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QUARTZ PLL DIRECT DRIVE TURNTABLE

LOZD INSTRUCTION MANUAL





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 L-07D, 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 L-07D 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

In the more than 100 years since Edison invented the phonograph, a lot of progress has been made.

The L-O7D was designed and developed with a view to making an ultimate record playing system, which converts the music information cut in the record with 100% accuracy into an electrical signal, in other words, it achieves "perfect conversion" from the engraved groove into the reproduced signal.

Various new techniques have been developed and applied in the L-O7D to achieve this "perfect conversion".

However, any one of these techniques cannot exhibit its full effect on its own: they work together to make a total system effective. KEN-WOOD's engineers are proud of the L-O7D; it is a high precision turntable which will give a new appreciation of the capabilities of records.

The L-07D was designed giving priority to the following.

- High rigidity and good anti-vibration properties.
- The three supporting points in the pickup loop are extremely accurate.
- High transient load characteristics.
- 4. High fidelity electrical signal transmission.

Super heavy metal-inserted cabinet with complex structure providing high rigidity and good anti-vibration properties

The cabinet has a complex structure which is basically a double-layer structure and metal is inserted into important parts, so that the center of gravity is lowered, the tonearm and the phonomotor are completely supported and antivibration properties are greatly improved.

The upper layer of the cabinet is made of the new ARCB material which can be precisely molded and has outstanding rigidity. Further, diecast aluminum is inserted into important parts of the upper layer. The lower layer of the cabinet is made from mahogany complite which has superior rigidity and anti-vibration properties. Thus, the cabinet has very high rigidity and is almost perfectly vibration-free.

Dynamic compensated motor

The most important point in improving the phono-motor is to remove cogging and torque ripple. Theoretically, it is possible to build a motor without torque ripple, but in practice such a motor is impossible because of machining accuracy and viscous resistance. The motor coil

was formerly driven at constant voltage. In the L-O7D, however, the motor coil is driven at constant current, therefore, counter electromotive force in the coil can be ignored and control can be more precise.

The L-O7D uses double servo coupling which automatically switches the control method when the speed differs by $\pm 3\%$, from the rated speed: when the speed difference is beyond $\pm 3\%$, the speed is controlled to obtain a large torque and, when it is less than $\pm 3\%$, the phase is controlled to obtain a wide lock range and large phase gain.

Further, at a speed of $\pm 3\%$, the circuit coupling is changed from DC to AC to reduce influences from the motor drive circuit and the motor offset.

If the moment of inertia varies to a great extent (e.g. if KENWOOD's disc stabilizer DS-20/DS-21 are used), the dynamic parameter (time constant) can be changed.

Anti-vibration, complex structure turntable platter with high transient load characteristics and large moment of inertia

A moment of inertia of 1.025 kg·cm² is obtained (when the turntable sheet is attached), resulting in high kinetic energy of rotation. Therefore, the platter rotates stably even if the transient load from the stylus varies. The mechanical impedance supporting the record is kept high, so that signals cut in the record can be traced exactly by the stylus.

The turntable platter is made of discast aluminum inside of which there is Duralumin 4 mm thick, The top surface of the platter is finished accurately.

Further, a nonmagnetic stainless steel turntable sheet is mounted on the platter so that good anti-vibration properties are obtained.

Non-resonant boron laminated pipe tonearm with high stiffness

Light and rigid materials must be used for the tonearm to raise the resonant frequency of the tonearm. In the L-O7D, super-hard aluminum as used in air frames together with carbon and boron fibers are used for the tonearm. This 3-layer structured tonearm has high stiffness and, because of the combination of different materials resonance is suppressed and influences degrading stylus performance are eliminated.

The head shell attached is a 7-layer carbonboron laminated structure, therefore it is light as well as extremely stiff.

Highly accurate and rigid pickup loop

The pickup loop, which is the signal convertion system of the turntable and picks up the signal cut in the record, includes "3 fulcura" — the platter support point (center shaft), the tonearm support point (pivot) and the cantilever supporting point —, these are most important in any turntable system. The accuracy of the positions of these "3 fulcura" is generally accepted as determining the performance of the turntable. The most important requirement of "ideal conversion" is that the locations of these "3 fulcura" relative to the groove of the record do not change.

In the L-07D, 12 mm (15/32") diameter hard stainless steel is used for the precision finished center shaft so that performance is improved. To support the heavy turntable platter, a floating magnet is used, so that viscous resistance of the thrust pad, etc. is reduced and the cutoff frequency of the motor is lowered.

Carbon tool steel is used for the tonearm pivot and stainless steel is used for the rotating shaft together with over-sized bearings. Therefore, the tonearm turns smoothly around the supporting point and all other motions are eliminated. The cantilever supporting point must be 100% stationary. If not, unnecessary signals will be picked up or the music signal will be modulated, resulting in degraded sound.

Collet chuck type, highly-rigid tonearm base

The tonearm shaft is fixed by means of a collet chuck to the tonearm base which is made of brass and stainless steel. The tonearm base is equipped with the helicoid height adjustment mechanism which enables highly accurate height adjustment at a rate of 0.1 mm per turn for a total height of 7 mm. The tonearm shaft is also made of BSBM material and has a diameter of 27.6 mm (1-3/32").

Whatever the force from the collet chuck the tonearm shaft is never deformed. The tonearm base and tonearm shaft weigh a total of 3 kg. This mass-concentration design improves strength and resistance to external mechanical interference.

BEFORE APPLYING POWER

Carefully selected inner wires transmitting electrical signals faithfully

Pure copper litz wire is used throughout the electrical transmission system. Our unique penta-structure and two-core shielded cable gives optimum performance.

In the output cord, + and - signal lines ar arranged symmetrically and they are completely shielded. Each conductor is a litz wire consisting of 168 wires of 80 μ dia, thus DC resistance is reduced to the limit. For the inner cord in the tonearm, a penta litz wire each conductor of which consists of 56 wires of 50 μ dia. is used. For the head shell wires, silk-covered litz wires of 12 m Ω are used.

New type connector of the output cord can be locked giving a contact area several times as great as that formerly used in KENWOOD turntables. All terminals are gold plated to assure low contact resistance for years of operation.

IMPORTANT: READ CAREFULLY BEFORE YOU PLUG THIS UNIT INTO A POWER OUTLET.

U.S.A. and CANADA

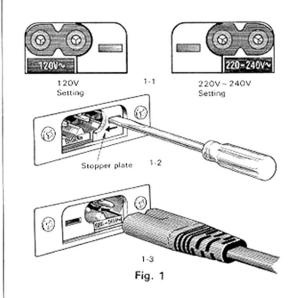
 Units shipped to the U.S.A. and Canada are designed for operation on 120 volts AC only. These units are not equipped with an AC Voltage Selector switch and the following discussion of such a switch should be disregarded.

ALL OTHER COUNTRIES

 Units shipped to countries other than the U.S.A. and Canada are equipped with an AC Voltage Selector switch on the rear panel of the Control Unit. 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.
- 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. See Fig. 1-2.
- 3. Insert the power cord securely. See 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.

BEFORE ASSEMBLY

The L-07D is separated and packed in two cartons. Unpack these cartons and check the number of components refering to the following list and "PARTS NOMENCLATURE" on page 6.

To assemble the turntable, follow the sequence of steps on page 7.

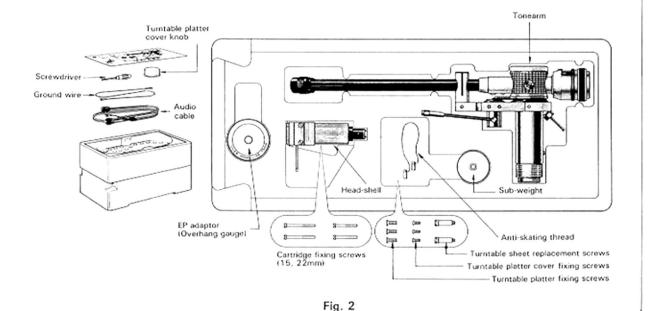
· Carton 1: Phonomotor and turntable base

Turntable cabinet
Turntable platter
Turntable sheet
Turntable platter cover
Dust cloth

· Carton 2: Control unit and tonearm

Control unit Audio cable Ground wire Turntable platter cover knob Screwdriver Tonearm Sub-weight Head-shell assembly[head-shell body + finger + fixing $screws(10mm \times 2) + Nuts(2)$, fixing $screws(15mm \times 2, 22mm \times 2)$ Anti-skating thread EP adaptor(overhang gauge) Turntable platter fixing screws(3) Turntable sheet replacement screws(2) Turntable platter cover fixing screws(3)

Further, four absorbers are packed together with the instruction manual.



PARTS NOMENCLATURE

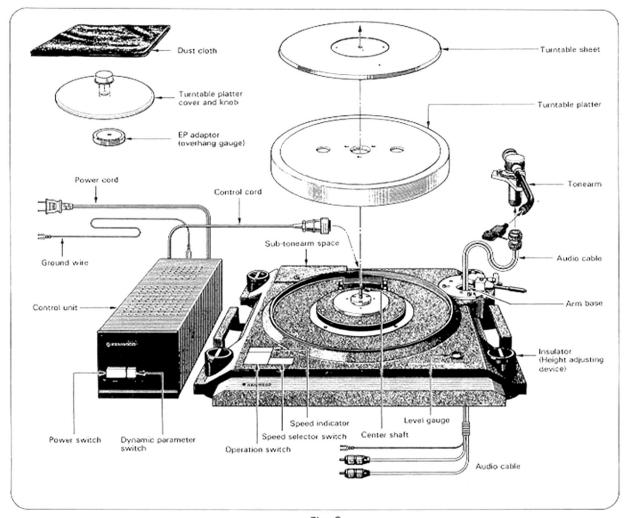


Fig. 3

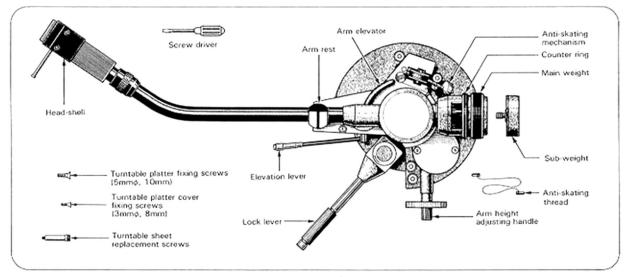


Fig. 4

ASSEMBLY

1 Before assembly

As this turntable is very heavy (35.3 kg), it is very difficult to move it. Before installing the turntable do the procedures described in items $2 \sim 4$ in a place where operations are easy.

2 Unpacking the turntable

Unpack the turntable and place it in a place where there is room to work. At this time, do not turn the four insulators.

3 Installation of the turntable platter

Install the turntable platter with the three fixing screws as shown in Fig. 5. Carefully place the turntable sheet on the platter.

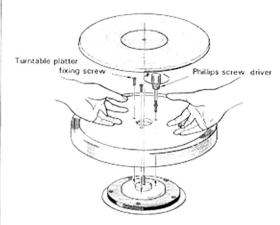


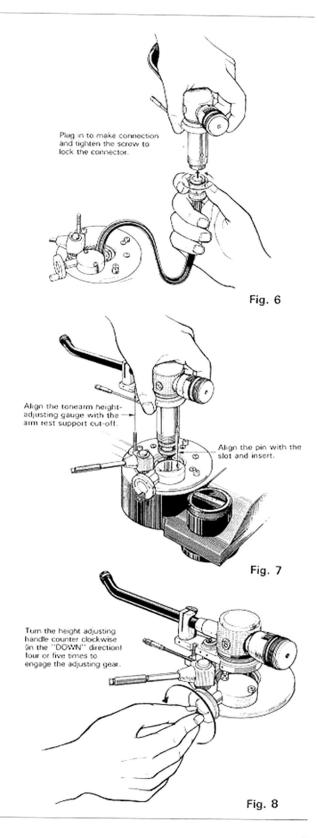
Fig. 5

4 Installation of the tonearm

- Pass the attached audio cable through the arm base hole and connect the cable to the tonearm. As the audio cable connector is of the screw lock type, tighten the screw to lock the connector. (Fig. 6)
- Align the tonearm height-adjusting gauge with the arm rest support cut-off and carefully insert the tonearm into the arm base. (Fig. 7) Turn the height adjusting handle counterclockwise (in the "DOWN" direction) four or five times to engage the adjusting gear. (Fig. 8) Adjust the tonearm height after installing the cartridge (refer to page 9).

NOTE:

- One rotation of the tonearm height adjusting handle will lower/raise the tonearm by approx. O.1 mm.
- Moving the turntable after locking the tonearm will damage the tonearm's pivot.



5 Installation of the turntable

For the place where the turntable and control unit are to be installed, refer to page 14. At this time, the tonearm retaining band used in transportation must still be in place.

6 Connection of the power cord, control and audio cables

Confirm that all the power switches of the control unit and amplifier are turned OFF. Connect the cables as follows.

- Connect the control cord to the connector located at the rear of the turntable. As shown in Fig. 9, the connector has two different type grooves and bosses and is of a screw lock type. Insert correctly and tighten the screw to lock the connector.
- Connect the attached ground wire to the GND terminal of the control unit and ground terminal of the amplifier.
- Connect the audio cable to the PHONO terminal of the amplifier and connect the ground cable to the ground terminal.
- Connect the power cord to a wall outlet or the AC outlet of the amplifier.

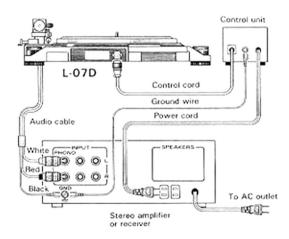
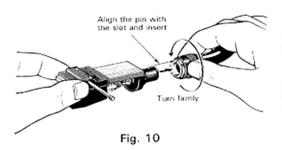




Fig. 9

7 Installation of plug-in head

After inserting the plug-in head, tighten it securely as shown in the figure below.



8 Adjustment of turntable level

Adjust the four insulators while observing the level gauge.

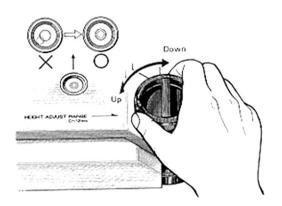


Fig. 11

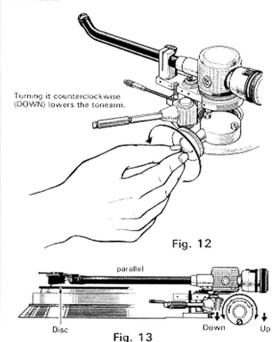
TONEARM ADJUSTMENTS

ADJUSTMENT OF STYLUS PRESSURE

- Confirm that all the switches are turned OFF. Place a record on the platter.
- When readjusting the tonearm height after replacing the cartridge, confirm that the tonearm is not locked. For lock lever operation, refer to item 4.
- Adjust the tonearm height adjustment lever so that the tonearm is parallel to the platter when the stylus tip is on the record.

NOTE:

One rotation of the tonearm height adjustment lever will lower/raise the tonearm by approx. 0.1 mm.



- After adjusting the tonearm height, lock the tonearm as follows. (Fig. 14)
 - Depress the lock lever to engage the gears.
 - Keeping the lock lever depressed, pull the lock lever towards you (in the direction of the arrow).
 - Release the lock lever to raise it.
 - 4 Return the lock lever. Repeating this procedure three or four times will lock the lock lever and tonearm will be fixed securely.

To release the lock lever, depress the lock lever and turn it to the rear to disengage the gears. Repeating this procedure three or four times will release the lock lever.

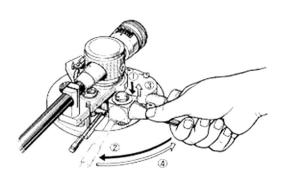


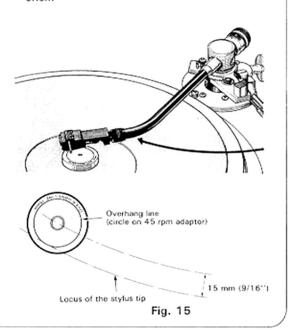
Fig. 14

NOTE:

- Never turn the tonearm height adjustment lever when the lock lever is locked. This would damage the locking mechanism.
- Red/black lines are marked on the tonearm height adjusting gauge with a spacing 1 mm. Use the gauge as a reference when replacing the cartridge.

ADJUSTMENT OF OVERHANG

 Insert the EP adaptor provided onto the center shaft. Position the cartridge so that the stylus tip is aligned with the overhang line. After positioning the cartridge correctly, remove the plug-in head from the tonearm and securely fix the cartridge to the headshell.



TRACKING FORCE ADJUSTMENT

 Lower the elevation lever and remove the tonearm from the arm rest. Turn the counterweight so that the tonearm is balanced.

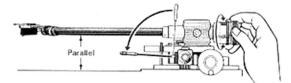


Fig. 16

Return the tonearm to the arm rest and turn the counter ring to "0". Check that the tonearm is still balanced.

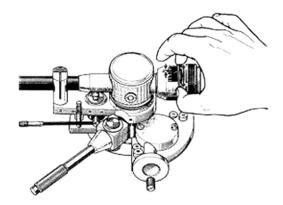


Fig. 17

Turn the main weight clockwise to obtain the specified stylus pressure.

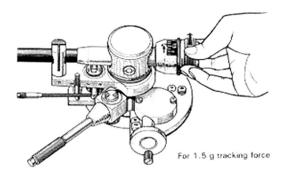
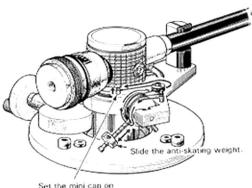


Fig. 18

- To activate the anti-skating mechanism, do the following.
 - Slide the anti-skating weight to the specified stylus pressure.
 - Route the anti-skating thread as shown in the figure below.



Set the mini cap on the bracket pin.

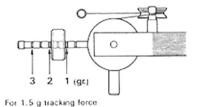


Fig. 19

 When the anti-skating mechanism is not in use (when readjusting the stylus pressure, etc.), place the mini cap on the lifter base pin as shown in Fig. 20.

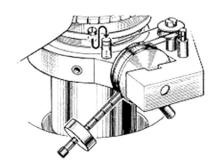


Fig. 20

• If the weight of the plug-in head (head-shell with cartridge) exceeds 21 g (when a cartridge heavier than 9 g is used together with the supplied head-shell), attach the subweight at the rear of the main weight as shown in Fig. 21 and adjust the stylus pressure. In this case, the counterweight scale is changed. Use the following conversion table to obtain the specified stylus pressure.

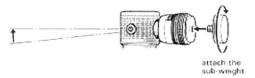


Fig. 21

Indication of the counter dial	0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	0 12.00
Actual stylus pressure	0	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0	2.25	2.5

HOW TO ATTACH
THE CARTRIDGE

CARTRIDGE INSTALLATION

- This turntable is not equipped with a cartridge. Attach your cartridge as follows.
- All head-shells that conform to EIA standards can be attached to this tonearm. However, use a carefully selected head-shell to obtain good sound quality.
- Weights of cartridges and head-shells vary.
 With this turntable, the total weight of the cartridge and head-shell can range from 13~34 g.

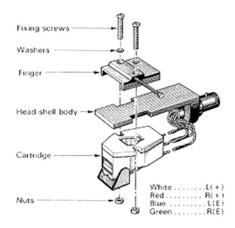


Fig. 22

- The length of screws: 10, 15 and 22 mm are provided. Use the correct screw in the correct positions.
- To facilitate overhang adjustment, tighten the fixing screws lightly.
- When using a low output MC type cartridge or a special type of cartridge, refer to the cartridge instruction manual for connection.

NOTE:

Before removing the plug-in head, clamp the tonearm to the arm rest, reduce the amplifier output to minimum or turn the power OFF. When removing the plug-in head, take care not to apply excessive force to the tonearm.

OPERATING INSTRUCTIONS

- Check the stylus pressure, connections between the turntable and control unit and amplifier and control position of the amplifier.
- 2. Turn ON the power switch of the control
 - The red LED above the power switch will light.
- When the outer disc stabilizer DS-20 is used, press the dynamic parameter switch.
 The red LED above the switch will light and the dynamic parameter range is changed from 18 ms to 15 ms.

NOTE:

When only the inner stabilizer is used or stabilizer is not used, do not press the dynamic parameter switch.

- Place a record on the turntable platter.
 When playing an EP record with a large center hole, use the EP adaptor.
- When playing 45 rpm records, press the speed selector switch. When the power switch is turned ON, the speed is set to 33-1/3 rpm automatically.
 - The speed is indicated by the speed indicator.
- Press the operation switch. The platter starts turning and the speed indicator turns from red to green when speed is stabilized.
- Raise the elevation lever and place the tonearm above the lead-in groove of the record.
- Lower the elevation lever. The stylus tip gently drops onto the record and playback starts.

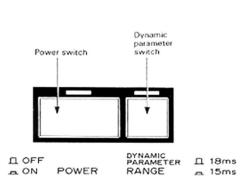
- After playback or to stop mid-way, raise the elevation lever. The stylus tip is gently raised from the record.
- 10. Return the tonearm to the arm rest.
- Press the operation switch to stop the platter.
- Turn OFF the power switch of the control unit.

DYNAMIC PARAMETER SWITCH

The turntable drive motor must always have a stable performance. In the L-O7D, a drive motor control circuit is used which dynamically compensates the speed of the platter according to the condition of the platter. To achieve perfect compensation, the operating point of the circuit can be switched.

KENWOOD recommends the use of Disc Stabilizer DS-20/DS-21 to improve the sound quality. However, when the DS-20/DS-21 are in use, the total weight and total moment of inertia of the platter increase and the fo of the turntable changes.

When the DS-20/DS-21 are used, set the dynamic parameter switch of the control unit to "15 ms". For normal operation, set the dynamic parameter switch to "18 ms".



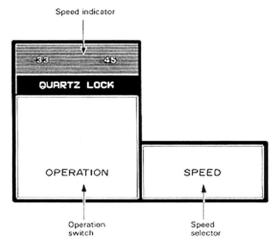


Fig. 23

OPERATING NOTES

- This turntable is equipped with both electronic and mechanical brakes. When the power switch is turned ON and the operation switch is turned OFF (platter is stopped), the mechanical brake is ON. At this time, rotating the platter will activate the mechanical brake. Turning the platter with too much force will damage the mechanical brake.
- Do not operate the phonomotor until the platter is fixed to it. If the motor is operated without a load, it will be damaged.
- Confirm that all the power switches are OFF before placing or removing the platter, or the mechanical brake mechanism will be damaged.
- When the power is turned OFF during platter rotation, both the mechanical and electrical brakes are not activated and it takes a long time to stop the platter.
- The specification of this turntable is guaranteed only when the attached turntable sheet or optional ceramic turntable sheet (TS-10) is used.

Replacing the turntable sheet with a conventional rubber turntable sheet will degrade the specified performance and the quartz lock will not function.

NOTE:

To remove the attached turntable sheet, screwin the attached turntable removing screw as shown in the figure at the right.

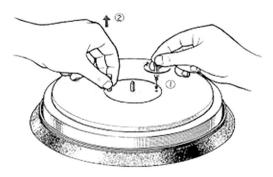


Fig. 24

INSTALLATION OF SUB-TONEARM

Sub-tonearm space is provided in this turntable. In this space, commercially available tonearms with an effective length of 210~245 mm can be installed. At this time, the corresponding sub-tonearm base is required. Contact your local KENWOOD dealer or authorized KENWOOD service representative. For sub-tonearm installation, refer to the tonearm instruction manual.
 Sub-tonearm space is enclosed with a cause.

Sub-tonearm space is enclosed with a cover, which must be removed for installation.

MAINTENANCE

AFTER USE

When a stylus cover is provided with the cartridge, use the stylus cover to protect the stylus tip. Cover the turntable with the dust cloth and turntable platter cover to protect from dust.

CLEANING OF TURNTABLE

Wipe the turntable cabinet and platter cover with a dry or silicone impregnated cloth. For extreme stains, wipe with a cloth moistened with soapy water. Never use thinner or alcohol to clean the turntable.

LUBRICATION

The motor used in this turntable is of the lubrication-free type.

PRECAUTIONS WHEN TRANSPORTING TURNTABLE

Should it become necessary to transport your turntable, repack it in the original carton. If the original packing material is not available, remove the turntable sheet, tonearm and plug-in head (shell+cartridge) from the turntable and pack them separately.

PERIODIC INSPECTION

Using the turntable for a long time without maintenance will result in faults due to wear or misadiustment.

Even if there is no trouble, periodically inspect the turntable every two years to maintain stable performance. For periodic inspection, contact your local KENWOOD dealer or authorized KENWOOD service representative.

INSTALLATION

- To obtain optimum performance from your L-07D, pay close attention to the following notes. Because of its weight 35 kg, place the L-07D on a solid base.
- Do not place the unit near a heat producing equipment such as a radiator. Avoid direct sunlight.
- The unit may not function properly if used at extremely low, or freezing temperatures. The ideal ambient temperature is above +5°C (41°F).
- Do not store or use the unit in a dusty locations or in a moist atmosphere. Select a location where air is well ventilated.
- Keep the unit away from a source of magnetic fields such as TV sets, speaker systems, radios or magnetized objects.
- Operate the unit on rated power supply voltage (±5%). Irregular power voltage will result in incorrect operation.

TROUBLE?

Please check the following before taking the turntable to a service engineer.

- Confirm that the audio cable and ground wire are correctly connected to the amplifier.
- · Recheck the plug-in head connection.
- · Reconnect the audio cables.
- · Reconnect the power cord.

HOWLING

If the place in which the turntable is installed is solid and stable, no howling will occur. However, if external vibration is strong and applied to the turntable via the floor, boomy or tubby sound may result. In this case, place the supplied absorbers under the height adjusting legs.

SPECIFICATIONS

Coreless & Slotless DC Servo Motor (Starting Torque 2.5 kg.cm) 33 cm (13") Diameter, Aluminum Alloy Die-Cast Laminated with Duralumin. Weight: 5.5 kg (12.1 lbs) Including Non-Magnetized Stainless Turntable Sheet. Moment of Inertia: 1025 kg.cm² 2 Speeds, 33-1/3 and 45 rpm. Less than 0.020% (WRMS) DIN Weighted Better than = 94 dB 0% (within 120 g of tracking force) Less then 0.00015% (at 33-1/3 rpm, 400 Hz, 20 g.cm load) Less than 0.00008% (at 33-1/3 rpm, 1,000 Hz, 20 g.cm load) Limitation of Measurement Static-Balanced Type, J-Shaped Pipe Arm, EIA Plug in Connector. 245 mm (9-5/8 inch) 15 mm (9-16 inch) + 2°26" ~ 1°11" - + 1°48" (150 mm) (85 mm) (50 mm) 0 to 2 grams (50 mg Steps) 1 to 9 grams 9 to 22 grams (with Addition of Included Weight) Within 7 mm (1/4 inch) By Helicoid Fixture (0.1 mm Steps)
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Compression-Molded Carbon and Boron Fibers. Weight: 12 g
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Illuminated Quartz-Lock and Power Indicator
Electronic and Mechanically Controlled Brake
Arm-Height Adjuster
Anti-Skating Device
Oil-Damped Cueing Control
LED Speed Indicators Adjustable Height Insulator (12 mm or 15/32")
with Level Indicator
Stylus Pressure Direct Readout Counter
Sub-Tonearm Space for 14-inches Tornearm
AC 120 V, 60 Hz; U.S.A. & Canada Models
AC 120/220-240 V (switchable), 50/60 Hz: Others
11.0 WattsU.S.A. & Canada Models
45.0 WattsOthers
W. C.C
W 555 mm (21-7/8")
H 160 mm (6-5/16") D 470 mm (18-1/2")
D 470 mm (18-1/2") W 130 mm (5-1/8")
H 110 mm (4-11/32")
D 356 mm (14")
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31.0 kg (68.2 lbs)
4.3 kg (9.5 lbs)
Law environce & low connectance above cables with ould plated termi-
Low resistance & low capacitance phono cables with gold plated terminals, 45 rpm adaptor with overhang guage, Turntable platter cover
Dust cloth, Screwdriver, Silicon cloth, Absorbers, Ground wire.
The construction of this caabinet is made of an anti-resonance compres
sion base (ARCB) with die-cast aluminum frame and mahogany com-
posite material.
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W HE 2 2 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5



QUARTZ PLL DIRECT DRIVE TURNTABLE

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INSTRUCTION MANUAL







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