

# THORENS

## INSTRUCTION MANUAL



## TD 160B MK II

### TRANSCRIPTION TURNTABLE ASSEMBLY

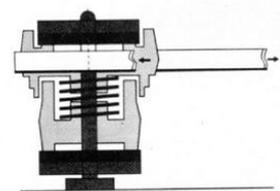
## **Congratulations!**

You are now the proud owner of a THORENS Turntable.

You have purchased a high quality component that has been designed to afford many hours of listening pleasure.

### **The THORENS Belt-Drive System**

The THORENS motor drives the turntable platter by means of a rubber belt, the natural elasticity of which prevents most motor vibrations from reaching the platter and therefore the pick-up stylus.

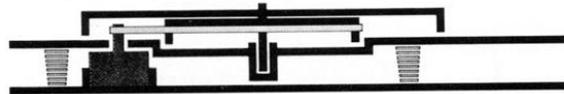


In more than 20 years of constant development, THORENS has reduced the very few disadvantages of belt drive to an absolute minimum bringing it to a level of technical perfection which is not approached by any other system known today. One particular development is the THORENS acceleration clutch, which reduces the starting time and helps to eliminate chassis vibration and prevent the belt from stretching.

THORENS has decided to retain its own unique belt-drive system as long as no better drive system is developed in THORENS laboratories or elsewhere.

### **THORENS Floating Suspension**

Every turntable must be damped by a suspension system to prevent the sensitive pick-up from environmental vibration and acoustic feedback. If springs are placed between the motor and turntable platter they fulfill the additional requirement of almost completely decoupling motor vibrations from the turntable and pick-up system.



The THORENS TD 160B MK II has such a double chassis system. The platter and the tone arm are both mounted on a secondary chassis which is resiliently suspended from the main chassis carrying the motor.

### **The Drive Motor**

The TD 160B MK II turntable is driven by a 16 pole two-phase synchronous motor. This motor has two identical stators which work on the rotor at an angle of precisely 90°, thus creating a perfectly circular rotating field and resulting in optimum wow and flutter and rumble figures.

This construction also assists in reducing the magnetic stray flux to a minimum, thus preventing any disturbing hum induction on very sensitive pick-up cartridges.

As is the case with any synchronous motor, the speed of rotation is determined by the power frequency and by the number of poles used and, therefore, this will always remain constant regardless of aging, dirt or climatic conditions.

At a mains frequency of 50 Hz the motor rotates at a speed of only 375 rpm, with a speed of 450 rpm at 60 Hz, and because of this low speed, both the motor rumble figure and bearing wear are reduced to the absolute minimum.

The motor is controlled by the mains frequency, thus achieving a speed constant which may be compared with the precision of an electric clock.

### **The Tone arm**

The superlative THORENS TD 160B MK II is the leading choice in transcription turntables for the enthusiast who wishes to select and fit his own pick-up arm. It can be fitted with a variety of pick-up arms including ADC, Connoisseur, Formula IV, Grace, Hadcock, Ortofon, SME and many others.



*TD 160B MK II Fitted with Formula IV Tonearm*



*TD 160B MK II Fitted with SME 3009 II Tonearm and THORENS Disk Contact*

The THORENS TD 160B MkII Turntable is a precision instrument which guarantees 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 completely before unpacking the turntable and putting it into operation.

This recommendation is of particular importance because the unit has been purchased without a tone arm, which is to be installed according to the instructions on page 7.

Should your entire equipment have been installed by an expert dealer, then you need only read the chapter "OPERATION" in order to operate the turntable correctly.

### **WARNING**

**To prevent fire or shock hazard do not expose this appliance to rain or moisture.**

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## I. Unpacking

Place the box top side up, open, and remove the carton wedge. The upper foam plastic shell may easily be removed by grasping the cavity on either side.

Now the turntable can be taken out of the lower foam plastic shell.

Lift slightly the inner turntable platter, introducing three fingers in the holes provided, and pull forward the cardboard spacer (**Figure 2**).

The upper foam plastic box contains the dust cover, the AC mains adapter, a bag of screws and spacers, a blank tone arm mounting board (**order no. 6 868 013**), and the rubber drive belt.

Figure 2



A precut mounting board for SME 3009 - 9" tone arms, series II and III, (**order no. 6 868 045**) is already assembled on the turntable.



Remove from the lower foam plastic shell the outer turntable platter with its rubber mat.

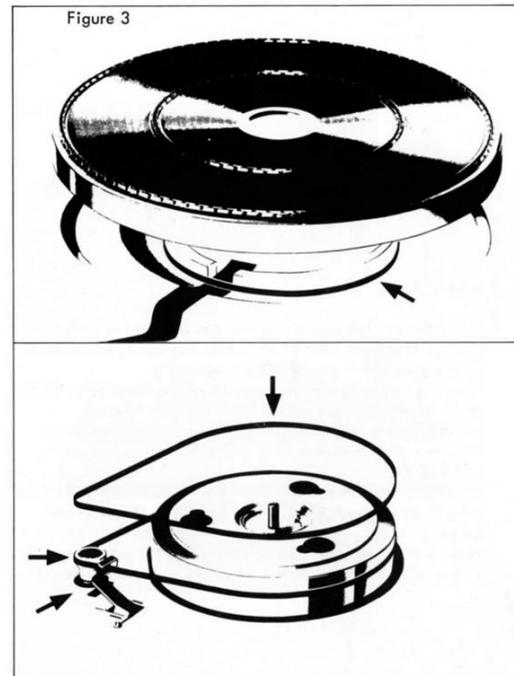
## II. Assembling the turntable

The drive belt is placed under the outer turntable platter in the foam packing. Loop the belt around the inner turntable platter and the motor pulley as shown in **(Figure 3)**. Make sure that the belt passes through the center of the belt guide.

Carefully center the outer turntable platter on the inner one and fit the rubber mat.

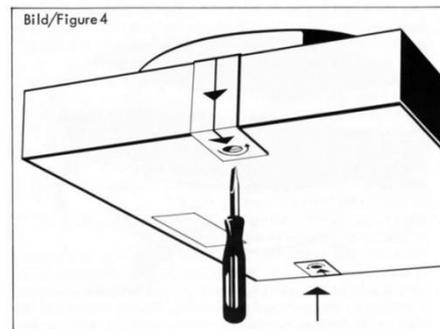
Remove the dust cover from the upper foam plastic shell and fit to the turntable base hinges.

The motor and its spindle, with the motor pulley, are engineered to very close tolerances. As delicate and high precision parts, they should be protected against any shock or strain when installing or transporting the turntable. Always ensure that the most particular care is taken whenever removing or fitting any part of the turntable assembly.



### IMPORTANT NOTICE!

The apparatus incorporates transit securing of the sub chassis. This must be unscrewed before the turntable is used **(Figure 4)**. Unscrew the two screws until the sub chassis is freely suspended.

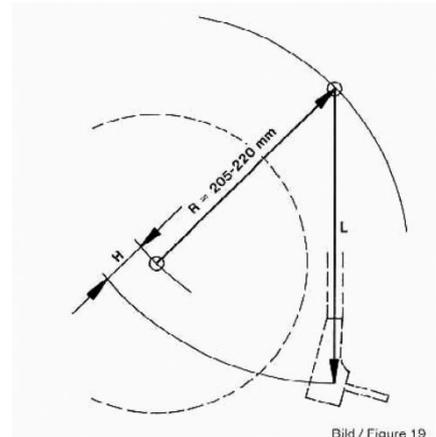


Save the complete packing of your turntable, including the cardboard spacer, for possible re-shipment.

### III. Installation of a tone arm

A tone arm is mounted on a turntable such that the pickup stylus touches down at a point somewhat farther than the spindle of the turntable.

The difference between the effective length  $L$  and the distance between the tone arm pivot point and the spindle (the installation radius  $R$ ), is called the overhang  $H$  (**Figure 19**). The overhang  $H$  differs depending on the tone arm in use and must be set exactly in order to maintain the vertical tracking angle error at a minimum. This tracking angle error, one of the causes of distortion, resulting from geometric misalignment.

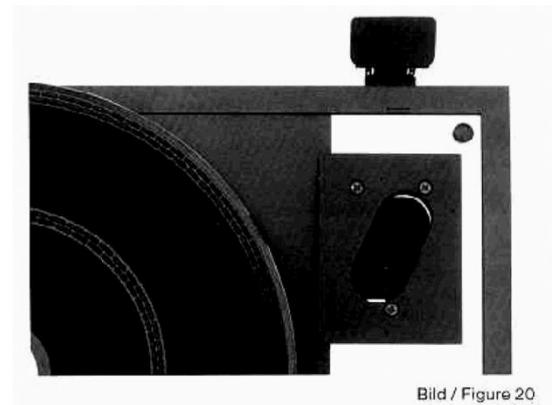


Before the tone arm can be installed, the bottom cover of the turntable must be removed.

The TD 160B MK II Turntable is equipped with a blank tone arm mounting board (order no. 6 868 013), enabling tone arms with an installation radius  $R$  of 205 to 220 mm to be mounted.

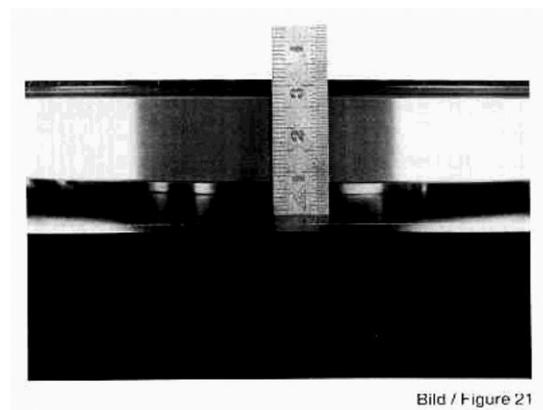
A suitable template is included with every tone arm designed for custom mounting, allowing the exact location of the necessary cutouts on the board to be determined.

For installation of SME 3009 - 9" tone arms, series II and III, a precut mounting board (order no. 6 868 045) is available from THORENS. It is screwed onto the suspended chassis of the TD 160 (**Figure 20**). The SME Tone Arm is mounted and adjusted according to the instructions supplied by the manufacturer.

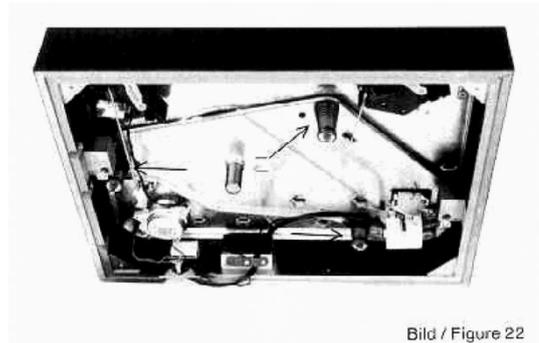


After the tone arm has been mounted, the cables leading from the arm must be fed loosely to the cable clamp at the rear of the base. If the cable path is too short, free motion of the suspended chassis may be restricted.

After installation of the tone arm, verify that the turntable platter is freely suspended and that the distance between the lower platter rim and the chassis cover plate is 7 - 9 mm (**Figure 21**).



If the motion of the suspended chassis is inhibited, the three conical springs (**Figure 22**) upon which it rests must be readjusted. With the bottom cover removed, the springs are adjusted by turning the nuts until the distance between the lower platter rim and the chassis cover plate is 7 - 9 mm around the entire platter perimeter.



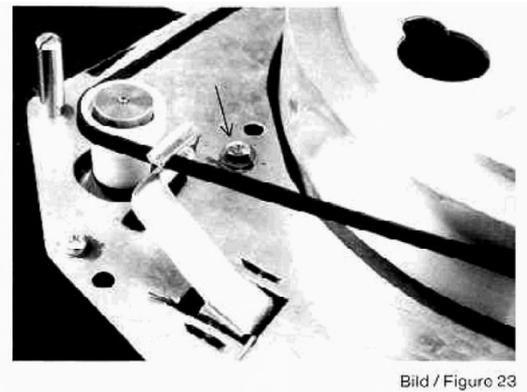
The turntable must rest in a horizontal position for this adjustment. To gain access to the springs, it is practical to place the turntable between the seats of two chairs.

During the adjustment procedure, continually check the free motion of the suspended chassis. If the motion is inhibited in a horizontal direction, turn the beveled adjustment washers until the suspended chassis hangs freely.

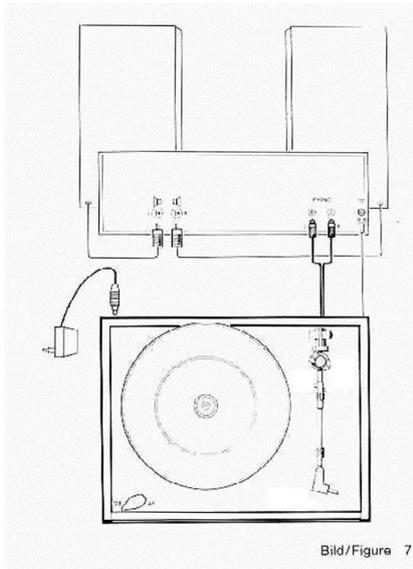
Note that the distance of 7 - 9 mm below the turntable rim must be maintained, as mentioned above.

The adjustment of the drive belt must then be checked.

Invert the outer platter, place it on the inner platter, and place the rubber mat on the platter. The drive belt must travel approximately in the middle of the motor pulley and not touch the belt fork. If this is not the case, a corrective adjustment can be made by turning the motor mounting screw nearest the inner platter (**Figure 23**).



#### IV. Connection to mains and amplifier:



The stereo signal connecting leads to the amplifier are wired within the TD 160B MK II to male RCA (Cinch) phono plugs which are coded as follows: **(Figure 7)**.

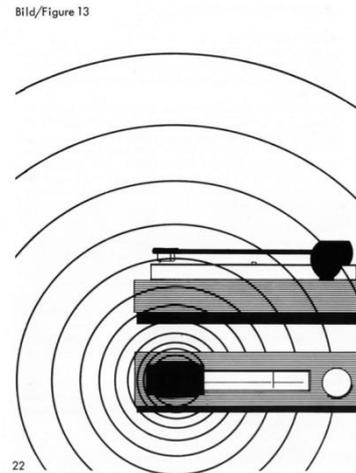
L for the left channel, and R for the right channel.

The shielding of both leads is connected to their respective plugs and in order to avoid hum loops have no connection between each other.

Should your amplifier have a Spin DIN phono input connector, ask your HI-FI dealer for an adaptor cable.

#### One should avoid such position.

When assembling the turntable to other HI-FI equipment, care should be taken that mains transformers incorporated within any ancillary units are not situated too close to the pick-up. Magnetic cartridges are sensitive to the influence of magnetic fields of mains transformers, thus producing hum **(Figure 13)**.



#### V. Operation of the TD 160B MK II

Connect the turntable to the AC mains power supply after checking to ensure that voltage is correct.

Connect the turntable to the stereo amplifier **(Figure 7)**. Switch on the unit and select speed (33 1/3 or 45 rpm) by means of the double function knob on the left hand side of the unit.

The adaptor in the center of the turntable platter may be reversed in order to make the adjustment for records with either a large or small center hole.

## **VI. Technical specifications TD 160B MK II**

Drive System	2-speed belt drive
Motor	low voltage 16 pole synchronous motor with slip clutch for instantaneous start
Speeds	33 1/3, 45 RPM, mechanical speed selection
Motor speed control	synchronized by mains frequency
Turntable platter	3.2 kg, zinc alloy, dynamically balanced
Platter diameter	30 cm (12")
Wow and Flutter according to DIN 45 507	≤ 0.04 %
Rumble unweighted according to DIN 46 539	> 50 dB
Rumble weighted according to DIN 45 539	> 70 dB
Rumble measured with THORENS rumble measuring device according to DIN 45 539 unweighted	> 60 dB
weighted	> 75 dB
Power requirement	10 V ≈ max, 80 mA
Mains voltage	may be connected to any line voltage using the appropriate THORENS AC adapter
<b>Dimensions</b>	
Turntable with base (W x D)	430 x 360 mm
Height with cover closed	150 mm
Height with cover open	415 mm
Depth with cover open	436 mm
Weight	8.5 kg

## **VII. Maintenance**

### **Drive system:**

The TD 160B MK II 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 denaturized alcohol or methylated spirits.

### **Turntable:**

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

### **Motor:**

Due to the slow operating speed of the 16 pole synchronous motor, no lubrication is necessary under normal operation conditions.

## **IX. THORENS factory warranty**

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 one year from the date of the original purchase.

Above warranty is valid only if the enclosed warranty card, duly filled, is returned within 10days after purchase to the Thorens General Representative in your country: his address will be given by your dealer.

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.

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.

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.

The warranty expires if the unit is being repaired or altered by anyone other than a Thorens authorized service station. NB. Please observe possible complementary warranty conditions of our sole agents.

THORENS- FRANZ AG

**THORENS** THORENS - FRANZ AG  
CH-5430 WETTINGEN  
SWITZERLAND