Technics

QUARTZ Synthesizer

Direct drive turntable system

SL-150MK2
SL-151MK2

Operating instructions

Before operating this set, please read these instructions completely.

Parts identification

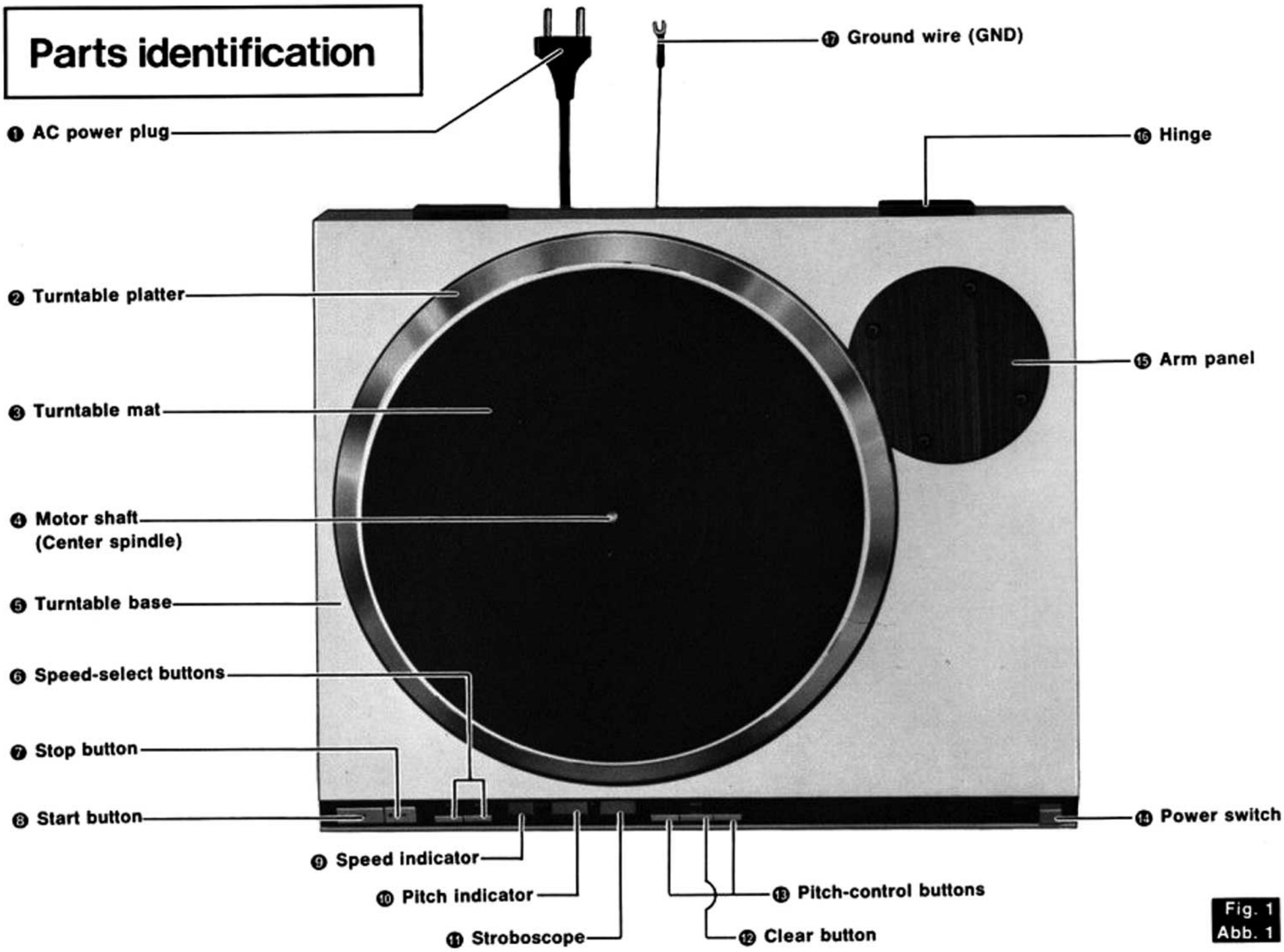


Fig. 1
Abb. 1

We want to thank you for selecting the SL-150MK2/SL-151MK2.
For optimum performance, we recommend that you read these instructions carefully.

Caution: Never connect the AC power plug before assembly has been completed.
Attach the dust cover last, so that assembly and adjustments can be made most conveniently.

Before use

❶ Checklist of parts

Turntable unit	1	Arm panel	2
Turntable platter	1	Arm panel fixing screw	4
Turntable mat	1	Hexagonal wrench	1
Dust cover	1	Spacer	4
45-rpm adptor	1		

❷ Installation of the turntable platter

1. Place the turntable platter on the motor shaft.
   Note:
   1) The rotor is connected to the underside of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance, extra care should be taken to prevent adhesion of dust or iron filings to the magnet and not to damage the magnet by dropping it.
   2) • Do not remove or loosen the screws. **(See Fig. 2.)**
      • Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit can not be guaranteed.
2. Place the turntable mat on the platter.

Assembly and set-up

❶ Tonearms attachable to the unit

Since tonearms attachable to this unit are limited in their dimensions and configurations, select a suitable tonearm based on the following considerations. **(See Fig. 3.)**

Note:

1) A tonearm having its rear portion longer than that shown in the figure can not be used due to interference with the dust cover.
2) A tonearm whose arm rest is formed to be a separate component can not be employed, either. (This is because of the difficulty in drilling a hole for the arm rest in the turntable base.)

Fig. 2
Abb. 2

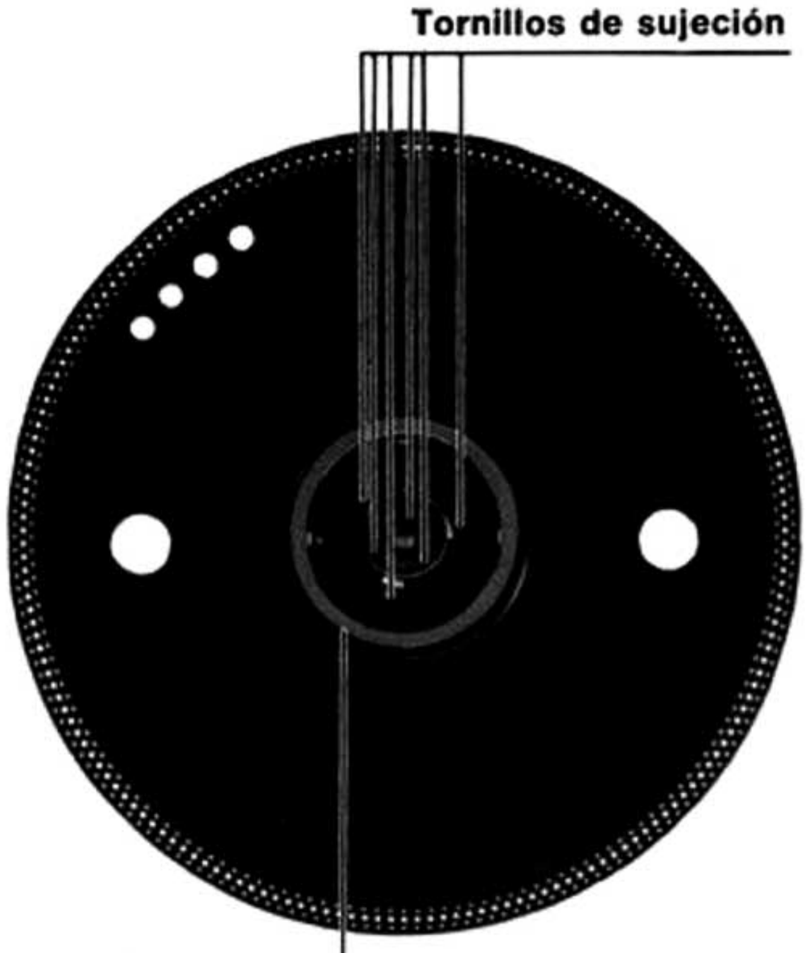


Fig. 4
Abb. 4

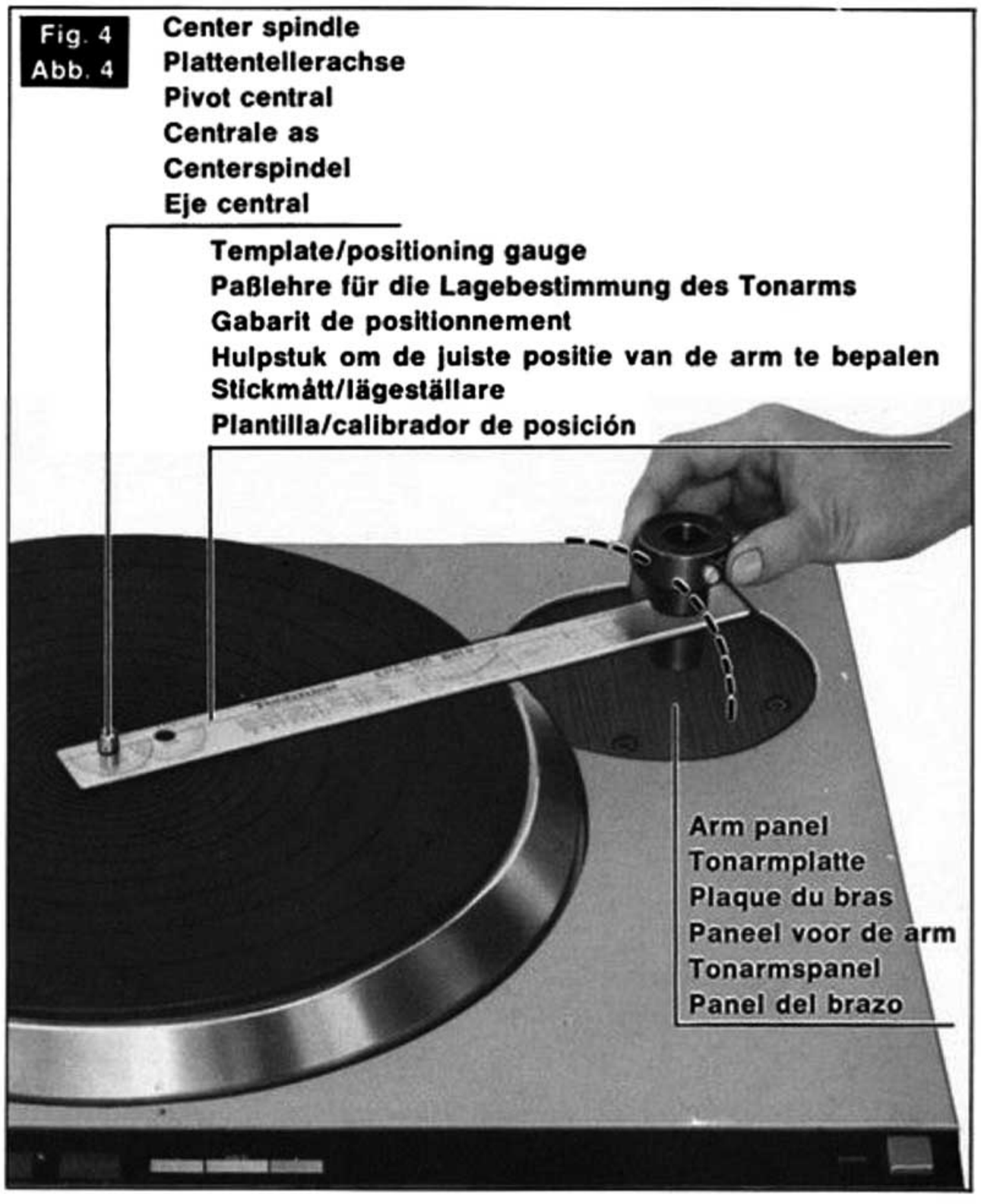
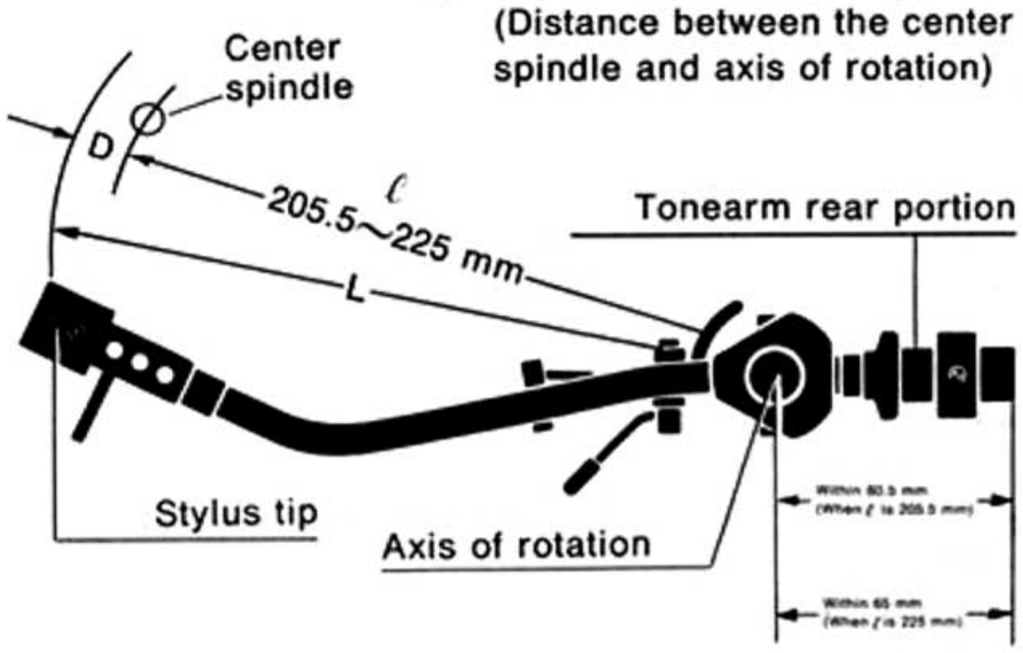


Fig. 3
Abb. 3



When the length (ℓ)=L–D is between 205.5 and 225 mm, the tonearm can be used.

❷ Installation of the tonearm

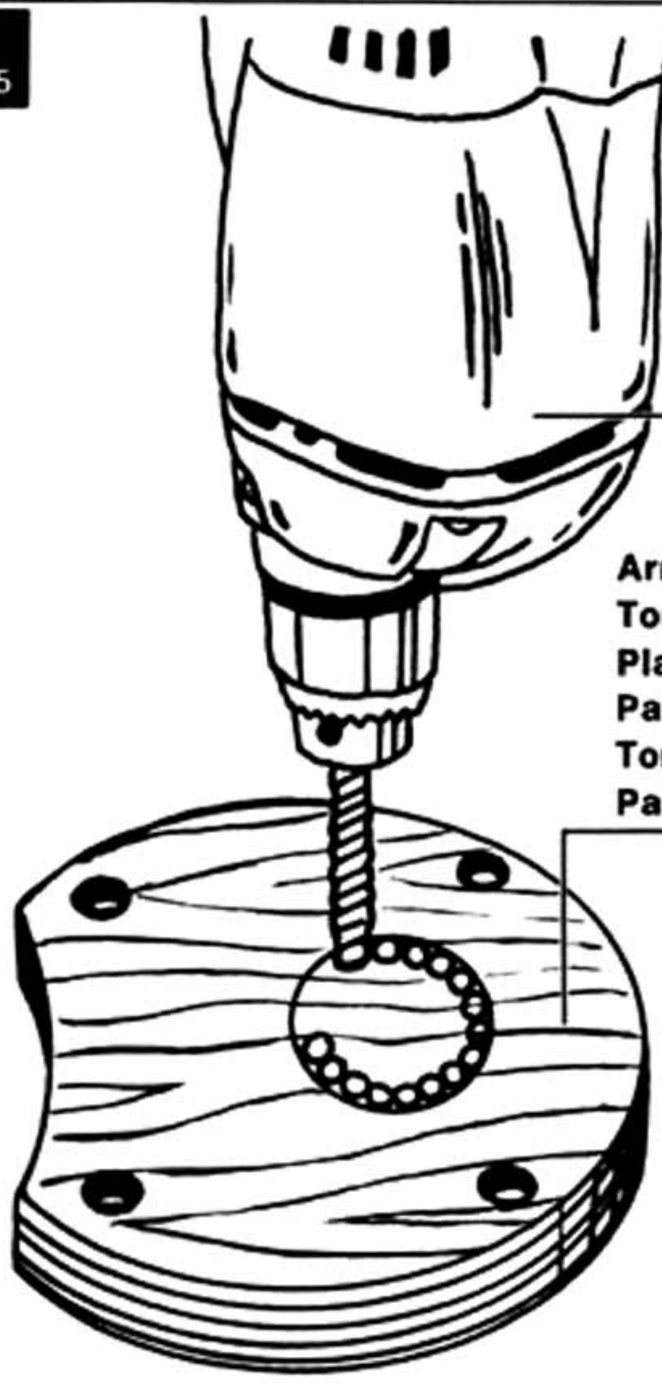
The procedures described below relate to one example for installing a tonearm.
When actually attaching, mount correctly according to the instructions for the tonearm you are now using.

1. **Align the screw hole of the arm panel with that of the turntable base.**
2. **Fit the template (positioning gauge for the tonearm installation) furnished with the tonearm into the center spindle of the turntable. Determine the tonearm mounting position while moving along the dotted line, and mark the set position with a pencil or the like. (See Fig. 4.)**

   Note:
   In the above position setting, ensure that the rear portion of the tonearm does not contact the dust cover during playing.
3. **Drill holes in the arm panel. (See Fig. 5.)**
   Drill holes with a hand drill or the like as shown along the circumference marked in the previous item. Next cut off unnecessary portions and finish with a round file.
4. **Mount the tonearm on the arm panel, and pass the phono terminal side of the arm output cord through the surface of the turntable base. At the side pull it out from under the base.**
5. **Secure the arm panel with screws. (See Fig. 6.)**
   Tightly secure 4 positions B1 to B4 with screws, using the furnished hexagonal wrench.
   After the above procedure, the mounting of the tonearm has been completed.
   For adjustments of the height and range of rotation of the tonearm, follow the instructions furnished with the tonearm you are using.

   Note:
   Should no template/positioning gauge or the like

Fig. 5
Abb. 5



Hand drill
Handbohrer
Perceuse à main
Handboor
Handborr
Taladro a mano

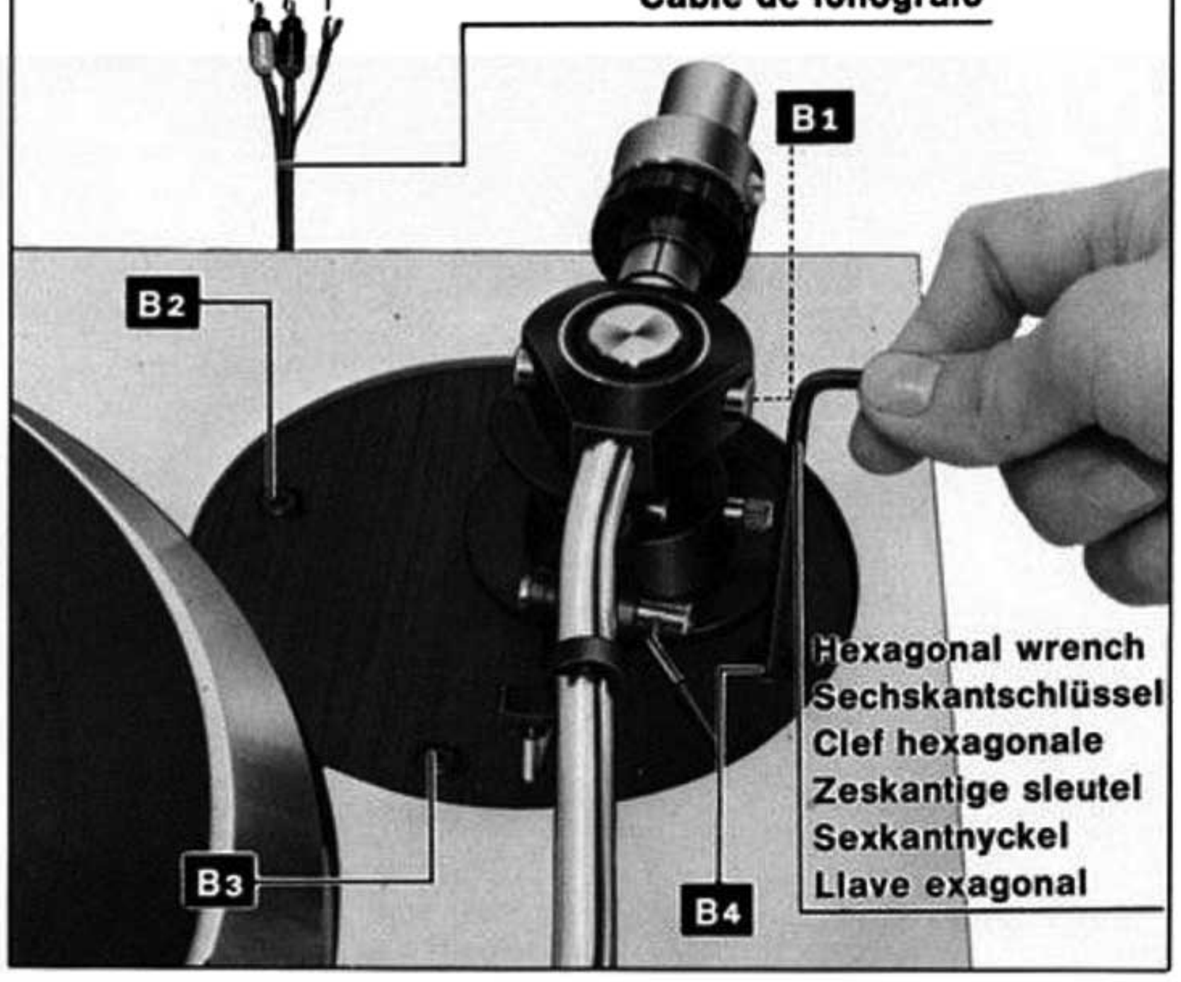
Arm panel
Tonarmplatte
Plaque du bras
Paneel voor de arm
Tonarmspanel
Panel del brazo

Fig. 6
Abb. 6

Phono terminal
Phono-Anschluß
Borne phono
PHONO-aansluiting
PHONO-uttag
Terminal para fonógrafo

Ground wire (GND)
Erdungskabel (GND)
Fil de terre (GND)
Aarding (GND)
Jordkabel (GND)
Cable de tierra (GND)

Phono cable
Phono-Kabel
Câble phono
PHONO-snoer
PHONO-kabel
Cable de fonógrafo



be furnished with the tonearm you are using, calculate the length from the center spindle to the tonearm installing position by subtracting the overhang length from the effective length of the tonearm. Set the tonearm according to this calculated length.

6. **Use spacers if the arm stand is too long.**
   If the arm stand of your tonearm is too long in height to install correctly, use spacers (provided) under the legs so that the arm stand does not contact the table top, etc. **(See Fig. 7.)**

❸ Installation of the dust cover

Place the dust cover into position from directly above, holding it at both sides. For detaching the dust cover, be certain first to raise it as illustrated before removal. **(See Fig. 8.)**

Note:

- Opening or closing of the dust cover during play should be avoided. This may not only cause undesired vibrations, but also result in skipping of the stylus.
- If you must open the dust cover during play, do so as gently as possible.

❹ 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.
3. When a radio, which is placed too close to the turntable, is played while the turntable is in operation, interference to AM reception may result.
4. Do not place the unit where it is exposed to direct sun, dust, moisture or heat.
5. Keep it in a well ventilated place.

❺ Connections

Note:
AC line-voltage selector (See Fig. 9.)

- Make sure that the AC line-voltage selector is correct to your local voltage before connecting the AC power plug.
- Never connect to a DC socket.
- If the pre-selected voltage is different from your local voltage, turn the AC line-voltage selector with a screwdriver so that it corresponds with your local voltage.
- The AC line-voltage selector is located under the turntable platter.

1. **Connect the AC power plug.**
   Connect the AC power plug to an AC wall socket.
2. **Connect the output terminals.**

Output terminals		Amplifier or Receiver
L (White)	→ L	Channel
R (Red)	→ R	Channel
GND (Spade lug)	→ GND	

Note:
Be sure to connect the ground terminal firmly to the amplifier or receiver. If this connection is not made or is loose, a power source "HUM" will result.

Fig. 7
Abb. 7

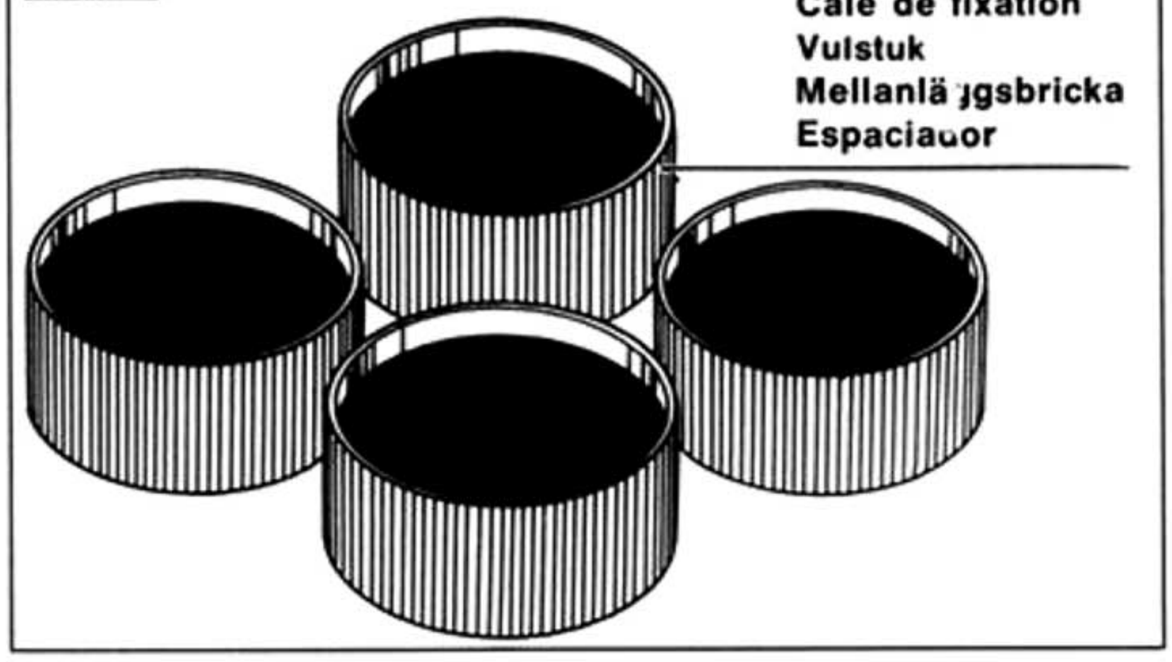


Fig. 8
Abb. 8

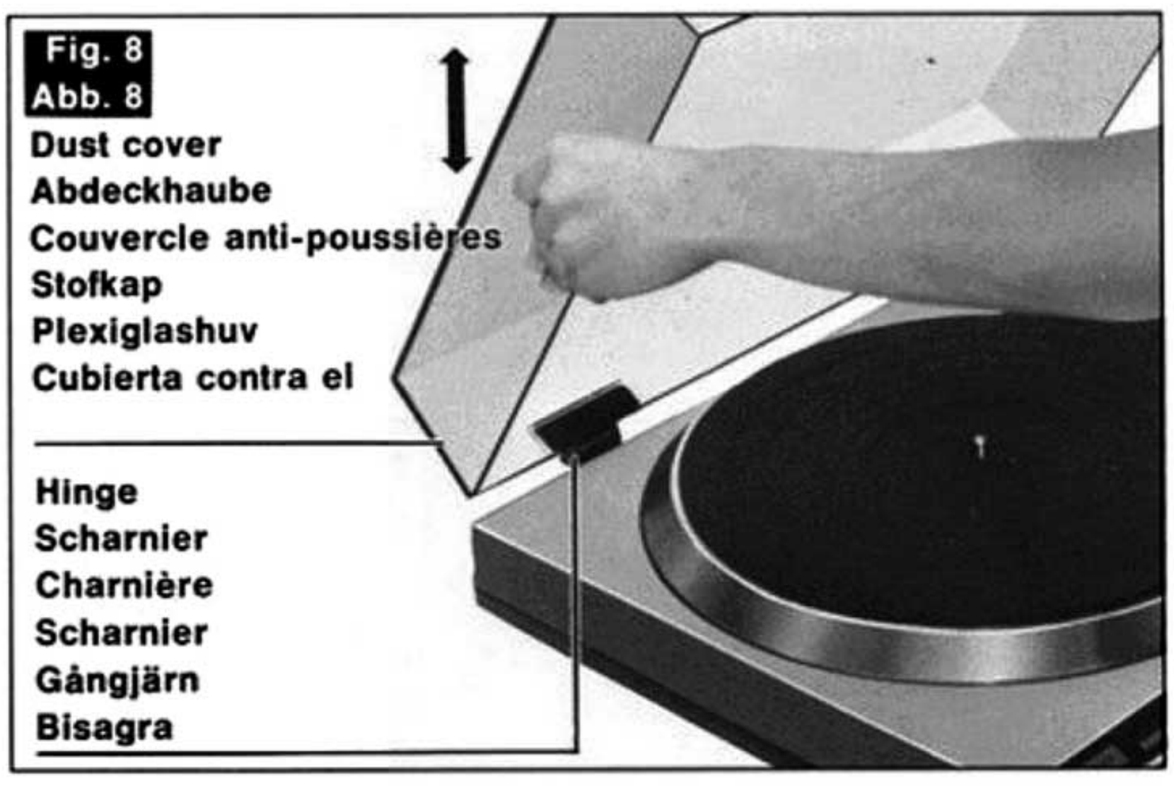
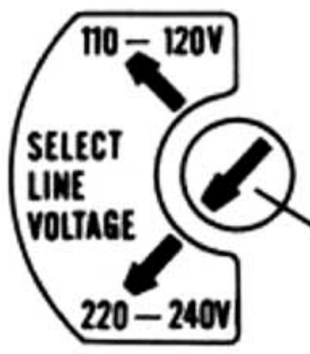
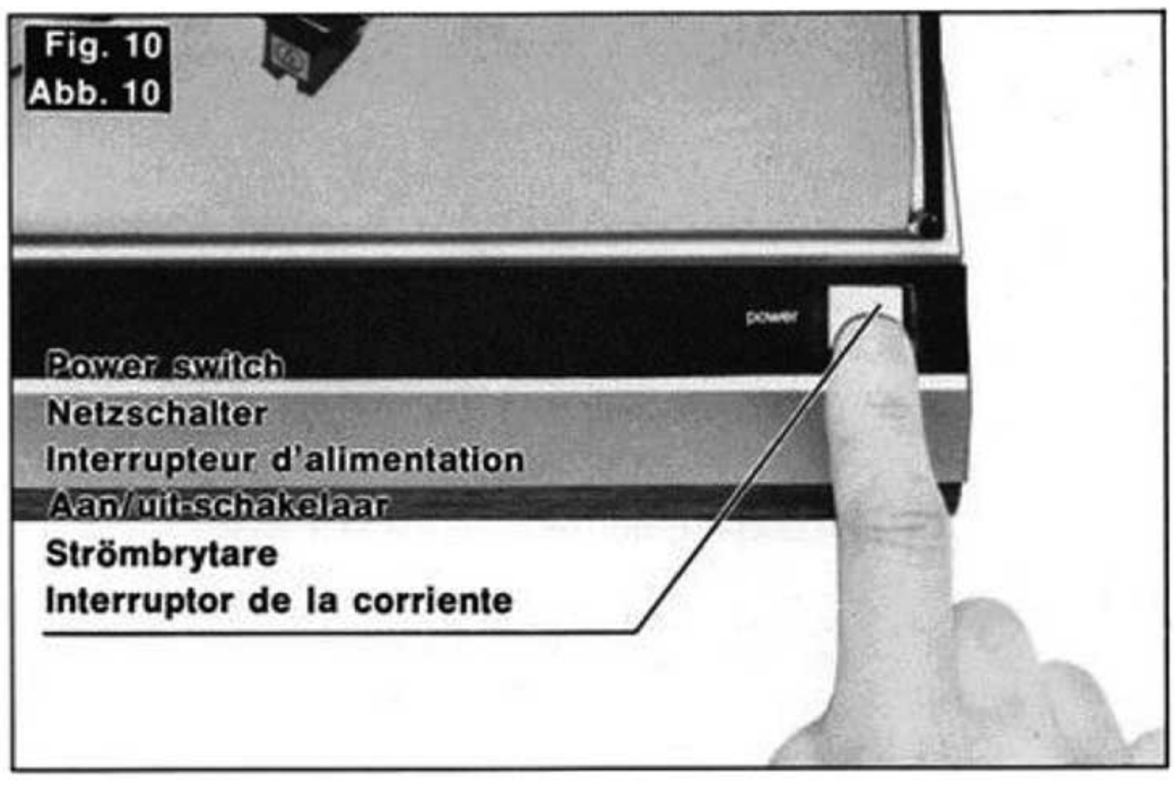


Fig. 9
Abb. 9



AC line-voltage selector
Netzspannungs-Umschalter
Sélecteur de tension d'alimentation C.A.
Wisselstroomspanningskiezer
Nätspänningsväljare
Selector de voltaje para corriente alterna

Fig. 10
Abb. 10



How to operate

❶ **Push the power switch in the ON position. (⏻). (See Fig. 10.)**
The speed indicator for 33-1/3 rpm, the pitch indicator and stroboscope will all light up.

Note:
Since the unit has been designed to select 33-1/3 rpm automatically each time you push the power switch on, push the 45-rpm speed select button if you play 45-rpm records.

❷ **Place a record on the turntable mat.**
Push the start button. **(See Fig. 11.)**
The turntable platter will start rotating.

❸ **When play has finished, place the tonearm on the arm rest; then secure it with the arm clamp.**
Note:
- The power is not shut off unless the power switch to turn off (⏻) is pushed.
- If you play a 45-rpm record with a large center hole, use the furnished adaptor on the center spindle.

Adjustment

❶ **Pitch control (turntable speed fine adjustment).**
The Quartz Synthesizer system is being employed for the first time in the world. A high degree of pitch control accuracy over a wide range (±9.9%) in 0.1% increments can be obtained with the quartz perfectly locked. The pitch variations which are clearly indicated by the LED digital indicator provide you with accurate and easy selection.
- The pitch control can be selected in increments of 0.1% which is below the threshold of human perception. This function can be very effective for minor extension or reduction of broadcasting time in professional applications. **(See Fig. 12.)**
- The pitch control also enables you to accurately and precisely tune musical instruments and by varying the pitch slightly, to obtain a different musical note from records. **(See Fig. 13.)**
  For a half-tone change:
  +5.9% (♯)
  −5.6% (♭)
- Another feature of the variable pitch control over a wide range of ±9.9% is that it makes singing along with a melody easy for a chorus or playing a record for accompaniment only. **(See Fig. 14.)**
  By pressing the clear button which is located between the "+" and "−" pitch buttons, you can quickly return the set to normal playing speed. **(See Fig. 15.)**

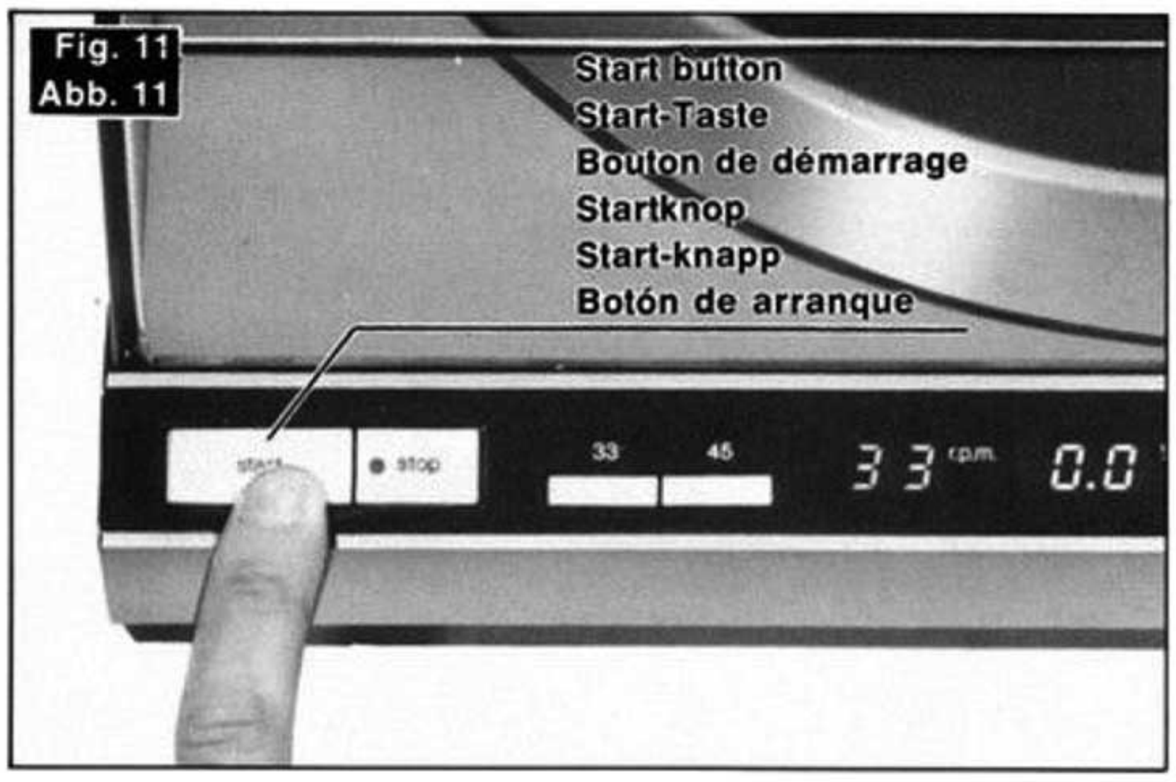


Fig. 11
Abb. 11

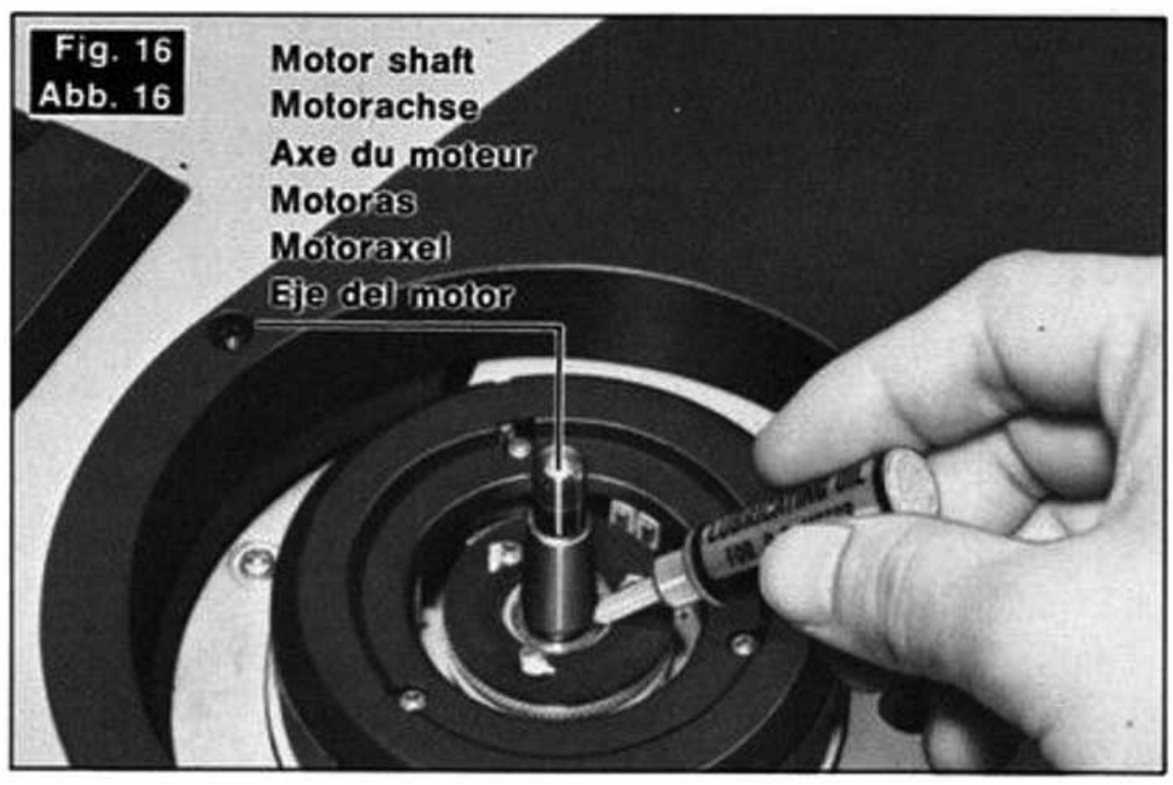


Fig. 16
Abb. 16

Fig. 12
Abb. 12

Fig. 14
Abb. 14

Fig. 13
Abb. 13

Fig. 15
Abb. 15

Notes and maintenance

❶ **Care should be exercised in handling the turntable platter.**
The turntable platter has a rotor (the magnet of the motor) directly connected to it. Therefore, the turntable platter should not be removed from the motor shaft unnecessarily. Should it become necessary to remove the turntable platter, be sure first to pull the AC power plug out of the socket.

❷ **Wipe the dust cover and turntable base with a soft, dry cloth.**
- Never use any cleaners containing alcohol, benzine or thinner.
- Use of a chemically treated dust cloth should also be avoided. Be sure that the dust cover is not exposed to insecticide spray.
- To remove stubborn finger prints or grease spots, detach the dust cover and disconnect the AC power plug.
- Use a soft cloth slightly moistened with a mild soap and water solution.

❸ **Lubrication**
- Apply two or three drops of oil to the motor shaft once after every 2000 hours of operation.
- The time interval is much longer than that for conventional type motors (200-500 hours). **(See Fig. 16.)**
- Please purchase original oil. (Part number is **SFWO 010.)**

Specifications

General

Power supply	~110-120/220-240V, 50 or 60 Hz
Power consumption	13W
Dimensions (W × H × D)	45.3 × 15.9 × 38.4 cm (17-45/64 × 6-17/64 × 15-7/64 inches)
Weight	10.2 kg (22 lb)

Turntable section

Type	Quartz-phase-locked control direct drive turntable with quartz synthesizer pitch control
Drive method	Direct Drive
Motor	Brushless DC motor
Drive control method	Quartz-phase-locked control
Turntable platter	Aluminum die-cast, diameter 33 cm (13"), weight 2.5 kg (5.5 lb)
Moment of inertia	340 kg·cm² (116 lb·in²)
Turntable speeds	33-1/3 and 45 rpm
Turntable speed fine adjustment	Adjustable up to ±9.9% in 0.1% increments by digital indication
Starting torque	1.5 kg·cm (1.3 lb·in)
Build-up characteristics	90° or 1/4 rotation to 33-1/3 rpm
Braking system	Electronic

For longer and safer use of this unit

In order to receive the best service from this unit, and for the safest operation, carefully read the following information.

■ **Power source**
It is very dangerous to use this unit at a voltage which is different from the rated voltage.
There is danger of combustion if the unit is connected to a power source which is different from the rated voltage.
Be very careful concerning this point.
Direct current cannot be used.
There are some places, such as ships, where direct current is used as the power source. Before connecting the unit, confirm the power source.

■ **Connection of power cord**
Wet hands are dangerous.
Be sure to never touch the power cord with wet hands because there is danger of electric shock. This is true, of course, of all electric equipment.
Do not pull the power cord.
Never pull the power cord to disconnect it. Always pull the plug of the cord only.

■ **Location of unit**
Choose a place which is not in direct sunlight.
Select a place which will assure good ventilation.

■ **Never place heating equipment nearby.**
Be sure to keep stoves and other sources of heat away from this unit, because heat radiated by such equipment may cause deformation of plastic parts or damage the cabinet, or, at worst, cause a fire.

■ **Especially for families with children**
Take care that no small items, such as metal objects, are put inside this unit.
In addition, children should be especially warned not to put anything into the ventilation holes, such as toys or a screwdriver, because these things may cause an electric shock or result in a malfunction of the unit.

■ **If water spills on the unit**
If water should happen to spill on the unit, from an overturned vase for example, there is danger of fire or electric shock. Disconnect the power plug from the electric outlet immediately, and contact the store from which the unit was purchased.

■ **Reconstruction can cause accidents**
Absolutely never try to remodel, reconstruct or repair this unit yourself. Do not attempt to touch any internal parts because to do so may result in an electric shock or other accident.

■ **Be sure the power is off.**
After you have finished using this unit, check once more to be sure that the power is off. If the unit is left with the power on for a long period of time, it may not only be damaged, thus shortening its useful life, but may also lead to a dangerous accident.

Speed change due to load torque	0% within 1.5 kg·cm (1.3 lb·in)
Speed drift	Within ±0.002%
Wow and flutter	0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)
Rumble	−56 dB (IEC 98A Unweighted) −78 dB (IEC 98A Weighted)

Specifications subject to change without notice.

Features

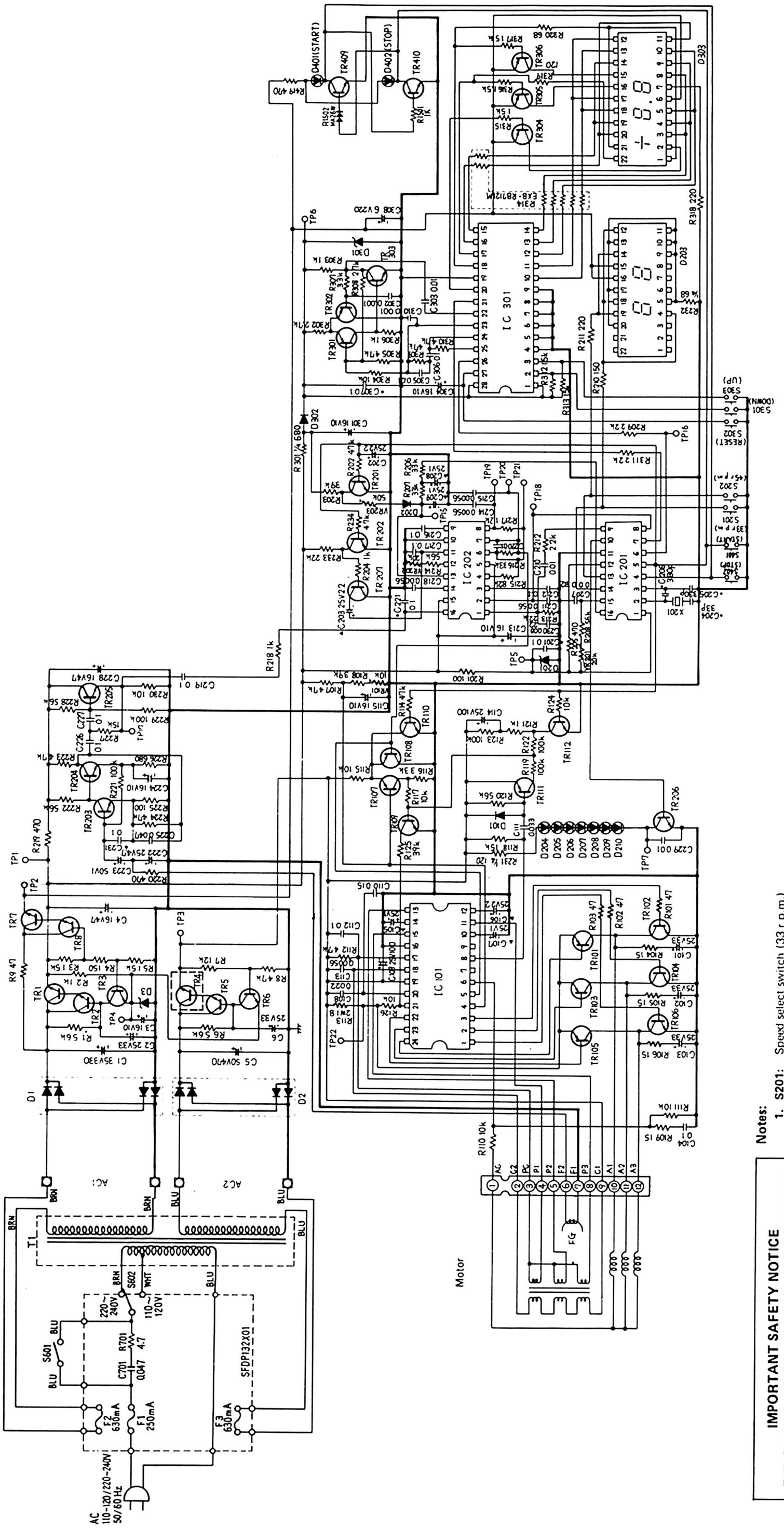
❶ **Quartz synthesizer system that for the first time in the world has made it possible to achieve a digital pitch control of ±9.9% in 0.1% increments.**
In conventional quartz players the quartz reference was in effect only within strictly limited ranges: whenever vernier speed change was required, the quartz circuit had to be switched off. In the Technics MK2 series, we took the lead by locking the quartz, thus making it possible to effect a high degree of pitch control accuracy over a range as wide as ±9.9% in 0.1% increments, which is below the threshold of human perception.
Moreover, the pitch control, coupled with the clear digital indicator, enables you to accurately and precisely tune with musical instruments, vary pitch slightly for obtaining a musical note from phono discs or alter tones by a half-note. In the case of a chorus or of playing a phono disc only for accompaniment, operation efficiency has been improved to a great extent to make it easy to sing along with a melody by adjusting the speed of rotation.

❷ **Electronic circuits of more than 3,000 discrete elements concentrated into 4 ICs.**
The 4 kinds of IC, i.e., Synthesizer pitch control CMOS LSI (MN 6042), Frequency dividing IC employing I^2L, ECL (DN 860), phase speed control IC (AN 660) and Driving IC (AN 640) into which high density electronic circuits of more than 3,000 discrete elements have been compressed have made it possible to produce this high precision quartz turntable.

❸ **Front controls that match function with convenience.**
Technics attaches great importance to the enjoyment of all aspects of phono record playing.
That's why in the MK2 series, a front control system has been introduced, taking into account frequency of operation. An easy to use design that enables you to operate the controls with the dust cover closed and also adopts feather touch switches in the switch operating section of each part.

Schematic diagram

This schematic diagram may be modified at any time with the development of new technology.



Notes:

1. **S201:** Speed select switch (33 r.p.m.)
2. **S202:** Speed select switch (45 r.p.m.)
3. **S301:** Pitch Control switch (Down)
4. **S302:** Pitch Control switch (Reset)
5. **S303:** Pitch Control switch (Up)
6. **S401:** Start switch in "**off**" position.
7. **S402:** Stop switch in "**off**" position.
8. **S601:** Power switch in "**off**" position.
9. The voltage values entered are the values measured from the chassis with a standard tester that has an internal resistance of 100KΩ/V.

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTUR'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

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