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# **INSTRUCTION MANUAL**

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**THORENS**  
**TD 125**

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## 1. INTRODUCTION

The turntable TD 125 is an electronic precision instrument which will guarantee the best results in record reproduction when handled carefully. In order to protect the instrument and your precious records, the operation should not be learned by experimenting but by careful reading of this instruction manual.

The Hi-Fi enthusiast and the expert will find in the following chapters all the necessary information for the application of the transcription turntable as a programme source in high quality Hi-Fi equipment and for its use in the professional field.



## 2. OPERATION SUMMARY

2.1. Connect the turntable to the AC mains power supply. Check for the correct voltage.

2.2. The slide button in the centre of the control panel ① is the AC mains on/off switch.

Position left: "OFF"

Position right: "ON"

2.3. The left hand slide bar ② is the speed selector which controls the 3 speeds available. In the left hand position it is  $16\frac{2}{3}$  RPM. Centre position  $33\frac{1}{3}$  RPM and right hand position 45 RPM.

2.4. In front of the lighted stroboscope window ④ is the knurled wheel ③ for the pitch control.

Moved to the left: turntable runs faster

Moved to the right: turntable runs slower

For the exact turntable speed it has to be adjusted so that the stroboscope pattern ④ seems to stand still.

2.5 The adaptor in the centre of the turntable platter ⑤ may be turned over for adjustment in order to play records with either large or small centre hole.

2.6. Tone arm lift ⑭

Position left: off

Position right: play

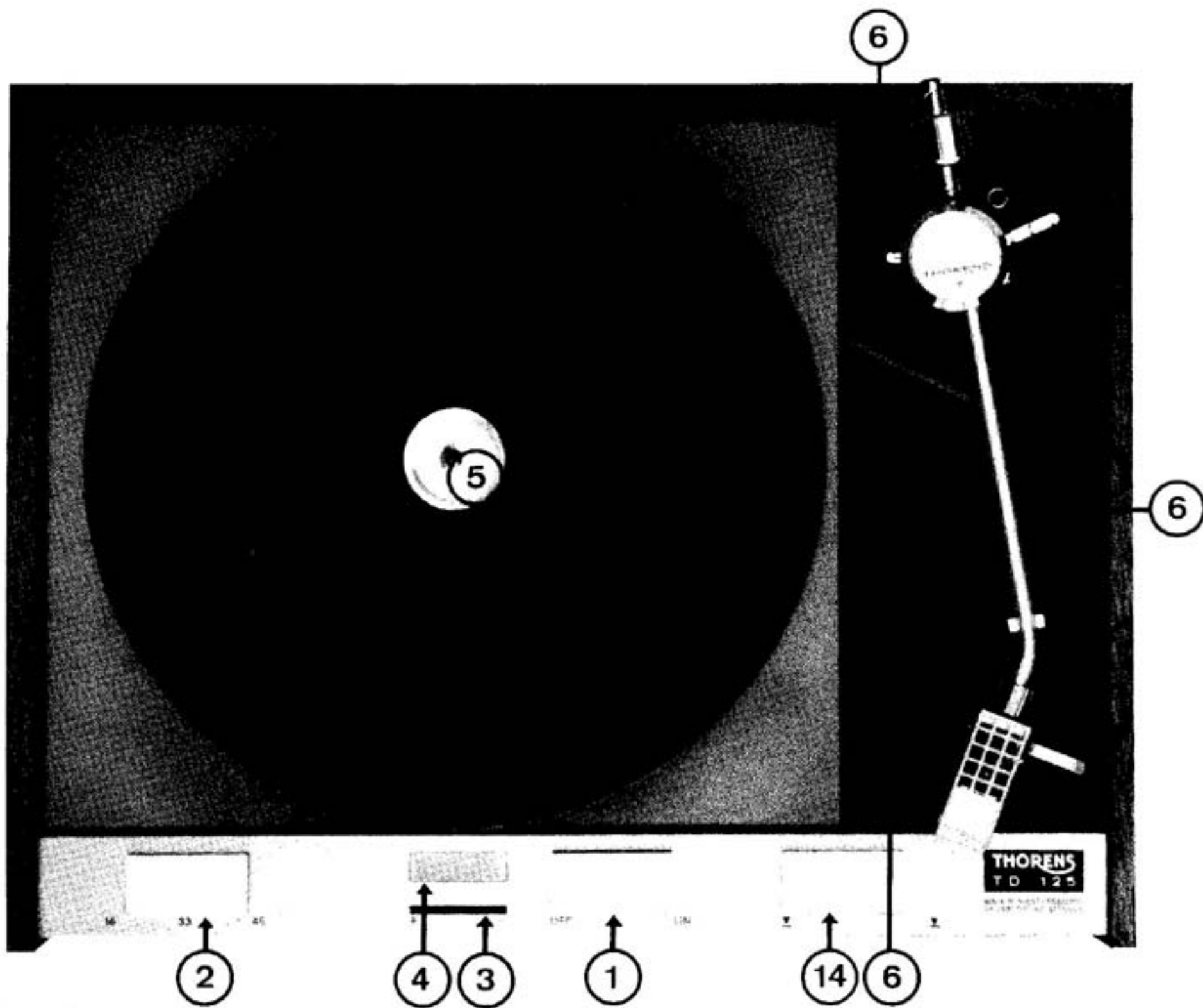


Fig. 1

### 3. UNPACKING

Place the carton top side up and open. Remove the outer 12" turntable platter and its rubber mat. After installing the unit carefully centre the outer turntable platter on the inner turntable platter with the rubber mat on top.

After removing the upper part of the foam plastic, the turntable may be removed from the carton.

The accessories are stored beneath the turntable.

Take the complete unit out of the foam plastic bottom part and put it down on a flat surface.

Remove the spacer between the suspended chassis and control panel.

**Attention:** Save the complete packing. Shipping the turntable without this could cause serious damage.

## **4. MOUNTING**

### **4.1. Mounting the turntable on a base**

For the TD 125 B and TD 125 AB version, this chapter is not applicable.

Remove the outer turntable platter before proceeding to mount the unit.

If the turntable is to be operated free standing outside of furniture it has to be mounted into a base No ST 509 or equivalent. The chassis must be fastened from underneath with the 4 screws which are supplied with the turntable.

If the holes of the base do not fit to the turntable-threads, slacken screws ⑦. Then the thread-bars can be moved according to the holes in the base.

### **4.2. Mounting the turntable into furniture**

The TD 125 turntable should be mounted on a ply-wood mounting board of not less than  $\frac{1}{2}$  inch thickness and cut out according to the template X 830-2. This is a rectangular hole with the dimensions 451 x 341 mm (17.75 x 13.42"). In this hole the mounting frame CE 509 fits without further fastening. The turntable chassis TD 125 is fastened into the mounting frame as described under 4.1.

In order to ensure efficient operation of the floating suspension it is essential when fitting the unit to allow sufficient clearance between the die cast chassis and the mounting board.

### **4.3. Levelling of Unit**

The turntable should be levelled after mounting the tone arm by adjusting the three knurled levelling knobs ⑧.

Turning clockwise raises and counterclockwise lowers. Check to make sure that after adjustment Unit is floating freely.

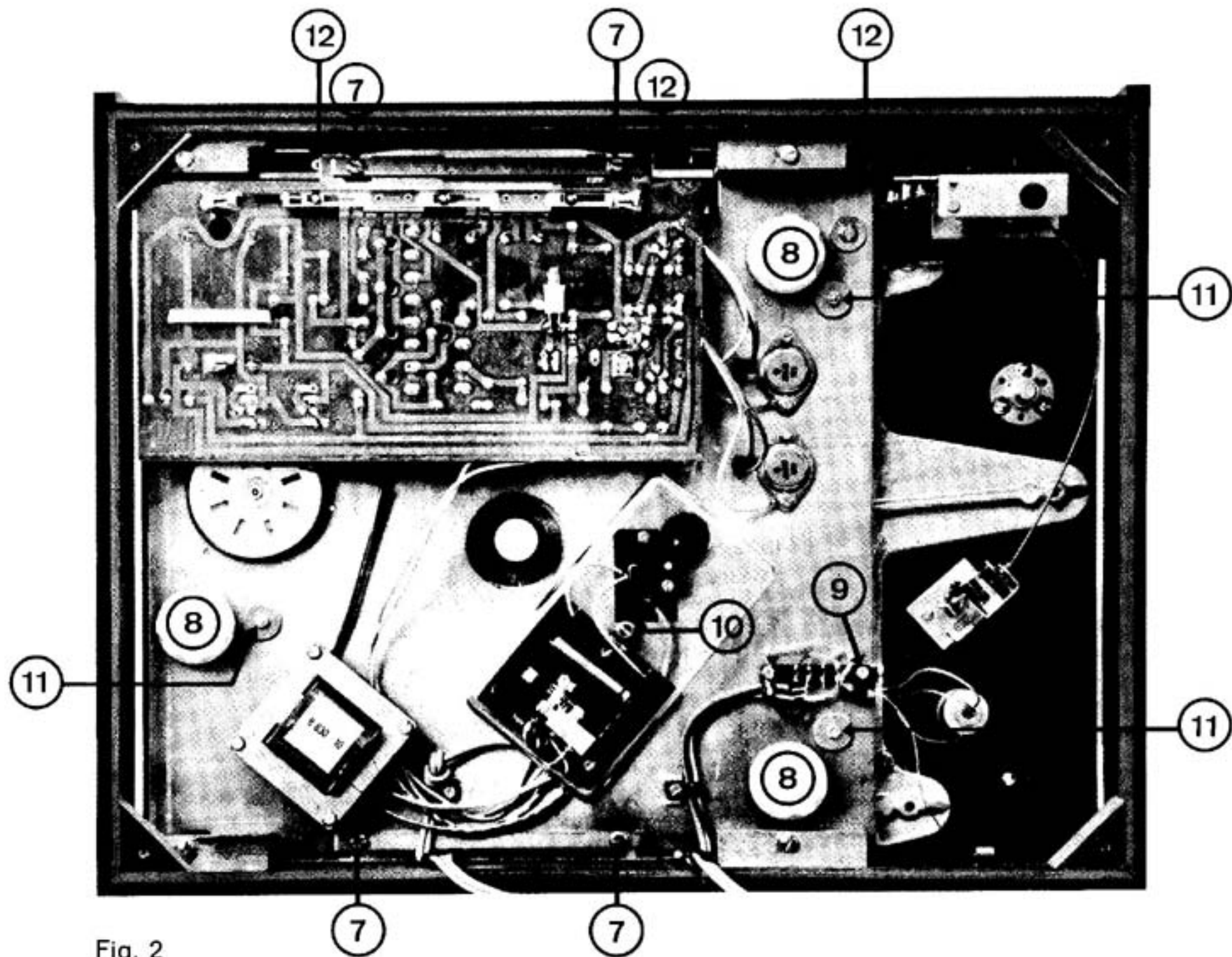


Fig. 2

#### **4.4. Assembling of longer length tone arms**

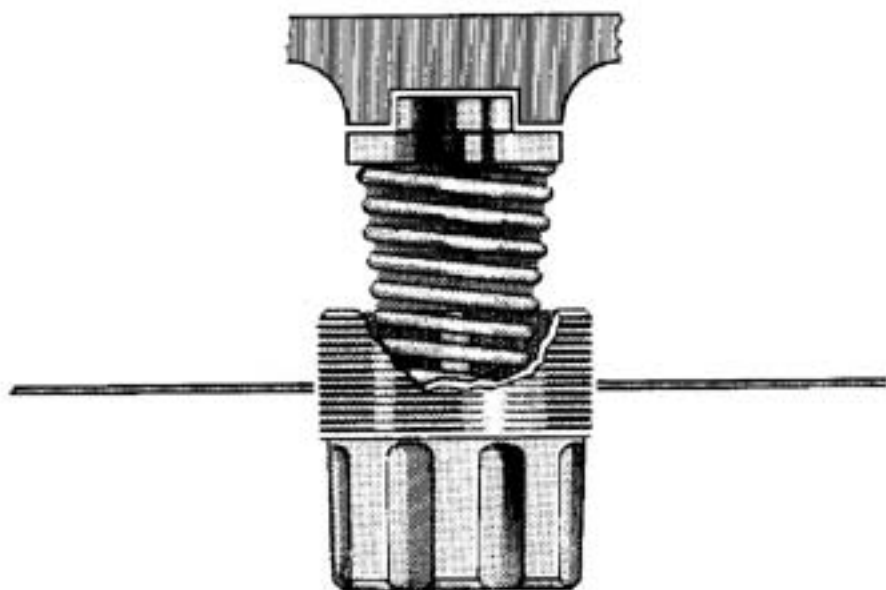
The TD 125 is supplied as standard with an arm mounting board to accommodate 9" (British Standard) 12" (American Standard) tone arms.

The turntable TD 125 may be equipped with a longer tone arm. For the purpose a conversion kit JP 512 is available. It consists of a larger tone arm mounting board and a longer control panel. For this conversion, proceed as follows: — after unscrewing the 3 socket headed screws remove the standard tone arm mounting board. — Remove outer and inner turntable platters. — Loosen earth connection (cable) between upper and lower chassis. — Unscrew the 3 knurled nuts ⑪ and remove the washers below. — Remove the upper die cast chassis, taking care not to lose any part of the spring suspension of this chassis. — Unscrew the fastening screws of the slide buttons ⑫ and remove the buttons. — Unscrew the 3 screws maintaining the control panel which become accessible after removal of the die cast chassis. — Remove the standard control panel.

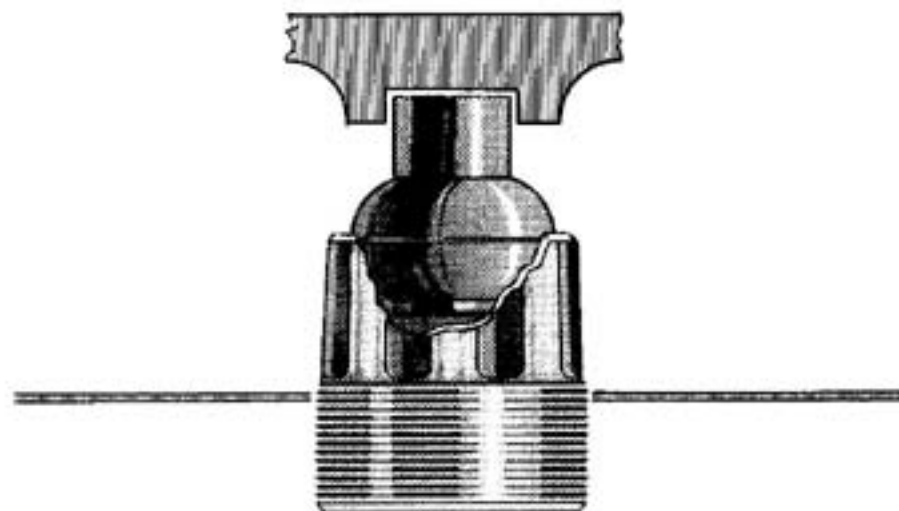
For assembling the longer control panel and the larger tonearm mounting board, proceed accordingly in reverse sequence.

The conversion enlarges the turntable by 75 mm (2.95"). This also requires the longer base No ST 512.

## 4.5. TD 125 with stiff suspension



In some special cases, for example for discotheque use, it can be of advantage to suppress the resilient suspension of the die cast chassis of the TD 125, although this operation results in a slightly higher rumble level. For this conversion, proceed as follows: — Unscrew each one of the 3 knurled knobs ® of the die cast



chassis suspension, one at a time, and remove the spring below. — In place of the spring introduce the special rubber grommet (please order separately No. CB 909) and insert the knurled knob upside-down. — Beware to unscrew only one knurled knob at a time!



## 5. TONE ARM AND PICK UP

The tone arm mounting board has to be removed by unscrewing the 3 socket headed screws with the Allen key supplied. The tone arm should be mounted on the board in accordance with the manufacturers recommended procedure and the template supplied. Connect earth of the tone arm to the chassis screw ⑨.

The Thorens TP 25 tone arm has been designed to perfectly match the standards of the TD 125 turntable and it will therefore give you optimum performances. Moreover the lowering device, operated from the rigid front panel by means of an additional slide bar, greatly facilitates its use.

### 5.1. Cartridge installation

The TP 50 plug-in shell offers enough space and the necessary mounting hardware to suit any standard pick-up cartridge ( $\frac{1}{2}$ " hole distance). Making use of the hardware supplied — washers, spacers and screws — mount the cartridge in a way to bring the stylus tip at a distance of  $\frac{3}{4}$ " to  $\frac{7}{8}$ " (19—21 mm) from the bottom of the shell. Fig. 3.

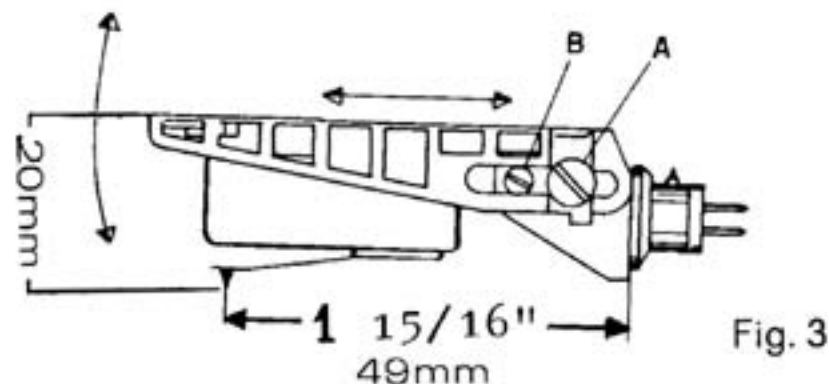
#### Attention!

It is essential that only the metrical M2 screws supplied with the TP 50 shell be used. The screws delivered with several cartridges have a Whitworth thread and they will not fit the metric threads used on Thorens units.



## 5.2. Cartridge alignment

The TP 50 plug-in shell allows to adjust first the vertical tracking angle and then the stylus overhang for optimum tracking.



### 5.2.1 Vertical tracking angle

Loosen slightly the two screws A on both sides of the shell and small screws B (see fig. 3).

Insert the shell plug in the arm socket, allowing the location pin to enter the slot. Press inward and tighten the locking nut firmly but not more than necessary. This operation is best performed when the arm is clamped in the arm rest. Bring the tone arm over a record (caution: take a worn record) and adjust the vertical tracking angle according to the instructions of the cartridge manufacturer, in turning the shell on the axis determined by the two screws A. Do not force the shell into position, due to the extra-light design this could lead to serious damages.

For 15° cartridges, the proper vertical tracking angle is obtained when the upper surface of the plug-in shell is horizontal.

Make sure that the rear of the shell or of the cartridge cannot contact a warped record. If necessary, increase the vertical distance between the stylus tip and the bottom of the shell with the help of spacers (see fig. 3). At last tighten small set screws B.

Due to this special adjustment it is possible to obtain a 15° vertical tracking angle also for a number of older cartridges which were not manufactured according to the present international standards.

### 5.2.2 Stylus overhang

The optimum distance of 230 mm between stylus tip and vertical tone arm bearing is obtained when the stylus tip is at a distance of 49 mm from the rear vertical surface of the plug-in shell (see fig. 3).

Tighten the two screws A.

## 5.3. Cartridge connection

Four separate colour coded leads are already soldered to the terminal pins in the shell:

Red — Right channel positive (hot)  
Green — Right channel negative (shield)

These two leads constitute also the mono channel.

White — Left channel positive (hot)  
Blue — Left channel negative (shield)

## 5.4. Assembling the counterweight

As a precaution against damage in transit, the counterweight is packed separately, already threaded on the removable back tubular part of the arm with the set screw.

Slide the back tubular part with the counterweight onto the pick-up arm extension and lock it in position with set screw.

For balancing the arm move the stylus force adjustment lever back as far as possible to the abutment of the lower end of the scale. Move the lowering device slide bar to the "play" position. Position the arm so that the stylus tip is between the arm rest and the turntable platter.

Turn the counterweight with the right hand, while maintaining the lateral position of the arm with the left hand to avoid damaging the stylus, until the arm assumes a horizontal position, i. e. the stylus is at record surface level.

## 5.5. Stylus force adjustment

After balance of the tone arm has been achieved, slide the stylus force lever to the prescribed weight on the stylus force scale as recommended by the cartridge manufacturer. Fig. 4.

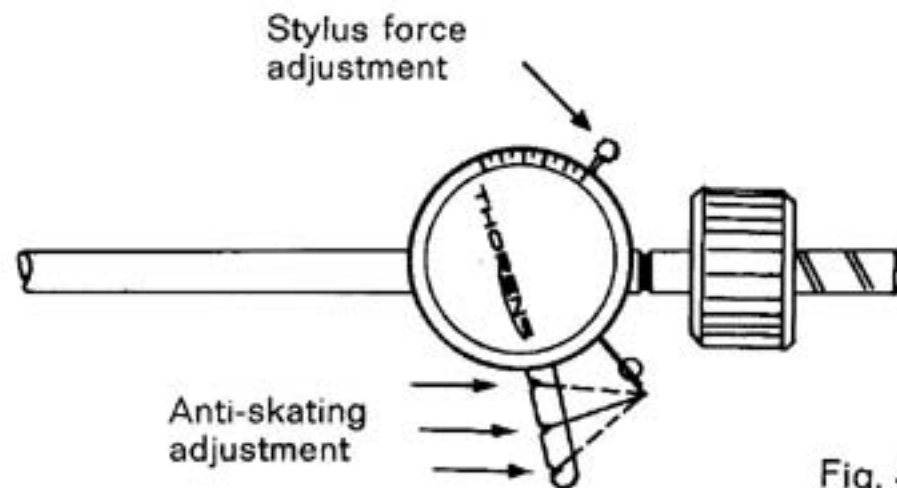


Fig. 4

## 5.6. Anti-skating adjustment

The setting of the anti-skating force depends mainly on the applied stylus pressure. At the TP 25 tone arm it can be adjusted by fixing the nylon thread which is led through a hole in the tone arm mounting board in one of the three different notches. The highest anti-skating force is applied when the nylon thread hangs in the outer notch.

Furthermore, the force can be decreased by unscrewing the lower part of the antiskating weight.

The correct anti-skating force necessary for a particular cartridge can be determined by means of a test record which incorporates a tracking test, for instance CBS no. STR. 111. Whilst playing this part of the record, at first without anti-skating force, reduce the stylus force until distortion becomes audible. Normally it is first audible in the right channel and upon a further reduction of the stylus force, in the left channel. Adjust the anti-skating device — as mentioned above — until the distortion appears equal in both channels. This adjustment being made, increase the stylus force back to a value which guarantees a distortion free reproduction.

The anti-skating force can also be determined by means of the grooveless part of some other test records.

When playing this part of the record the nylon thread should be adjusted in such a way that the tone arm does neither move to the center nor the outer edge of the test record.

If such test records are not available the adjustment can be done according to the following table:

Stylus force	Groove on bias arm
1 — 1.5 grams	inside
1.5 — 2 grams	middle
2 — 4 grams	outside

## 5.7. Pick-up output connections

The tone arm is wired in the factory according to Fig. 5.

Right channel: standard male phonoconnector plug, black colour.

Left channel: standard male phonoconnector plug, white colour.

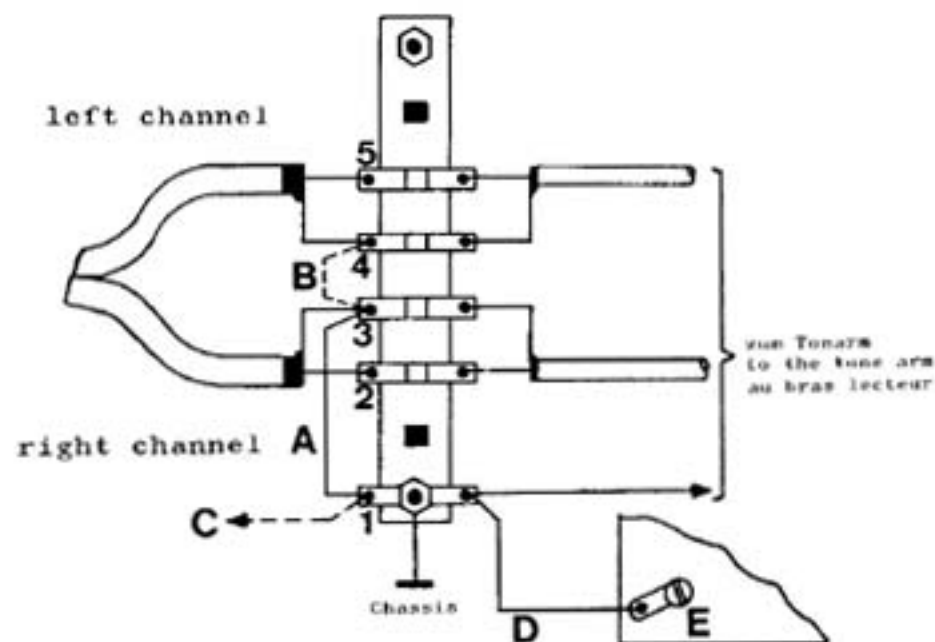


Fig. 5

Ground connection:

— The unit plate and the metal part of the arm are connected at A to the shield of the right channel cable acting as a ground lead.

— The shield of the left channel cable is insulated from the base plate of the turntable and from the metal parts of the arm.

The spring mounted parts of the turntable are connected to the fixed unit plate by ground lead D. Lug E should be fastened on the metal frame by the corresponding set screw of the pick-up wooden board.

If necessary for particular cartridges or amplifiers, two different wiring systems may be easily realized:

#### 3 wire system

Connect lugs 3 and 4 on the terminal strip with a wire B; the shields of both channels are thus connected together and to the unit plate.

#### 5 wire system.

When the ground for the turntable cannot be returned to the amplifier ground through the signal carrying shieldings, the wire connecting lugs 1 and 3 should be cut at A and a separate insulated wire C connected from lug 1 to the common grounding point for the amplifiers.

## 6. OPERATION

### 6.1. AC Mains power supply connection

The turntable TD 125 may be operated at any AC mains power supply. For voltages between 210 and 240 V the small fuse 5 x 20 mm, 100 mA, slow-blow has to be attached to the fitting fuse holders.

For voltages between 110 and 130 V the large fuse 6 x 32 mm, 200 mA, slow-blow has to be attached to the respective fuse holder.

The fuse holders are easily accessible after removal of the protective cap ⑩.

**Before changing the fuse don't forget to disconnect the unit from the mains!**



Fig.6

Due to the electronic speed control of the TD 125 turntable an electrical adjustment to different AC mains power supply frequencies (50 or 60 Hz) is not necessary. For the adjustment of the stroboscope illumination see paragraph 6.4.

## 6.2. AC Mains power supply switch

The slide bar ① on the control panel has two positions:

Left position: OFF

Right position: ON

The synchronous motor is controlled by the solid state control system. There is a built in automatic overload protective circuit. **Therefore no damage will occur if the turntable platter is stopped by hand when the power is on.**

## 6.3. Speed selector

The slide bar on the left hand side of the control panel ② is the speed selector for the three speeds  $16\frac{2}{3}$ ,  $33\frac{1}{3}$  and 45 RPM.

It can be operated at any time whether power is on or off. The fine speed adjustment is made by the red knurled wheel ③ in front of the illuminated stroboscope window ④. The turntable speed is increased when the knurled wheel is moved to the left and decreased when moved to the right.

When the appropriate stroboscope pattern is stationary the following record speeds will be obtained for the following mains frequencies.

At 50 Hz 45.11 RPM and 33.33 RPM

At 60 Hz 45.00 RPM and 33.33 RPM

When using the  $16\frac{2}{3}$  RPM speed, correct speed will be indicated by the  $33\frac{1}{3}$  stroboscope pattern.



## 6.4. Stroboscope adjustment for different AC mains power supply frequencies

The TD 125 turntable can be operated without frequency adjustment at 50 and 60 Hz (USA, Canada) AC mains power supply. (Make sure that the correct fuse, corresponding to the AC mains power supply voltage is installed, see paragraph 6.1.)

The stroboscope illumination has to be changed when operating the turntable at another AC mains power supply frequency. This illumination has no influence to the other function of the turntable. For the adjustment, the outer turntable, the drive belt and the inner turntable have to be removed.

The two screws (⑪ in figure No. 7) should be loosened one or two turns. The neon lamp carrier may now be moved as indicated in figure No. 7 corresponding to the AC mains power supply frequency. After tightening the screws, fit the inner turntable platter into its bearing well and replace the drive belt.

The outer turntable platter is then centred on the inner one. The drive belt should be kept entirely free from any trace of oil or grease during this operation.

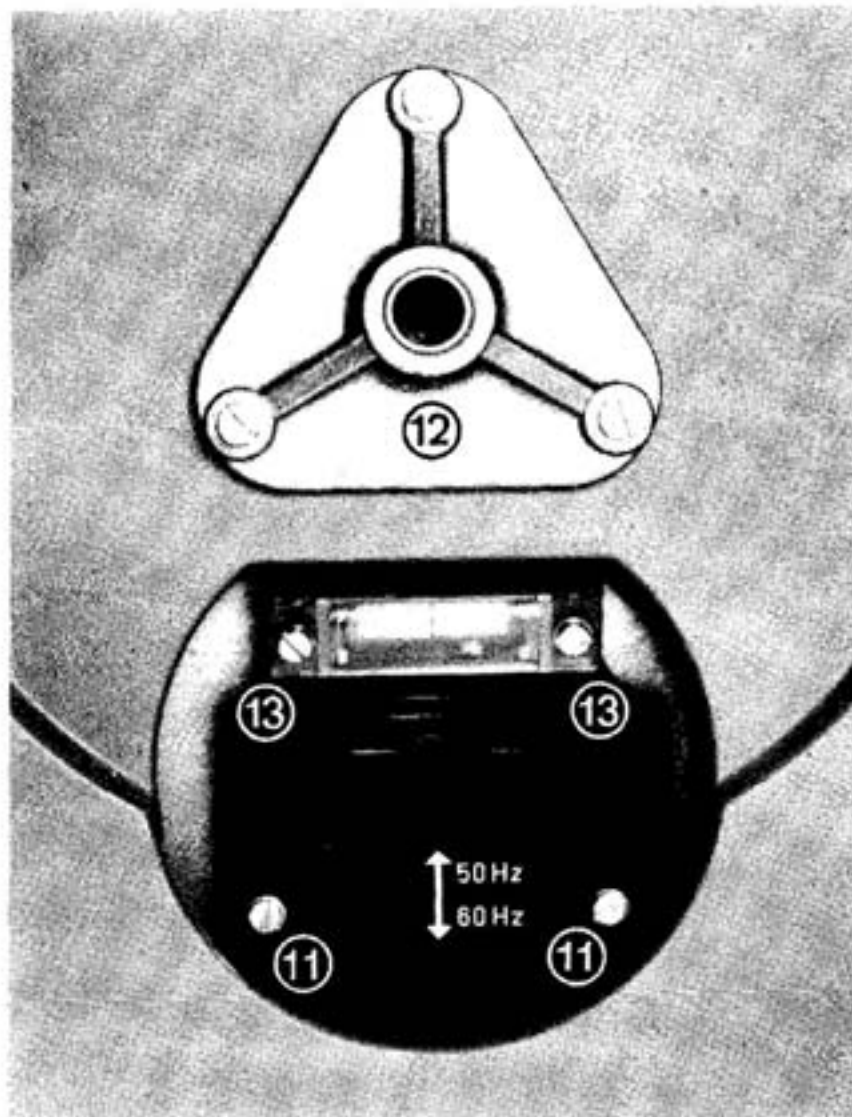


Fig. 7

## 7. THE SOLID STATE CONTROL SYSTEM AND HOW IT WORKS

The TD 125 turntable is fitted with a Solid State Control System. This replaces the mechanical linkage which is normally necessary to maintain different record speeds. The Solid State Control Circuit consists of a transi-

The necessary power for the synchronous motor is produced by a push-pull amplification stage. To maintain the optimum torque from the motor at any frequency, a pair of frequency stepped switches are linked

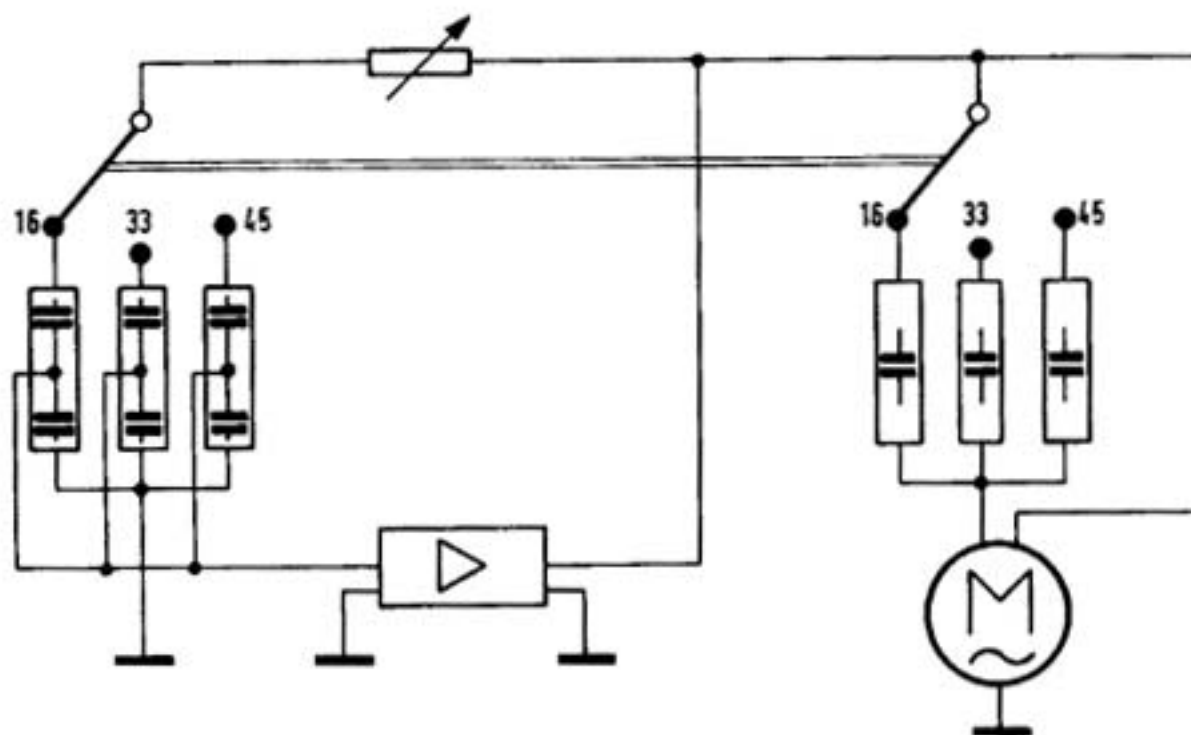


Fig. 8

torized Wien bridge oscillator, normally used in measuring instruments, and the frequency of this oscillator can be varied in definite steps so that the speed of the 16 pole synchronous motor can be changed. An additional fine frequency adjustment may be effected by means of a potentiometer, thus providing an electronic speed control within the range of  $\pm 2\%$ .

together thus providing different phase shift motor condensers.

The speed of the synchronous motor is therefore controlled by the generated frequency. The desired record speed will be provided by the precise frequency variation of the control generator.

## **8. MAINTENANCE**

### **8.1. Turntable**

The turntable bearing shaft revolves in self-lubricating bearings. Under normal conditions lubrication is not necessary before several 1000 hours of running. When lubrication of the turntable bearing ⑫ is necessary use exclusively Caltex Regal oil B (ROB) as supplied with our Lubrication Kit available as an accessory at your dealer.

### **8.2. Motor**

Due to the slow operating speed of the synchronous motor no lubrication is necessary under normal operating conditions.

### **8.3. Drive System**

The belt, the motor pulley and the periphery of the inner turntable should be entirely free of any trace of oil or grease. If necessary, clean them with a lint free cloth dampened with denatured alcohol or methylated spirits.

### **8.4. Replacing the neon stroboscope bulb**

Before doing this, DISCONNECT THE UNIT FROM THE MAINS. Remove the inner and outer turntable as described in paragraph 6.4.

The neon bulb is then accessible, located under a cylindrical lens at the upper edge of the black stroboscope plate. Fig. 7. After unscrewing both screws left and right beneath the lens ⑬, the lens can be removed and the neon bulb replaced.

To reassemble the turntable proceed accordingly in reverse sequence.



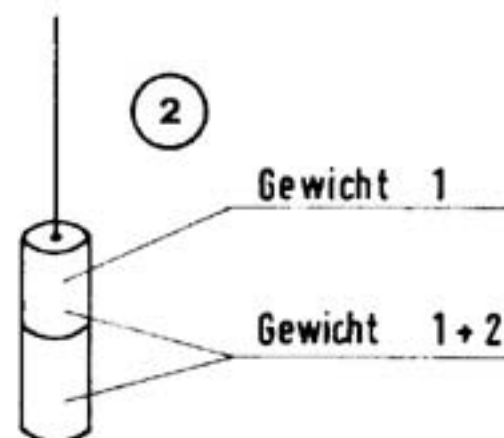
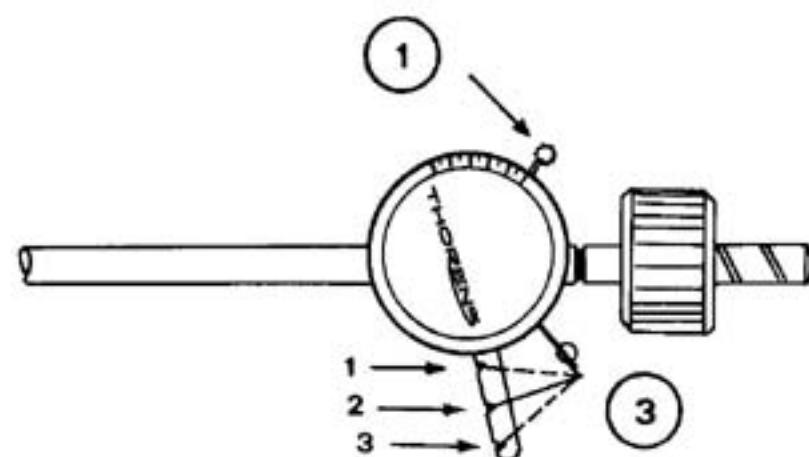
## THORENS WARRANTY

1. We warrant that we shall replace free of charge every defective part of this unit or repair it free of charge in our works or in one of our authorized service stations; in case a defect should set in within the period of warranty. The warranty period is of one year from the date of the original purchase.
2. Above warranty is valid only if the enclosed warranty card, duly filled, is returned within 10 days after purchase to the Thorens General Representative in your country; his address will be given by your dealer.
3. Should a defect set in within the warranty period, please contact the Thorens General Representative and describe completely the defective operation and quote Model and Serial Number of your unit. In simple cases the General Representative will send you the replacement part. Otherwise he will give you the address of the nearest service station or ask you to return the complete unit.
4. In the latter case, please pack the unit in the original packing according to the instructions of the manual. Shipment must be made shipping charges prepaid.
5. Any damage caused by failure to observe the instructions contained in the manual, as well as by accident in transit or elsewhere, will not be covered by this warranty.
6. The warranty expires if the unit is being repaired or altered by anyone other than a Thorens authorized service station.

Skating compensation by using the two-piece weight S 843-193

Skatingkompensation mit dem zweiteiligen Gewicht S 843 - 193

Compensation de la force centripète au moyen du poids en deux parties S 843-193



1 Needle pressure Auflagekraft Force d'appui sur le disque	2 Weight Gewicht Poids	3 Notch Kerbe Encoche
1 p	1	1
1,5 p	1	3
2 p	1+2	1
2,5 p	1+2	2

# THORENS

THORENS-FRANZ AG  
CH 5430 Wettingen (AG)  
Switzerland



**THORENS** TD 125

INSTRUCTION  
MANUAL





# INSTRUCTION MANUAL

**THORENS**  
**TD 125**



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### 1. INTRODUCTION

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## 1. INTRODUCTION

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Position left: "OFF"  
Position right: "ON"

2.3. The left hand slide bar ② is the speed selector which controls the 3 speeds available. In the left hand position it is  $16\frac{2}{3}$  RPM. Centre position  $33\frac{1}{3}$  RPM and right hand position 45 RPM.

2.4. In front of the lighted stroboscope window ③ is the knurled wheel ④ for the pitch control.  
Moved to the left: turntable runs faster  
Moved to the right: turntable runs slower  
For the exact turntable speed it has to be adjusted so that the stroboscope pattern ⑤ seems to stand still.

2.5. The adaptor in the centre of the turntable platter ⑥ may be turned over for adjustment in order to play records with either large or small centre hole.

2.6. Tone arm lift ⑦  
Position left: off Position right: play





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The slide button in the centre of the control panel ① is the AC mains on/off switch.  
Position left: "OFF"  
Position right: "ON"

The left hand slide bar ② is the speed selector which controls the 3 speeds available. In the left hand position it is 16 2/3 RPM. Centre position 33 1/3 RPM and right hand position 45 RPM.

In front of the lighted stroboscope window ④ is a knurled wheel ③ for the pitch control.  
Moved to the left: turntable runs faster  
Moved to the right: turntable runs slower  
the exact turntable speed it has to be adjusted so that the stroboscope pattern ④ seems to stand still.

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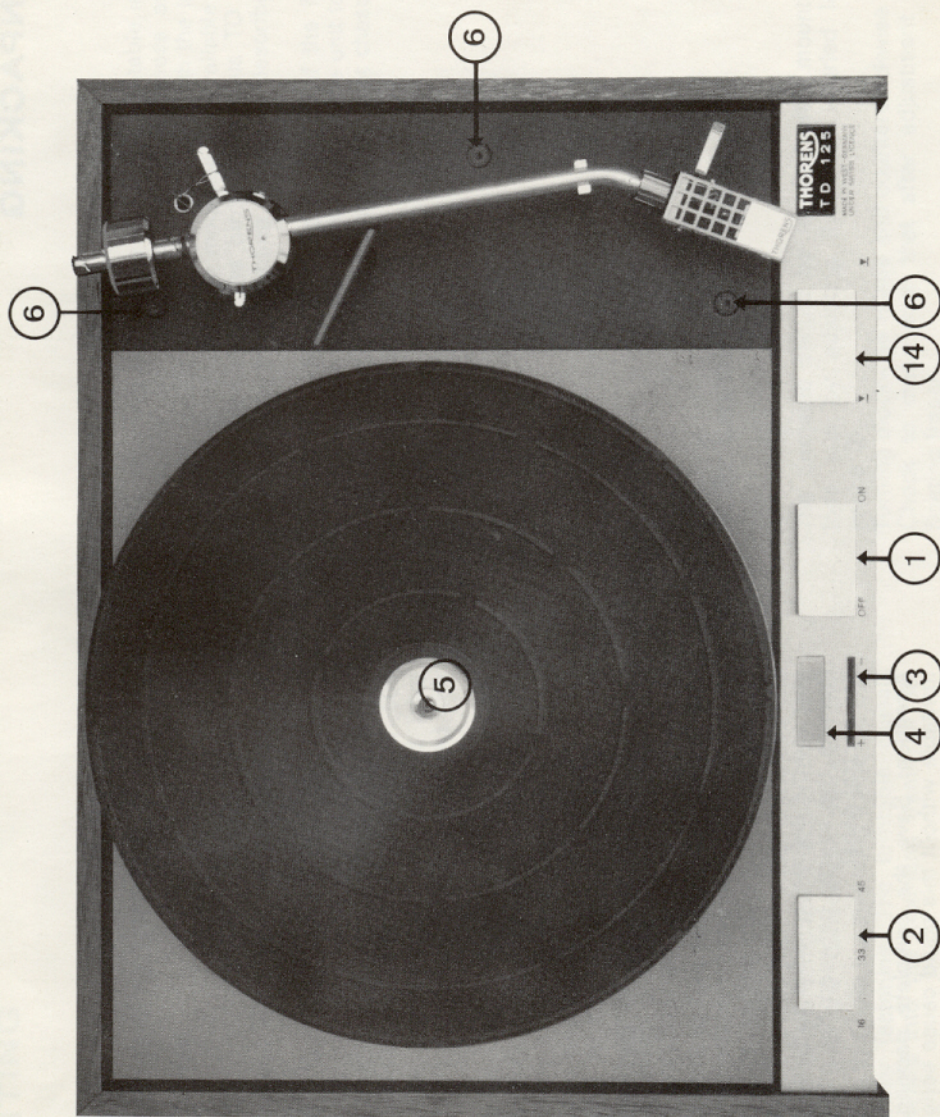


Fig. 1



### 3. UNPACKING

Place the carton top side up and open. Remove the outer 12" turntable platter and its rubber mat. After installing the unit carefully centre the outer turntable platter on the inner turntable platter with the rubber mat on top.

After removing the upper part of the foam plastic, the turntable may be removed from the carton.

The accessories are stored beneath the turntable.

Take the complete unit out of the foam plastic bottom part and put it down on a flat surface.

Remove the spacer between the suspended chassis and control panel.

**Attention:** Save the complete packing. Shipping the turntable without this could cause serious damage.

### 4. MOUNTING

#### 4.1. Mounting the turntable on a base

For the TD 125 B und TD 125 AB version, this chassis is not applicable.

Remove the outer turntable platter before proceeding to mount the Unit.

If the turntable is to be operated free standing outside of furniture it has to be mounted into a base No ST or equivalent. The chassis must be fastened from underneath with the 4 screws which are supplied with the turntable.

If the holes of the base do not fit to the turntable threads, slacken screws ⑦. Then the thread-bars be moved according to the holes in the base.

#### 4.2. Mounting the turntable into furniture

The TD 125 turntable should be mounted on a plywood mounting board of not less than 1/2 inch thickness cut out according to the template X 830-2. This rectangular hole with the dimensions 451 x 341 (17.75 x 13.42"). In this hole the mounting frame CE fits without further fastening. The turntable chassis TD 125 is fastened into the mounting frame as scribed under 4.1.



## 4. MOUNTING

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If the holes of the base do not fit to the turntable-threads, slacken screws ⑦. Then the thread-bars can be moved according to the holes in the base.

### 4.2. Mounting the turntable into furniture

The TD 125 turntable should be mounted on a ply-wood mounting board of not less than  $1\frac{1}{2}$  inch thickness and cut out according to the template X 830-2. This is a rectangular hole with the dimensions 451 x 341 mm (17.75 x 13.42"). In this hole the mounting frame CE 509 fits without further fastening. The turntable chassis TD 125 is fastened into the mounting frame as described under 4.1.

The mounting board onto which the turntable is fitted should not be less than  $1\frac{1}{2}$ " in thickness and the aperture should be cut in accordance with the instructions supplied with the mounting kit available as an optional accessory. The turntable chassis TD 125 is fastened into the mounting frame as described under 4.1.

In order to ensure efficient operation of the floating suspension it is essential when fitting the unit to allow sufficient clearance between the die cast chassis and the mounting board.

### 4.3. Levelling of Unit

The turntable should be levelled after mounting the tone arm by adjusting the three knurled levelling knobs ⑧.

Turning clockwise raises and counterclockwise lowers. Check to make sure that after adjustment Unit is floating freely.



#### 4.4. Assembling of longer length tone arms

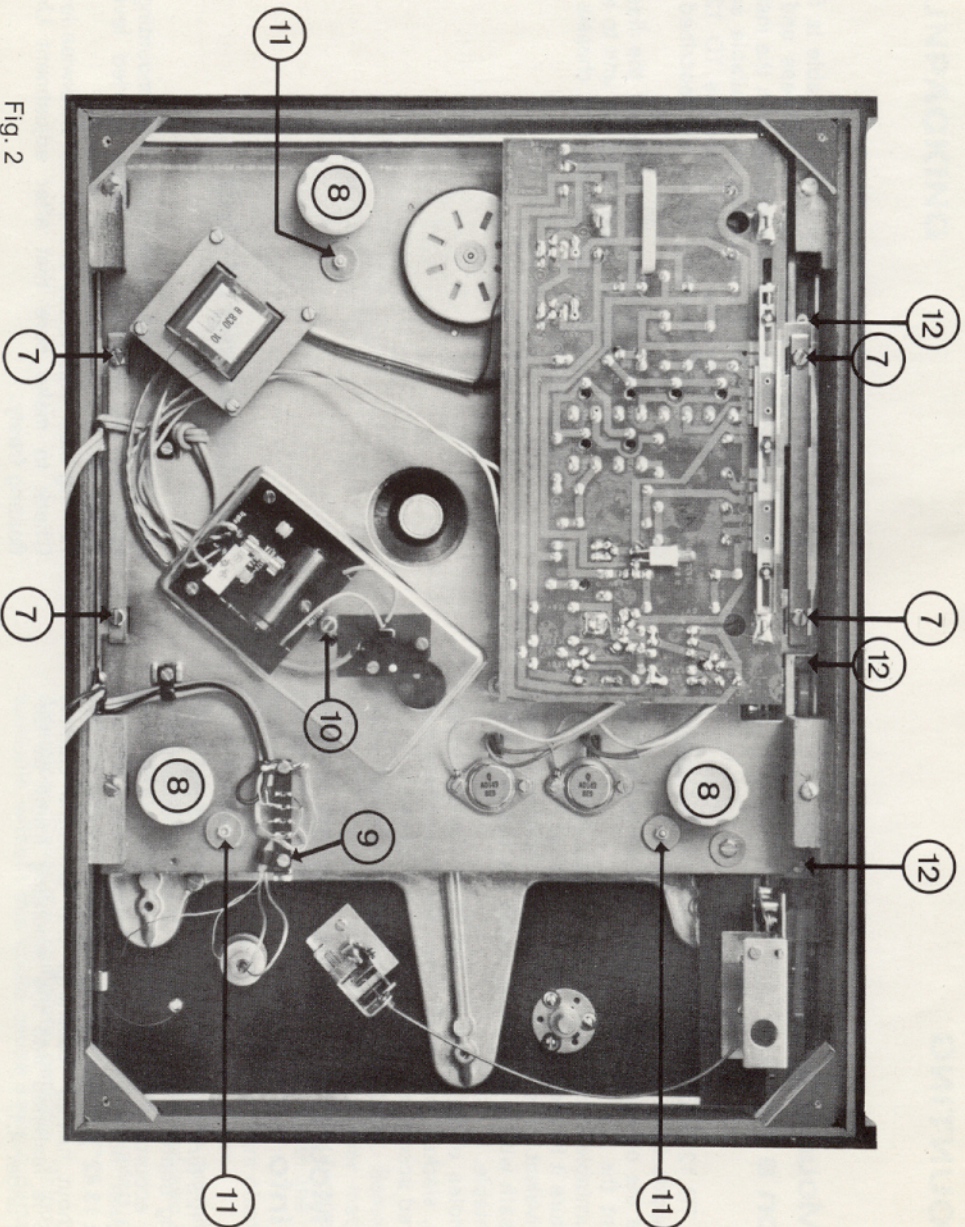
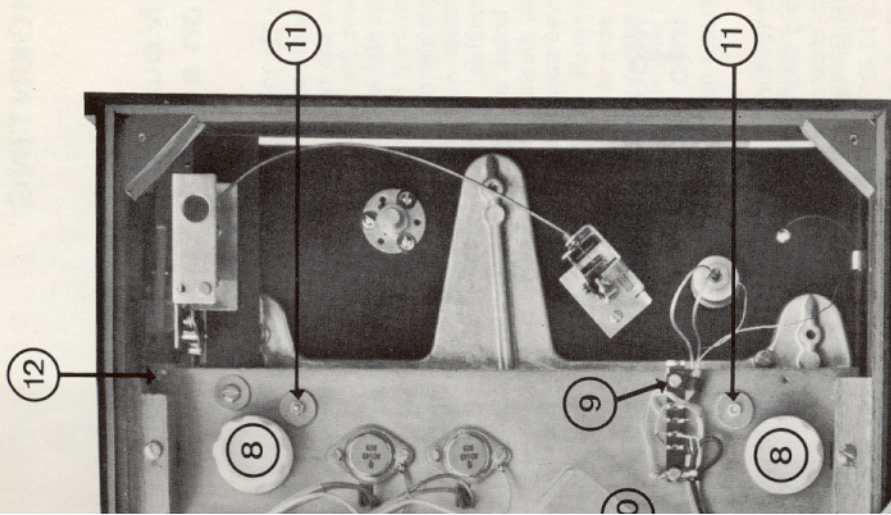


Fig. 2



#### 4.4. Assembling of longer length tone arms



The TD 125 is supplied as standard with an arm mounting board to accommodate 9" (British Standard) 12" (American Standard) tone arms.

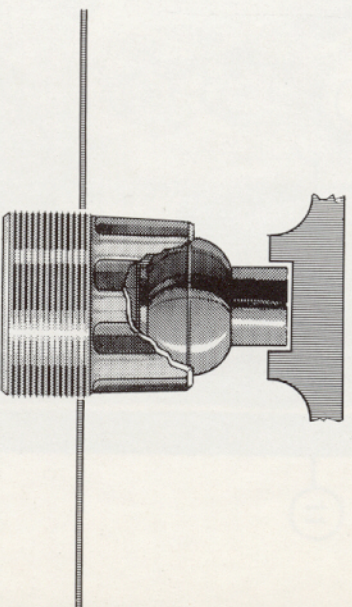
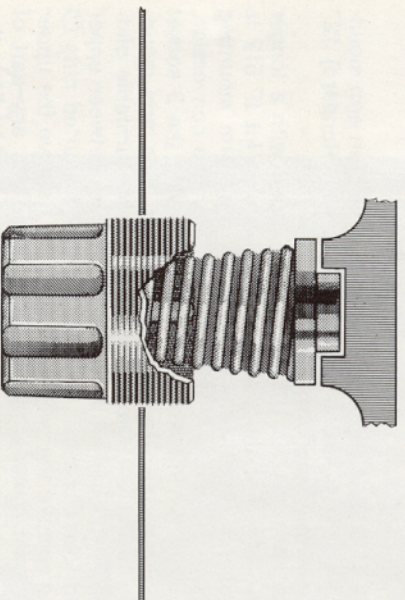
The turntable TD 125 may be equipped with a longer tone arm. For the purpose a conversion kit JP 512 is available. It consists of a larger tone arm mounting board and a longer control panel. For this conversion, proceed as follows: — after unscrewing the 3 socket headed screws remove the standard tone arm mounting board. — Remove outer and inner turntable platens. — Loosen earth connection (cable) between upper and lower chassis. — Unscrew the 3 knurled nuts ⑪ and remove the washers below. — Remove the upper die cast chassis, taking care not to lose any part of the spring suspension of this chassis. — Unscrew the fastening screws of the slide buttons ② and remove the buttons. — Unscrew the 3 screws maintaining the control panel which become accessible after removal of the die cast chassis. — Remove the standard control panel.

For assembling the longer control panel and the larger tonearm mounting board, proceed accordingly in reverse sequence.

The conversion enlarges the turntable by 75 mm (2.95"). This also requires the longer base No ST 512.



#### 4.5. TD 125 with stiff suspension



In some special cases, for example for use disc-jockeys, it can be of advantage to suppress the resilient suspension of the die cast chassis of the TD 125, although this operation results in a slightly higher rumble level. For this conversion, proceed as follows: — Unscrew each one of the 3 knurled knobs ⑧ of the die cast

chassis suspension, one at a time, and remove the spring below. — In place of the spring introduce the special rubber grommet (please order separately with No CB 909) and screw back the knurled knob upside-down. — Beware to unscrew only one knurled knob at a time!

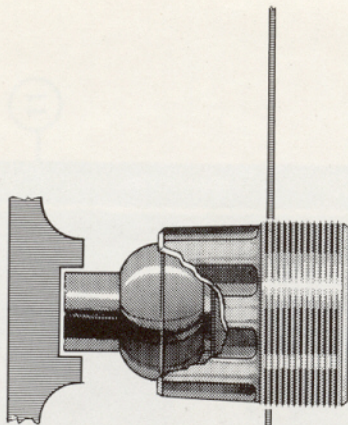
#### 5. TONE ARM AND PICK UP

The tone arm mounting board is removed by unscrewing the 3 socket headed screws with the Allen key supplied. The tone arm is mounted on the board in accordance with the manufacturers recommended procedure. Connect earth of the tone arm to the chassis screws.

The Thorens TP 25 tone arm has been designed to perfectly match the standards of the TD 125 turntable and it will therefore give you optimum performance. Moreover the lowering device operated from the front panel by means of an additional slide bar greatly facilitates its use. The turntable TD 125 is available with factory mounted TP 25 tone arm but the latter also be installed later on. It is recommended to have this mounting made by an authorized service station. The technically trained owner of a TD 125 turntable is desirous to mount the TP 25 tone arm by himself refer to the service manual TP 25.



## 5. TONE ARM AND PICK UP



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The tone arm mounting board is removed by unscrewing the 3 socket headed screws with the Allen key supplied. The tone arm is mounted on the board in accordance with the manufacturers recommended procedure and the template supplied. Connect earth of the tone arm to the chassis screw ②.

The Thorens TP 25 tone arm has been designed to perfectly match the standards of the TD 125 turntable and it will therefore give you optimum performances. Moreover the lowering device operated from the rigid front panel by means of an additional slide bar greatly facilitates its use. The turntable TD 125 is available with factory mounted TP 25 tone arm but the latter can also be installed later on. It is recommended to have this mounting made by an authorized service station. The technically trained owner of a TD 125 turntable desirous to mount the TP 25 tone arm by himself shall refer to the service manual TP 25.

### 5.1. Cartridge installation

The TP 50 plug-in shell offers enough space and the necessary mounting hardware to suit any standard pick-up cartridge ( $\frac{1}{2}$ " hole distance). Making use of the hardware supplied — washers, spacers and screws — mount the cartridge in a way to bring the stylus tip at a distance of  $\frac{3}{4}$ " to  $\frac{7}{8}$ " ( $19-21$  mm) from the bottom of the shell. Fig. 3.

#### Attention!

It is essential that only the metrical M2 screws supplied with the TP 50 shell be used. The screws delivered with several cartridges have a whitworth thread and they will not fit the metric threads used on Thorens units.



## 5.2. Cartridge alignment

The TP 50 plug-in shell allows to adjust first the vertical tracking angle and then the stylus overhang for optimum tracking.

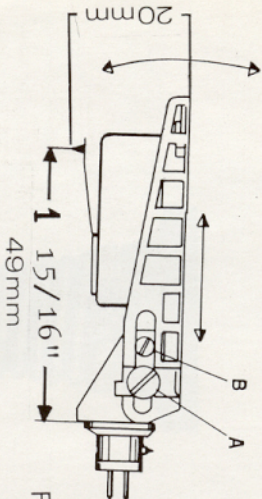


Fig. 3

### 5.2.1 Vertical tracking angle

Loosen slightly the two screws A on both sides of the shell and small screws B (see fig. 3). Insert the shell plug in the arm socket, allowing the location pin to enter the slot. Press inward and tighten the locking nut firmly but not more than necessary. This operation is best performed when the arm is clamped in the arm rest. Bring the tone arm over a record (caution: choose a worn record) and adjust the vertical tracking angle according to the instructions of the cartridge manufacturer, in turning the shell on the axis determined by the two screws A. Do not force the shell into position, due to the extra-light design this could lead to serious damages.

For 15° cartridges, the proper vertical tracking angle is obtained when the upper surface of the plug-in shell is horizontal. Make sure that the rear of the shell or of the cartridge cannot contact a warped record. If necessary, increase the vertical distance between the stylus tip and the bottom of the shell with the help of spacers (see fig. 3). At last tighten small set screws B. Thanks to this special adjustment it is possible to obtain a 15° vertical tracking angle also for a number of older cartridges which were not manufactured according to the present international standards.

### 5.2.2 Stylus overhang

The optimum distance of 230 mm between stylus tip and vertical tone arm bearing is obtained when the stylus tip is at a distance of 49 mm from the rear vertical surface of the plug-in shell (see fig. 3). Tighten the two screws A.

## 5.3. Cartridge connection

Four separate colour coded leads are already soldered to the terminal pins in the shell:

Red — Right channel positive (hot)  
Green — Right channel negative (shield)  
White — Left channel positive (hot)  
Blue — Left channel negative (shield)

These two leads constitute also the mono channel

## 5.4. Assembling the counterweight

As a precaution against damage in transit, the counterweight is packed separately, already threaded and removable back tubular part of the arm with the screw.

Slide the back tubular part with the counterweight onto the pick-up arm extension and lock it in position with set screw.

For balancing the arm move the stylus force adjusting lever back as far as possible to the abutment at the lower end of the scale. Move the lowering device slide bar to the "play" position. Position the arm so that the stylus tip is between the arm rest and turntable platter.

Turn the counterweight with the right hand, while maintaining the lateral position of the arm with the left hand to avoid damaging the stylus, until the arm assumes horizontal position, i. e. the stylus is at record surface level.



15° cartridges, the proper vertical tracking angle is obtained when the upper surface of the plug-in shell is horizontal. Be sure that the rear of the shell or of the cartridge does not contact a warped record. If necessary, increase the vertical distance between the stylus tip and the bottom of the shell with the help of spacers (see fig. 3). Tighten small set screws B. Thanks to this special adjustment it is possible to obtain a 15° vertical tracking angle also for a number of cartridges which were not manufactured according to the present international standards.

## 2 Stylus overhang

The optimum distance of 230 mm between stylus tip and vertical tone arm bearing is obtained when the stylus tip is at a distance of 49 mm from the rear vertical surface of the plug-in shell (see fig. 3). Measure the two screws A.

## 3. Cartridge connection

Separate colour coded leads are already soldered to the terminal pins in the shell:

- Red — Right channel positive (hot)
  - Green — Right channel negative (shield)
  - White — Left channel positive (hot)
  - Blue — Left channel negative (shield)
- These two leads constitute also the mono channel.

## 5.4. Assembling the counterweight

As a precaution against damage in transit, the counterweight is packed separately, already threaded on the removable back tubular part of the arm with the set screw.

Slide the back tubular part with the counterweight onto the pick-up arm extension and lock it in position with set screw.

For balancing the arm move the stylus force adjustment lever back as far as possible to the abutment of the lower end of the scale. Move the lowering device slide bar to the "play" position. Position the arm so that the stylus tip is between the arm rest and the turntable platter.

Turn the counterweight with the right hand, while maintaining the lateral position of the arm with the left hand to avoid damaging the stylus, until the arm assumes a horizontal position, i. e. the stylus is at record surface level.

## 5.5. Stylus force adjustment

After balance of the tone arm has been achieved, slide the stylus force lever to the prescribed weight on the stylus force scale as recommended by the cartridge manufacturer. Fig. 4.

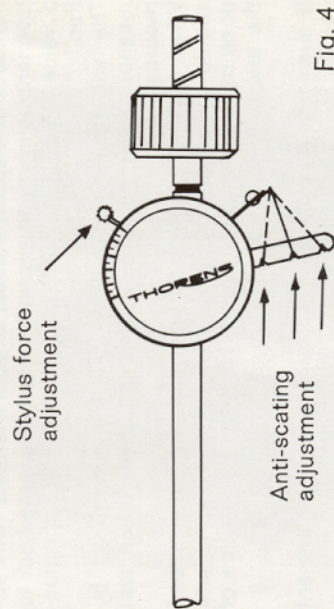


Fig. 4

## 5.6. Anti-skating adjustment

The setting of the anti-skating force depends mainly on the applied stylus pressure. At the TP 25 tone arm it can be adjusted by fixing the nylon thread which is led through a hole in the tone arm mounting board in one of the three different notches. The highest anti-skating force is applied when the nylon thread hangs in the outer notch.



The correct anti-skating force necessary for a particular cartridge can be determined by means of a test record which incorporates a tracking test, for instance CBS no. STR. 111. Whilst playing this part of the record, at first without anti-skating force, reduce the stylus force until distortion becomes audible. Normally it is first audible in the right channel and upon a further reduction of the stylus force, in the left channel. Adjust the anti-skating device — as mentioned above — until the distortion appears equal in both channels. This adjustment being made, increase the stylus force back to a value which guarantees a distortion free reproduction.

The anti-skating force can also be determined by means of the grooveless part of some other test records.

When playing this part of the record the nylon thread should be adjusted in such away that the tone arm does neither move to center nor to the outer edge of the test record.

If such test records are not available the adjustment can be done according to the following table:

Stylus force	Groove on bias arm
1 — 1.5 grams	inside
1.5 — 2 grams	middle
2 — 4 grams	outside

## 5.7. Pick-up output connections

The tone arm is wired in the factory according to Fig. 5.

Right channel: standard male phonoconnector plug, black colour.

Left channel: standard male phonoconnector plug, white colour.

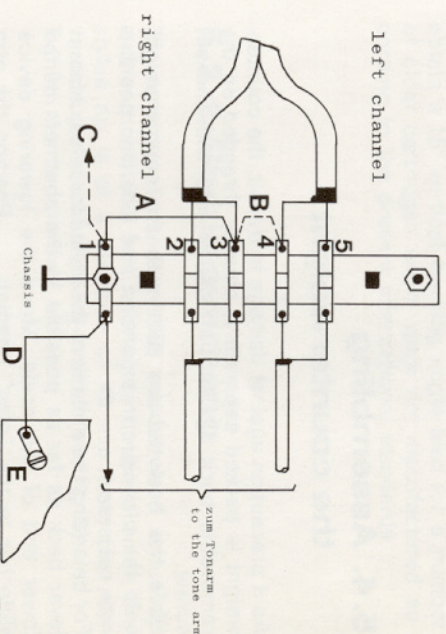


Fig. 5

Ground connection:

— The unit plate and the metal part of the arm are connected in A to the shield of the right channel cable acting as a ground lead.

— The shield of the left channel cable is insulated from the base plate of the turntable and from the metal parts of the arm.

The spring mounted parts of the turntable are connected to the fixed unit plate by ground lead D. Lugs should be fastened on the metal frame by the corresponding set screw of the pick-up wooden board. If necessary for particular cartridges or amplifiers, different wiring systems may be easily realized:

3 wire system

Connect lugs 3 and 4 on the terminal strip with a wire. B; the shields of both channels are thus connected together and to the unit plate.

5 wire system.

When the ground for the turntable cannot be returned to the amplifier ground through the signal carry shieldings, the wire connecting lugs 1 and 3 should be cut at A and a separate insulated wire C connected from lug 1 to the common grounding point for amplifiers.

## 6. OPERATION

### 6.1. AC Mains power supply connection

The turntable TD 125 may be operated at any AC power supply. For voltages between 210 and 240 V small fuse 5 x 20 mm, 100 mA, slow-blow has to be attached to the fitting fuse holders.



## Pick-up output connections

tone arm is wired in the factory according to  
channel: standard male phonoconnector plug,  
colour:  
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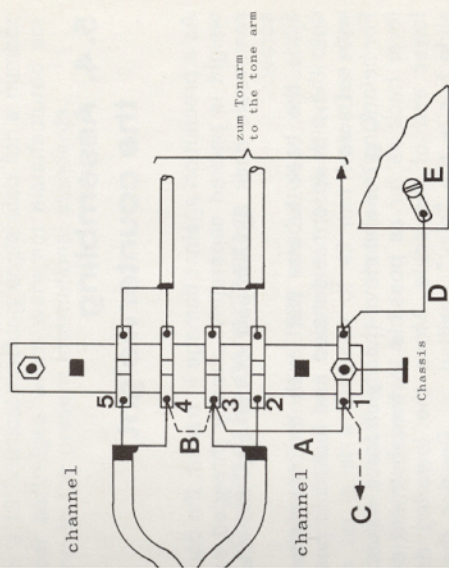


Fig. 5

and connection:

the unit plate and the metal part of the arm are connected in A to the shield of the right channel cable as a ground lead.

The shield of the left channel cable is insulated from the base plate of the turntable and from the metal parts of the arm.

The spring mounted parts of the turntable are connected to the fixed unit plate by ground lead D. Lug E should be fastened on the metal frame by the corresponding set screw of the pick-up wooden board.

If necessary for particular cartridges or amplifiers, two different wiring systems may be easily realized:

3 wire system

Connect lugs 3 and 4 on the terminal strip with a wire B; the shields of both channels are thus connected together and to the unit plate.

5 wire system.

When the ground for the turntable cannot be returned to the amplifier ground through the signal carrying shields, the wire connecting lugs 1 and 3 should be cut at A and a separate insulated wire C connected from lug 1 to the common grounding point for the amplifiers.

## 6. OPERATION

### 6.1. AC Mains power supply connection

The turntable TD 125 may be operated at any AC mains power supply. For voltages between 210 and 240 V the small fuse 5 x 20 mm, 100 mA, slow-blow has to be attached to the fitting fuse holders.

For voltages between 110 and 130 V the large fuse 6 x 32 mm, 200 mA, slow-blow has to be attached to the respective fuse holder.

The fuse holders are easily accessible after removal of the protective cap ⑩.

**Before changing the fuse don't forget to disconnect the unit from the mains!**

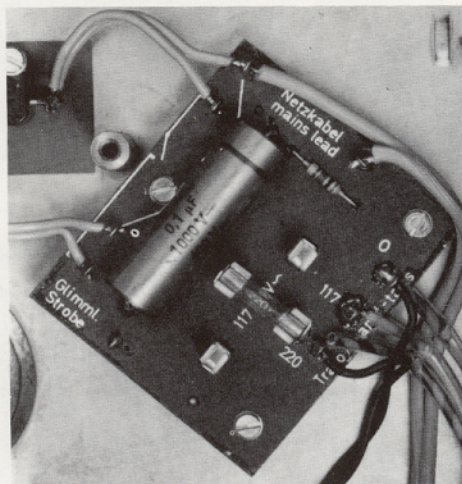


Fig. 6

Due to the electronic speed control of the TD 125 turntable an electrical adjustment to different AC mains power supply frequencies (50 or 60 Hz) is not necessary. For the adjustment of the stroboscope illumination see paragraph 6.4.



## 6.2. AC Mains power supply switch

The slide bar ① on the control panel has two positions:

Left position: OFF

Right position: ON

The synchronous motor is controlled by the solid state control system. There is a built in automatic overload protective circuit. **Therefore no damage will occur if the turntable platter is stopped by hand when the power is on.**

## 6.3. Speed selector

The slide bar on the left hand side of the control panel ② is the speed selector for the three speeds  $16\frac{2}{3}$ ,  $33\frac{1}{3}$  and 45 RPM.

It can be operated at any time whether power is on or off. The fine speed adjustment is made by the red knurled wheel ③ in front of the illuminated stroboscope window ④. The turntable speed is increased when the knurled wheel is moved to the left and decreased when moved to the right.

When the appropriate stroboscope pattern is stationary the following record speeds will be obtained for the following mains frequencies.

At 50 Hz 45.11 RPM and 33.33 RPM

At 60 Hz 45.00 RPM and 33.33 RPM

When using the  $16\frac{2}{3}$  RPM speed, correct speed will be indicated by the  $33\frac{1}{3}$  stroboscope pattern.

## 6.4. Stroboscope adjustment for different AC mains power supply frequencies

The TD 125 turntable can be operated without frequency adjustment at 50 and 60 Hz (USA, Canada, AC mains power supply. (Make sure that the correct fuse, corresponding to the AC mains power supply voltage is installed, see paragraph 6.1.)

The stroboscope illumination has to be changed to operating the turntable at another AC mains power supply frequency. This illumination has no influence on the other function of the turntable. For the adjustment, the outer turntable, the drive belt and the turntable have to be removed.

The two screws (Ⓐ in figure No. 7) should be loosened one or two turns. The neon lamp carrier may now be moved as indicated in figure No. 7 corresponding to the AC mains power supply frequency. After tightening the screws, fit the inner turntable platter into its bearing well and replace the drive belt.

The outer turntable platter is then centred on the drive belt. The drive belt should be kept entirely free of any trace of oil or grease during this operation.



#### 6.4. Stroboscope adjustment for different AC mains power supply frequencies

The TD 125 turntable can be operated without frequency adjustment at 50 and 60 Hz (USA, Canada) AC mains power supply. (Make sure that the correct fuse, corresponding to the AC mains power supply voltage is installed, see paragraph 6.1.)

The stroboscope illumination has to be changed when operating the turntable at another AC mains power supply frequency. This illumination has no influence to the other function of the turntable. For the adjustment, the outer turntable, the drive belt and the inner turntable have to be removed.

The two screws (11) in figure No. 7) should be loosened one or two turns. The neon lamp carrier may now be moved as indicated in figure No. 7 corresponding to the AC mains power supply frequency. After tightening the screws, fit the inner turntable platter into its bearing well and replace the drive belt.

The outer turntable platter is then centred on the inner one. The drive belt should be kept entirely free from any trace of oil or grease during this operation.

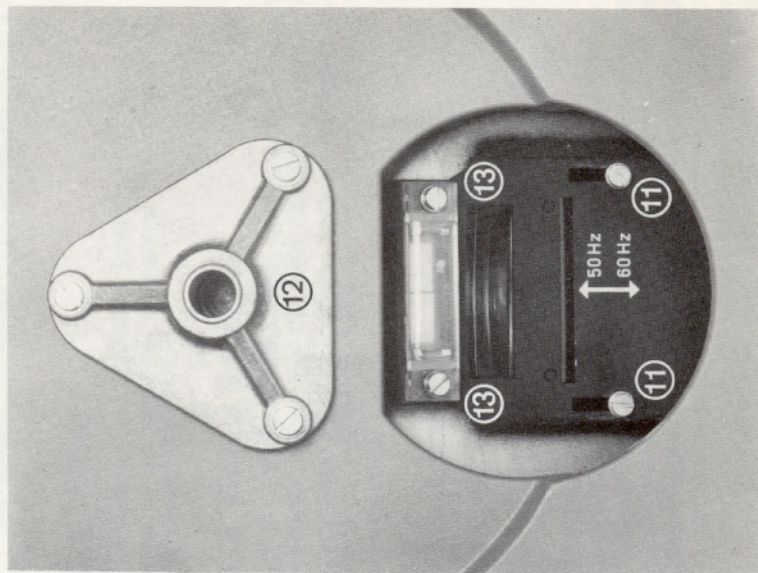


Fig. 7

#### 6.5. Speed selector

Slide bar on the left hand side of the control wheel (2) is the speed selector for the three speeds, 33 1/3 and 45 RPM.

The turntable can be operated at any time whether power is on or off. The fine speed adjustment is made by the red wheel (3) in front of the illuminated stroboscope wheel (4). The turntable speed is increased when the wheel is moved to the left and decreased when moved to the right.

When the appropriate stroboscope pattern is stationary following record speeds will be obtained for the following mains frequencies.

50 Hz 45.11 RPM and 33.33 RPM

60 Hz 45.00 RPM and 33.33 RPM

When using the 16 2/3 RPM speed, correct speed will be indicated by the 33 1/3 stroboscope pattern.



## 7. THE SOLID STATE CONTROL SYSTEM AND HOW IT WORKS

The TD 125 turntable is fitted with a Solid State Control System. This replaces the mechanical linkage which is normally necessary to maintain different record speeds. The Solid State Control Circuit consists of a trans-

The necessary power for the synchronous motor is produced by a push-pull amplification stage. To maintain the optimum torque from the motor at any frequency, a pair of frequency stepped switches are linked

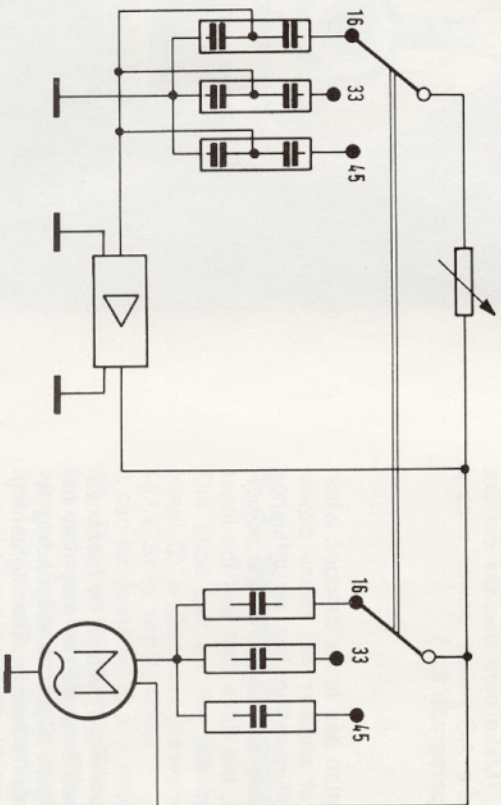


Fig. 8

torized Wien bridge oscillator, normally used in measuring instruments, and the frequency of this oscillator can be varied in definite steps so that the speed of the 16 pole synchronous motor can be changed. An additional fine frequency adjustment may be effected by means of a potentiometer, thus providing an electronic speed control within the range of  $\pm 2\%$ .

together thus providing different phase shift motor converters. The speed of the synchronous motor is therefore controlled by the generated frequency. The desired record speed will be provided by the precise frequency variation of the control generator.

## 8. MAINTENANCE



## 8. MAINTENANCE

### 8.1. Turntable

The turntable bearing shaft revolves in self-lubricating bearings. Under normal conditions lubrication is not necessary before several 1000 hours of running. When lubrication of the turntable bearing ② is necessary use exclusively Caltex Regal oil B (ROB) as supplied with our Lubrication Kit available as an accessory at your dealer.

### 8.2. Motor

Due to the slow operating speed of the synchronous motor no lubrication is necessary under normal operating conditions.

### 8.3. Drive System

The TD 125 turntable, the belt, the motor pulley and the periphery of the inner turntable should be entirely free of any trace of oil or grease. If necessary, clean them with a lint free cloth dampened with denatured alcohol or methylated spirits.

### 8.4. Replacing the neon stroboscope bulb

Before doing this, DISCONNECT THE UNIT FROM THE MAINS. Remove the inner and outer turntable as described in paragraph 6.4.

The neon bulb is then accessible, located under a cylindrical lens at the upper edge of the black stroboscope plate. Fig. 7. After unscrewing both screws left and right beneath the lens ③, the lens can be removed and the neon bulb replaced.

To reassemble the turntable proceed accordingly in reverse sequence.

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necessary power for the synchronous motor is induced by a push-pull amplification stage. To maintain the optimum torque from the motor at any frequency, a pair of frequency stepped switches are linked

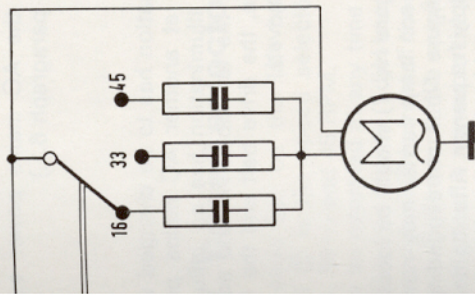


Fig. 8

rather thus providing different phase shift motor converters.

speed of the synchronous motor is therefore controlled by the generated frequency. The desired recorded will be provided by the precise frequency variation of the control generator.



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