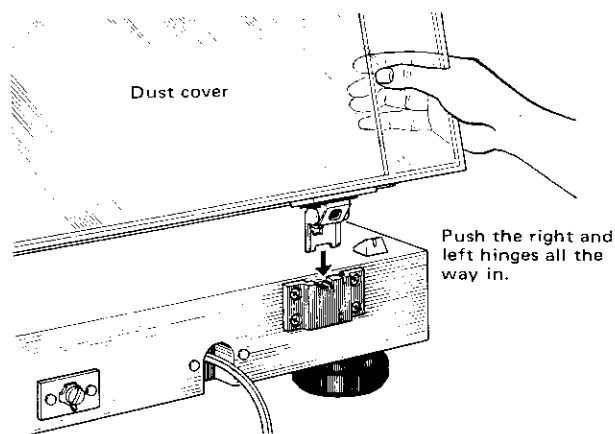


Fig. 8

7 Levelling the Assembly

Close the dust cover. Now check the turntable assembly to make sure that it is perfectly level. To raise any corner, turn the isolator at that corner counterclockwise. Turn isolator clockwise to lower that corner.

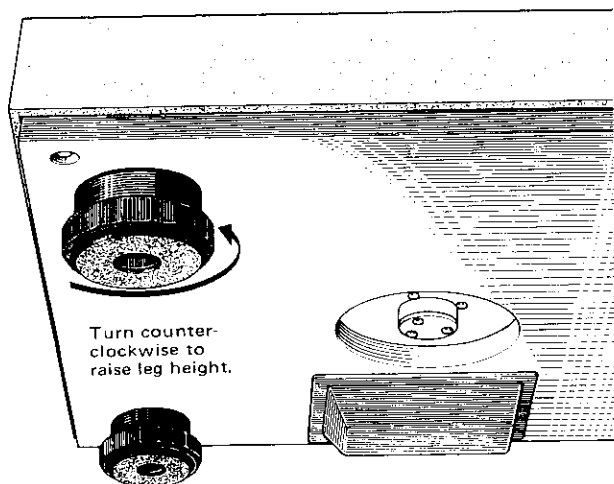


Fig. 9

- Remove the plastic protector before operating this turntable.

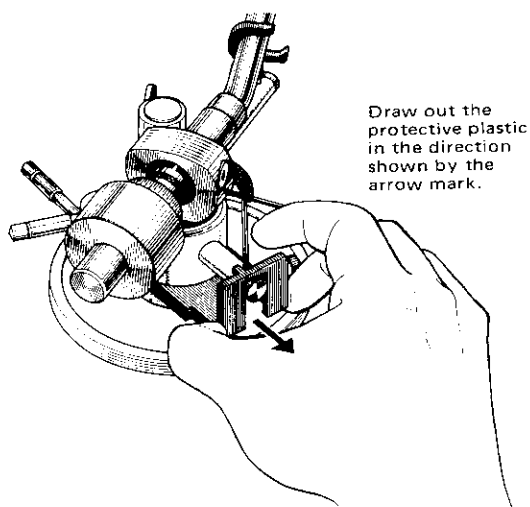


Fig. 10

INSTALLING CARTRIDGE

- In most areas this unit is sold without a cartridge. The following shows how to install the cartridge of your choice. A DM-11 cartridge is supplied as standard equipment in some sales areas.
- All EIA standard type headshells can be used with this turntable.
- Cartridges and headshells are available in various weights. Their combined weight must be within 14 to 24 grams to fit this turntable. When the headshell (12 g) supplied with this unit is used, a cartridge of from 2 to 12 g can be accommodated.

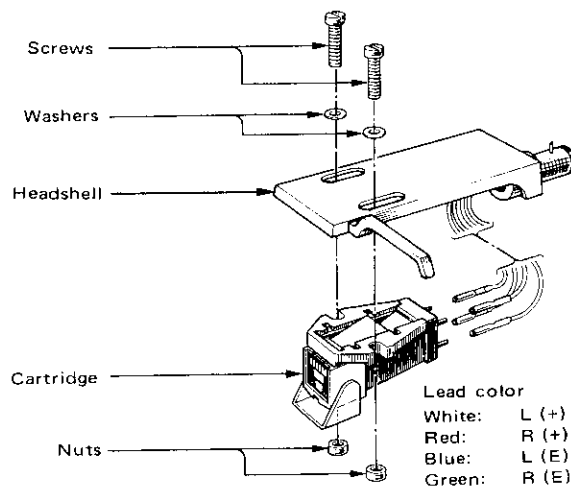


Fig. 11

- Use screws of proper length to fasten the cartridge.
- Fasten cartridge very lightly at first so that it can be moved and adjusted. Tighten the cartridge firmly in place parallel to the headshell only after completing adjustments described on page 7, including the overhang adjustment.
- When special cartridges such as low-level MC cartridges are used, refer to the applicable operation manual for proper connections to the amplifier.

Caution:

When mounting or dismounting a plug-in type head:

- First, securely clamp the tone arm in the arm rest.
- Then, either turn the volume control knob of the amplifier to 0, or turn off power.

ADJUSTMENT OF TONE ARM AND ASSOCIATED PARTS

1 Adjustment of Tone Arm Height

- Place a record on the turntable.
- Loosen the lock lever to **FREE** and move the height adjusting lever. When this lever is moved to **UP**, the tone arm goes up; when it is moved to **DOWN**, the tone arm goes down.
- Adjust the tone arm height so that it becomes horizontal when the stylus is placed on the record, and tightly fasten the lock lever to **LOCK**.

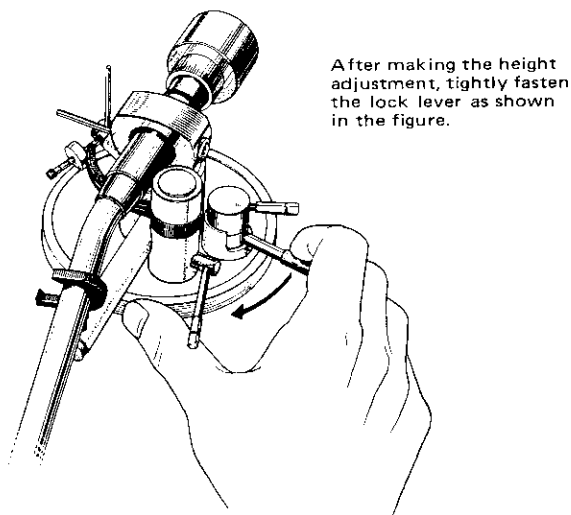
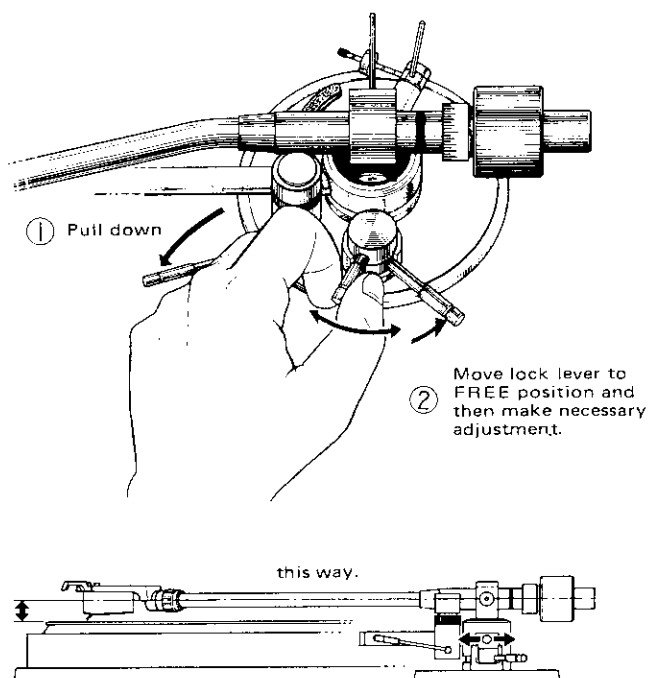


Fig. 12

- After adjustment, check the arm elevator for proper movement. Also check to ensure that the tip-end of the stylus completely comes away from the record disc when the cueing lever is pulled up and that the arm elevator does not come into contact with the tone arm when the cueing lever is pulled down. If any irregularities are found, make necessary adjustments.

2 Adjusting Overhang

- Put the 45 r.p.m. adaptor on the turntable shaft. Move the cartridge, relative to the headshell, until the stylus coincides with the overhang mark on the 45 rpm adaptor. Remove the headshell from the tone arm, and lock the cartridge firmly to the headshell in the adjusted position.
- The correct tone arm overhang for this turntable is 15 mm (9/16").

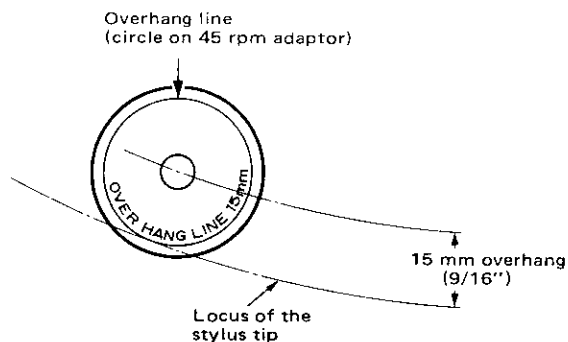
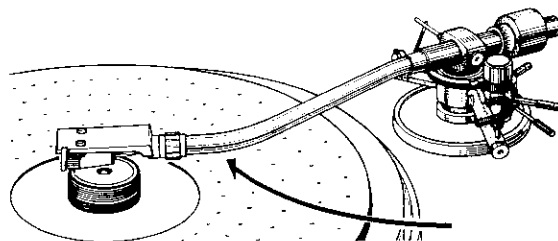


Fig. 13

TRACKING FORCE ADJUSTMENT

- ① Push the cueing lever down, and disengage the tone arm from the arm rest. Turn the counterweight until the tone arm balances horizontally.

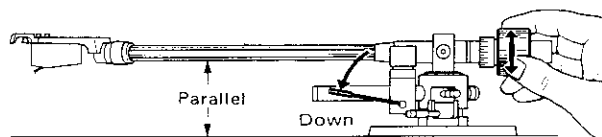


Fig. 14

- ② Return tone arm to the arm rest. Now turn the counterweight dial only and set the 0 graduation to the reference line.

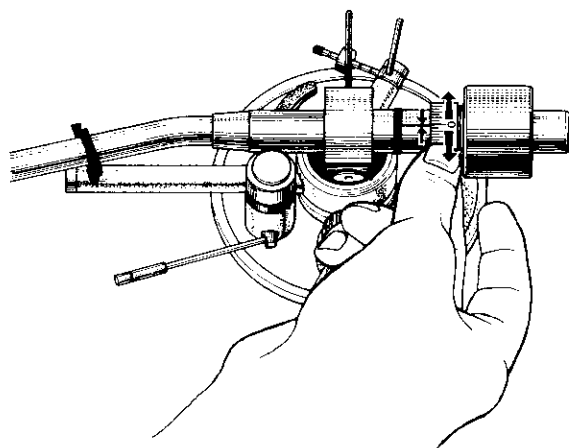


Fig. 15

- ③ Turn the counterweight clockwise until the graduation corresponding to the recommended tracking force is aligned with the reference line.

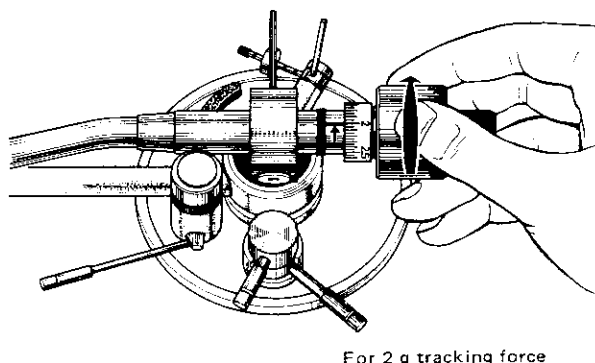


Fig. 16

- ④ Set the anti-skating device to the same tracking force value.

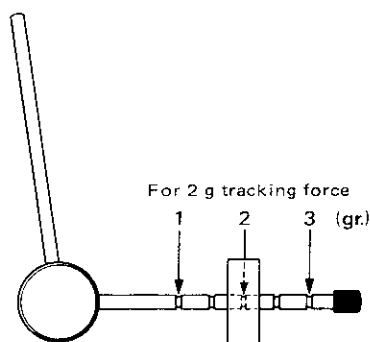
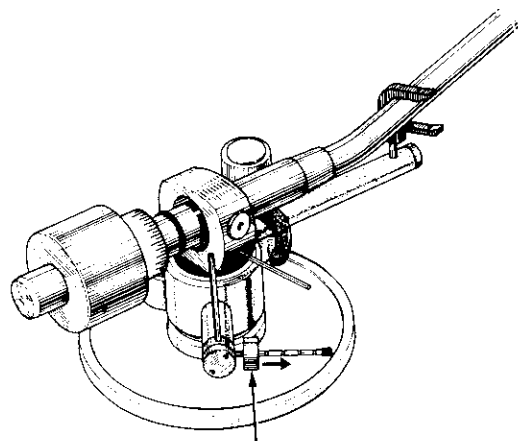


Fig. 17

OPERATING INSTRUCTIONS

1. Check connections to the amplifier and all amplifier knob settings. Also see that the tracking force adjustment has been correctly made.
2. Push the power switch on. The power indicator will light.
3. Place a record on the turntable platter. Use the 45 rpm adaptor for large-hole type discs.
4. Touch either 33 or 45 touch switch depending upon the record. When the turntable starts to rotate and its rotation stabilizes, the quartz indicator lights.
5. After confirming that the cueing lever is in the raised position, lift the head shell at the finger lift and position the stylus over the lead-in grooves on the record.
6. Push the cueing lever down. The stylus will descend and engage the record groove, and music will begin.
7. When the music ends, raise the cueing lever. Grip the headshell finger lift, and return the tone arm to the arm rest.
8. Touch the STOP switch. The electronic brake will stop the turntable.
9. Switch off the power switch.

When rotation stabilizes, the indicator lights to show that quartz-lock is in effect.

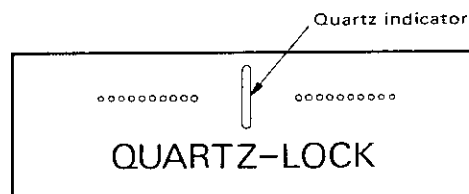


Fig. 18

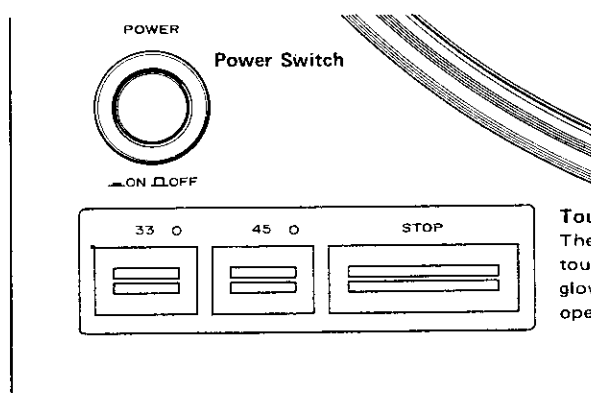


Fig. 19

Note:

Do not wet the touch switch section to avoid the malfunction. If it gets wet, wipe it off with a dry cloth.

Touch Switch Section:

The switch operates when a point between two electrodes is touched by hand. When the touch switch is touched by a glove-worn hand or by an insulator, the switch may not be operated in some cases.

MAINTENANCE

- **Cleaning**

Clean the case, cover and other surfaces with a dry cloth or silicone cloth. If the turntable is badly soiled, first, unplug the power cable, and wipe the dirt off with a piece of cloth lightly moistened with soapy water. Never use thinner, alcohol, or other volatile liquids for cleaning.

- **Handling and Life of the Stylus**

The stylus is extremely delicate. Handle it with great care, and remove dust from it with a soft brush only.

The average life of a stylus is 500 plays of 30 cm LP disks. However, stylus life is greatly influenced by treatment during use. If the stylus becomes worn, treble tones tend to distort, and reproduction quality deteriorates.

- **Periodic Checks**

When any machine is used for a long time without proper care, some trouble is bound to develop through lack of lubricants, friction, deterioration, etc.

In order to enjoy high quality, trouble-free operation, we recommend that you have the unit checked at least once every two years, even when there is no specific trouble. Contact your Kenwood dealer or service representative.

- **Cautions When Moving Your Set**

When you have to transport your turntable over a long distance, when moving for example, pack it in the packing materials in which it was originally delivered. When no original packing material is available, be sure to pack the turntable platter, the counterweight, the plug-in head (shell and cartridge together) separately.

As the motor of this turntable is a DC motor, the supply frequency does not affect its performance.

- **How to Replace the Stylus**

N-11 is the designation of the replacement stylus for that used in the DM-11 cartridge.

Replacement stylus may be obtained from the dealer from whom you purchased this turntable.

You can replace the stylus easily as shown below.

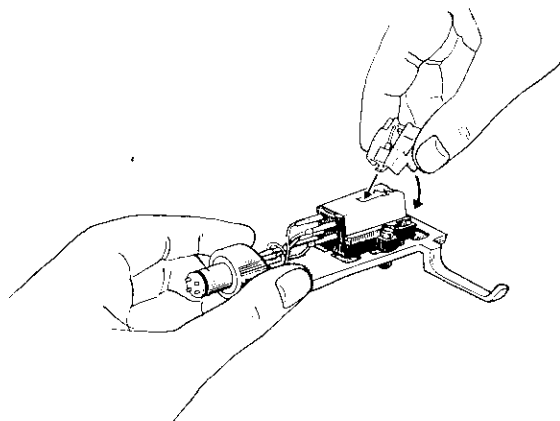


Fig. 20

TROUBLESHOOTING

HUM:

- Check the phono cables and the ground lead for proper connections to the turntable and the amplifier.
- Check that the plug-in head is inserted properly.
- Change the phono cable arrangement. Move cables away from power cords.
- Reverse the power plug.

ACOUSTIC HOWLING:

- Howling is caused by the transmission of the speaker vibration to the turntable. Set up the turntable and the speakers as far apart as feasible, or place them on a more stable surface.

SPECIFICATIONS

MOTOR & TURNTABLE

Drive System	Quartz PLL direct drive system
Motor	20 pole, 30 slot brushless DC servo motor (Starting torque 1.5 kg·cm)
Turntable Platter	33 cm (13 inch) diameter, aluminum alloy die-cast Weight: 2.6 kg (5.7 lbs.) Moment of inertia: 550 kg·cm ²
Speeds	2 speeds, 33-1/3 and 45 rpm.
Wow & Flutter	Less than 0.022% (WRMS) Less than ±0.030% (DIN)
Signal to Noise Ratio	More than 62 dB
Rumble	DIN weighted better than -75 dB DIN unweighted better than -55dB
Load Fluctuation	0% (within 120g of tracking force)
Transient Load Fluctuation	Less than 0.0003% (at 33-1/3 rpm., 400 Hz, 20 g·cm load) Less than 0.00015% (at 33-1/3 rpm., 1,000 Hz, 20 g·cm load)
Starting Time	Within 1.8 sec.
Platter Speed Deviation	Less than 0.002%
Time Drift	Less than 0.0002%/h
Temperature Drift	Less than 0.00002%/C

TONEARM (KD-650)

Type	Static-balanced type, S-shaped pipe arm, EIA plug in connector
Effective Tonearm Length	245 mm (9-5/8 inch)
Overhang	15 mm (9/16 inch)
Tracking Error	+1.8 to -1.0 degree
Stylus Pressure Variable Range	0 to 3 grams (0.1 g step)
Usable Cartridge Weight	2.0 to 12.0 grams
Adjustable Height Range	Within ±3 mm (1/8 inch)
Arm Base	Wedge-shaped chuck type

CARTRIDGE (KD-650)

(Only military's model is equipped with the DM-11 cartridge.)

Furnished Cartridge	DM-11
Stylus	N-11
Frequency Response	20 Hz to 20,000 Hz
Output Voltage	3.5 mV (1,000 Hz, 5 cm/sec.)
Optimum Tracking Force	2.0 ±0.3 grams
Load Impedance	50 kohms
Channel Separation	Better than 27 dB (1,000 Hz)
Replacement Stylus	N-11

ADDITIONAL FEATURES :	Illuminated quartz-lock and power indicator, Electronic-controlled brake, Digital sensor start and stop switches, LED speed indicators, Adjustable height insulators, Acrylic dust cover (weight: 1.2 kg), Headshell stand,
KD-650	Helicoid type arm-height adjuster, Wedge-shaped chuck type arm base, Static type anti-skating device, Oil-damped cueing device Stylus pressure direct readout counter

MISCELLANEOUS

Power Requirement	AC 120V, 60 Hz: U.S.A., Canada model AC 240V, 50 Hz: U.K. model AC 120V/240V (switchable), 50 Hz: Australia model AC 120V/220V (switchable), 50Hz/ 60 Hz: Others
Power Consumption	35.0 watts
Dimensions	W 490 mm (19-5/16") H 165 mm (6-1/2") D 458 mm (18-21/64")
Weight	KD-650 16.0 kg (35.2 lbs.) KD-600 15.4 kg (33.9 lbs.)

SUPPLIED ACCESSORIES :	45 rpm. adaptor with overhang gauge, Screw driver, Silicon cloth, Ground wire
KD-600	Hexagonal wrench, Two tonearm bases for SME-3009I/3009II/3009-III and INFINITY black widow or ORTOFON AS-212MKII.

CABINET

Material	Construction of cabinet is anti-resonance compression base (ARCB) with hard homogenized board. This massive ARCB is compression molded from lime-stone particles, glass powders and lime-stone bonded unsaturated polyester resin.
Cabinet Ass'y Weight	7.9 kg (17.4 lbs.)
ARCB Weight	6.5 kg (14.3 lbs.)

Note: Kenwood follows a policy of continuous advancement in development. For this reason specifications may be changed without notice.