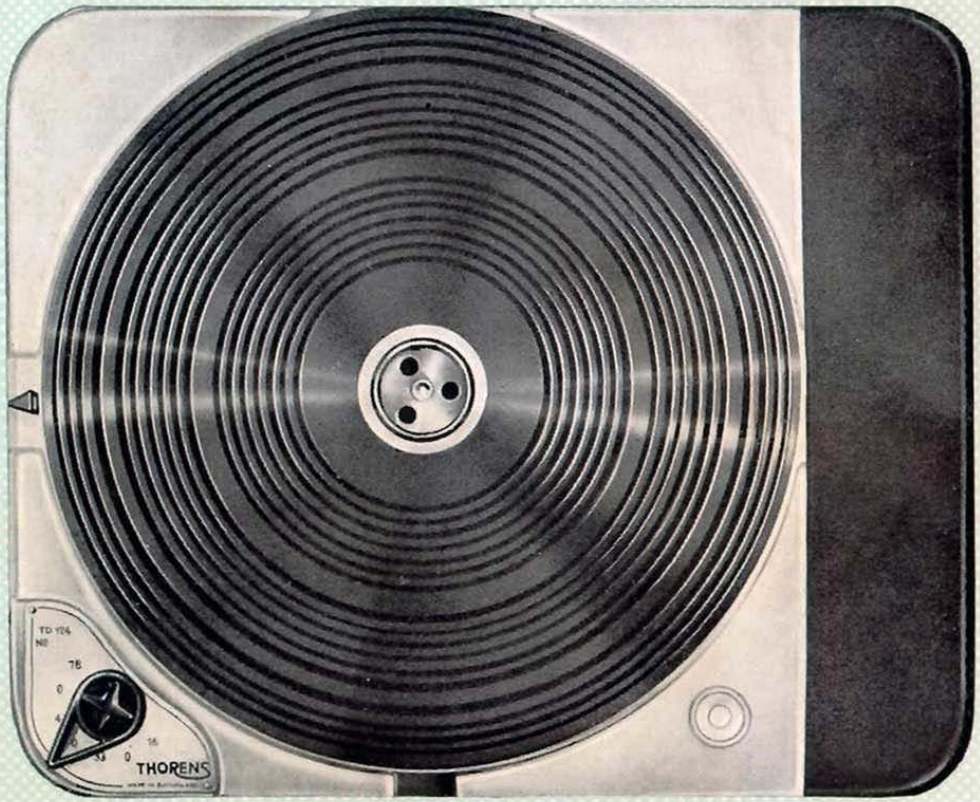
manual for the THORENS model TD 124

transcription turntable



SUMMARY

CONGRATULATIONS TO A NEW OWNER OF A THORENS TURNTABLE

When purchasing a Swiss-made THORENS Model TD-124 Transcription Turntable, you were not just looking for one more turntable among many others, but you were in search of the finest turntable available, regardless of price.

On our side, we have put all our ability into the design and the manufacture of this outstanding unit to fulfil your highest requirements : the experience of more than a half century in the production of high-quality phonograph equipment, the enthusiasm of a young research team, the traditional pride of our Swiss craftsmen for precision and finely finished work, have been combined to produce the TD-124.

A few simple rules for installation, operation and maintenance are enclosed in this manual. If you read them carefully, before unpacking the unit, you will be able to immediately benefit by the outstanding performance of this instrument.

On this condition, we are confident that your TD-124 Turntable will keep our promises and contribute innumerable hours to your enjoyment in the world of music.

UNPACKING OF THE TD-124 TURNTABLE

1. You have already placed the carton top-side up and opened.
2. Take care that this manual and templates Nos CB 935 and CB 936 are not misplaced.
3. Remove sleeve A and turntable paper B (See Fig. 1 page 5).
4. Take the complete unit out of the box, holding it by the two shorter sides of the base plate, and place it on the four mounting studs on a table. (Caution : Protect table with cloth or paper.)

Leave the two circular cardboard wedges D in position, between the aluminum and cast iron turntables, and the cylindrical wedge E between cast iron turntable and base plate until the TD-124 is completely installed. The aluminum turntable, being a light precisely machined part, should be protected against any shock, strain or pressure.

5. The paper bag with mounting hardware is at the bottom of the box.

IMPORTANT NOTICE.

Save the complete packing for possible re-shipment. The TD-124 turntable is a heavy piece of equipment and would be seriously damaged if forwarded in an improvised packing. (Please, see our warranty conditions on the enclosed card.)

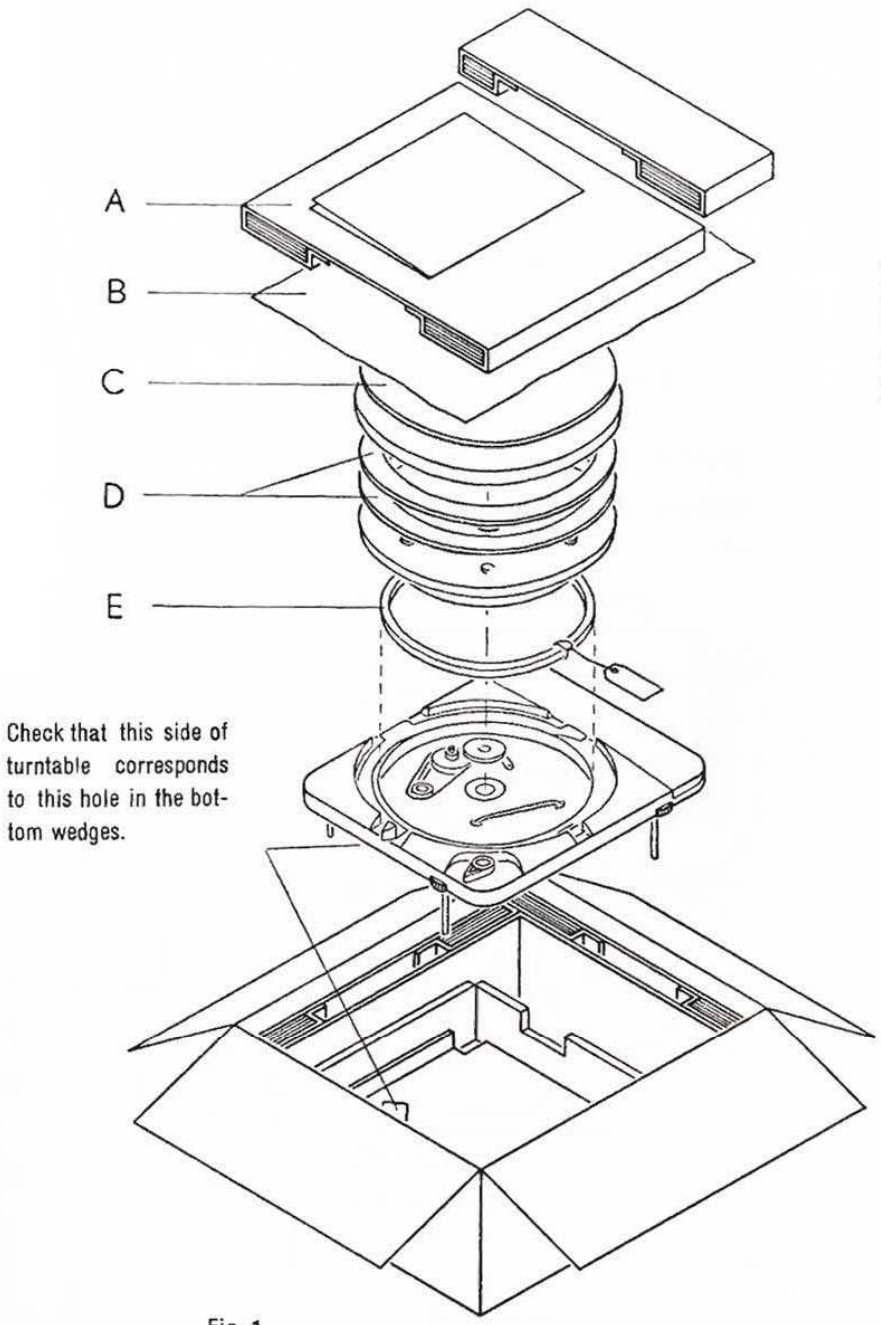


Fig. 1

Notice for packing

After the turntable has been placed into the box according to Fig. 1 and the top cover closed with adhesive paper strips, turn the box upside down and open the bottom cover. Check that all wedges and accessories are in the position corresponding to this illustration.

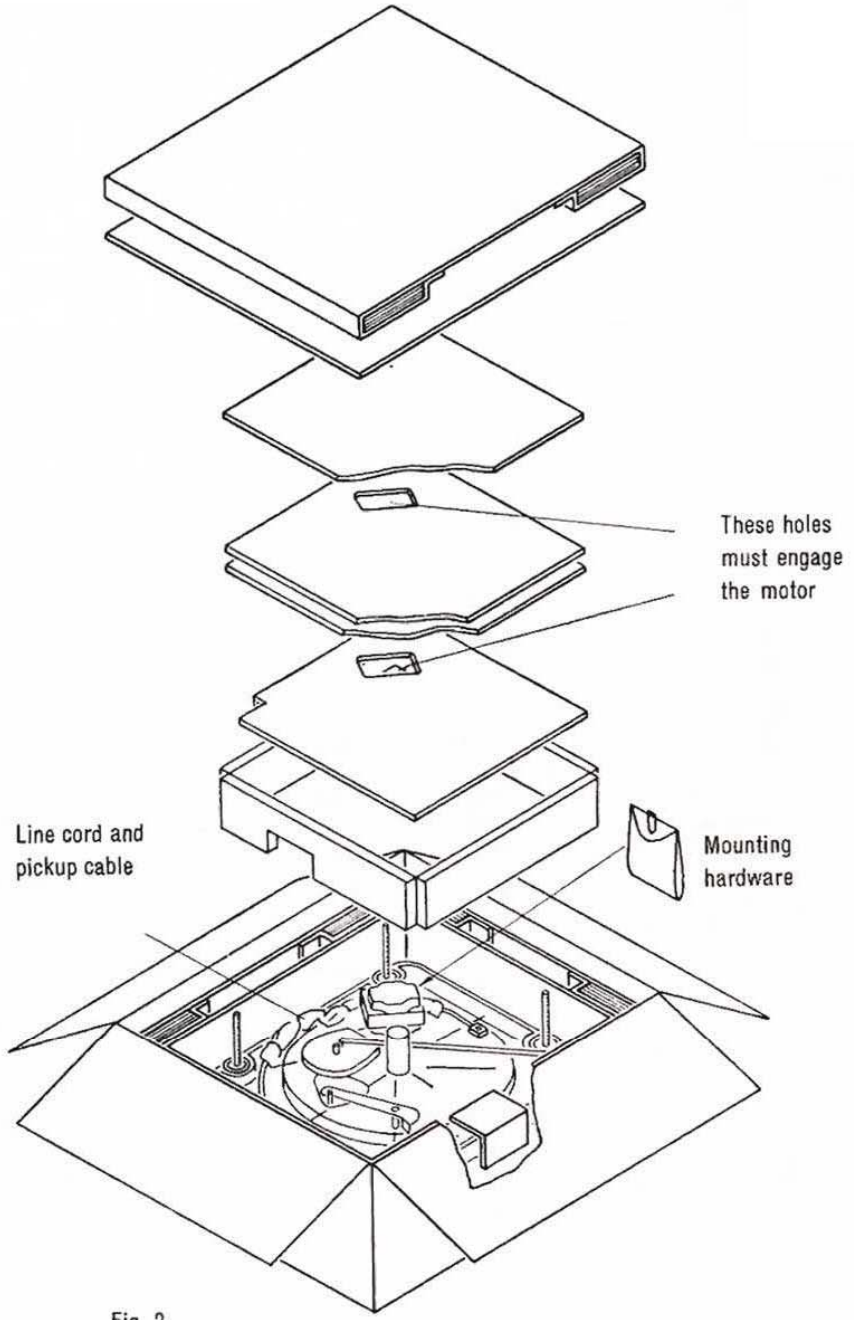


Fig. 2

INSTALLATION

❶ Mounting the pick-up arm

It is advisable to mount the pick-up arm on the wooden board, which is part of the turntable's mechanical design, before installing the unit on a base or panel.

Model PL 104 (USA N° AS-12) wooden board, as furnished with each turntable, is dimensioned for 12 inch. pick-up arms. If a 16 inch. arm is to be installed, a **PLG 104** (USA N° AS-16) board, delivered as an accessory, should be ordered from your dealer.

It is generally advisable to follow the instructions of the special template N° CB 936, furnished with each unit, for mounting the pick-up arm on the corresponding wooden board. Do not fail to follow instructions of tone-arm manufacturer.

❷ Connecting the pick-up

A five lug terminal strip is fixed underneath the unit plate, on the central rib supporting the wooden board. The lug fastened to the screw holding the terminal strip should be used to ground the base plate. For best results, the pick-up arm base should be connected to this same lug.

The instructions furnished with each tone arm and pick-up cartridge should be followed for the connection of these components. Fig. 3 shows an example of connection.

If, for a particular cartridge or amplifier, the ground for the record mechanism cannot be returned to the amplifier ground through the signal carrying shieldings, the ground connection on the therminal strip should be cut at points A and B and a separate wire connected from the central lug to the common grounding point for the amplifier.

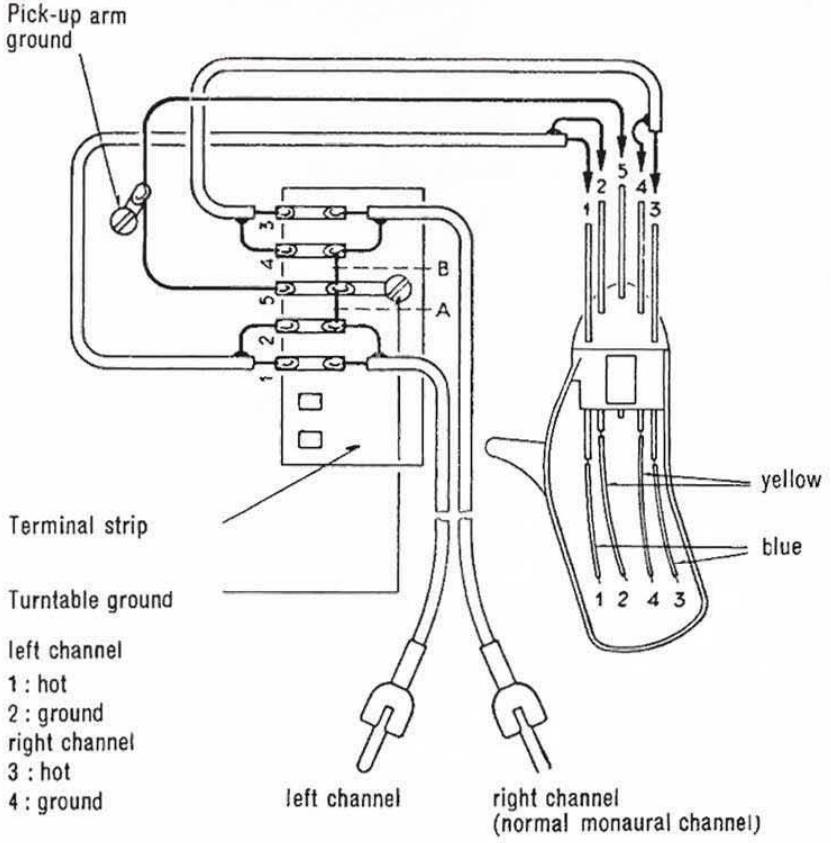


Fig. 3 : Example of pick-up arm connection

❸ Mounting the turntable on a base or panel

If an accessory base was not ordered, the TD-124 turntable should be mounted on a substantial wooden panel (minimum 1/2 inch thick, better 3/4 inch plywood) which should be cut out and drilled according to template No. CB 935 furnished with each unit. See that sufficient clearance is allowed for the pick-up arm at the rear of the unit.

The unit mounting board should be fairly level and attached to a perfectly stable cabinet if best results are to be obtained.

SHOCK MOUNTING

To prevent acoustic feedback and to damp extraneous vibrations, it is strongly recommended to mount the TD-124 turntable on the four rubber dampers furnished, according to the cut view of template No. CB 935. No shock mounting should then be used for supporting the unit mounting board. Special steel coil springs (parts CB 1172 and CB 962) are available as accessory upon request, to be used in place of the rubber dampers, for installations where the turntable is submitted to strong extraneous vibrations.

Levelling of the unit should be made by revolving the four knurled knobs protruding from the periphery of the base plate : when the bubble of the spirit level is centered, the top surface of the cast iron turntable is level.
Tone arms with a levelling device on their base should be finely adjusted after the turntable itself has been levelled.

IMPORTANT NOTICES.

When levelling the turntable, see that the base plate is resting on all four rubber dampers and not mainly on three of them.
Use of washers F 1191 and nuts M 5 VSM 12707 on the four mounting studs are optional. **In any case, check that substantial play is left between these washers and the unit mounting board after the unit has been levelled, otherwise acoustic feedback may occur.**

❹ Final preparation before play and connecting the motor to power supply

According to the tag fixed to the turntable before shipment, proceed as follows :

1. Check that the Speed Selector knob is set on an « O » position.
2. Remove carefully the upper aluminum turntable, protecting it from shock and strain.
3. Remove the flat circular cardboard wedges D from the cast iron turntable.
4. Remove the cast iron turntable from its bearing by slowly lifting straight up. Take great care that the spindle and the bearing do not collect any dust, lint or grit, which would be harmful to the most precise adjustment of these parts.
5. Withdraw the cylindrical cardboard wedge E from the unit plate.

6. **VOLTAGE COMMUTATOR :**

the commutator allowing instantaneous adaptation to the line voltage is now within reach (Fig. 4).

For USA, Cuba and Canada, the commutator screw has been set at the factory in the position for best results on 110 volts 60 cycles (100-120 volts position).

7. **ADJUSTMENT TO THE FREQUENCY OF POWER SUPPLY.**

For USA, Cuba and Canada, the motor pulley and the stroboscope screen have been set at the factory in the position for 60 cycle operation.

The normal execution of the TD-124 turntable is equipped for nominal frequencies of 50 and 60 cycles. According to Fig. 5 and Fig. 6, the adjustment to the frequency of the power supply is made by reversing the motor pulley and the stroboscope screen.

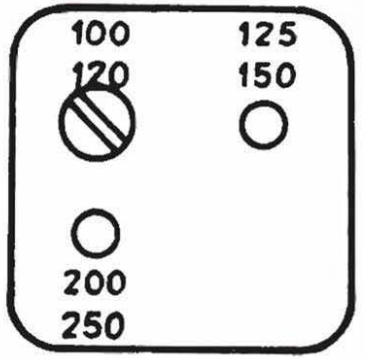


Fig. 4

Voltage commutator

❺ Replacing the two turntables in playing position

1. Check that the Speed Selector knob is set on an « O » position.
2. Replace carefully the cast iron turntable into its bearing, maintaining the spindle exactly vertical.
3. Replace the upper aluminum turntable on the cast iron turntable.
4. Connect the turntable line cord to the power supply.

Notice. For the very rare pick-up cartridges with a high stray flux and a high magnetic pull, a second rubber mat with large center hole is available as accessory upon request. This mat may easily be brought into position underneath the regular rubber mat by simply sliding it on this regular mat rolled like a tube.

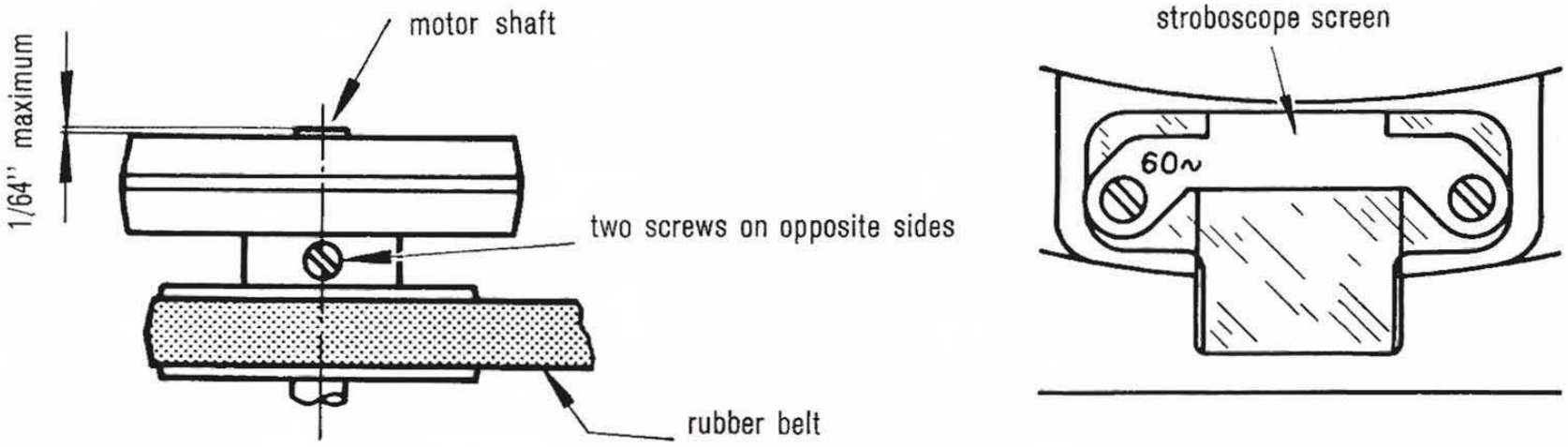


Fig. 5 : Position of motor pulley and stroboscope screen for 60 cycle operation.

Fig. 6 : Position of motor pulley and stroboscope screen for 50 cycle operation.

IMPORTANT NOTICE. The motor pulley has been dynamically balanced to very close tolerances at the factory. When reassembling it, first tighten the black screw and then the nickel plated one.

OPERATION

Controls

1. Speed Selector Knob.

78, 45, 33, 16 rpm position. When moving the speed selector knob to the desired speed, the motor and the inner cast iron turntable begin to revolve and the stroboscope neon bulb lights up.
« O » position. When moving back to an « O » position, the motor and neon bulb are switched off and the idler wheel is disengaged from the pulley and from the inner turntable. **For this reason, the speed selector knob should always be used to turn off the turntable, and not an external electric switch,** otherwise the rubber tire of the idler wheel could progressively lose its perfectly circular shape and develop noise.

2. Clutch Control Knob.

« Off » position. When the clutch control knob is in the « Off » position, the upper aluminum turntable is stopped and disengaged from the inner cast iron turntable through a slight lifting movement. The motor and the inner turntable may thus be permanently maintained in operation for the whole time of use of the unit, allowing stable temperature and lubrication conditions for maximum speed regularity.

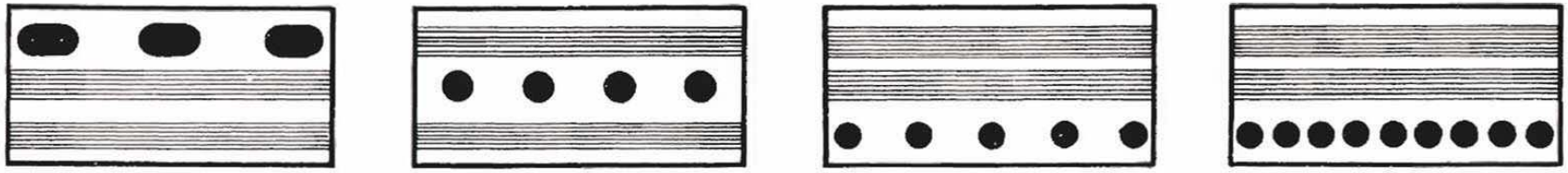
« On » position. When moving the clutch control knob to the « On » position, the upper aluminum turntable is lowered on and engaged by the inner cast iron turntable. The heavy mass of this inner turntable, acting as a flywheel, allows a fast starting of the record. This method of starting eliminates the major cause of wear and deterioration of conventional drive systems.

3. Variable Speed Control Knob.

The coaxially mounted speed adjusting knob allows a most precise adjustment of each of the four nominal speeds over a margin of about ± 3 %.

4. Stroboscope.

Four stroboscopic patterns corresponding to the four nominal speeds may be seen through the lucite covered aperture on front of unit. When the corresponding dots are brought to a standstill by means of the speed adjusting knob, the following exact speeds are obtained.



Inner row				
Middle row				
Outer row				
For 60 cycles :	78,26 rpm.	45,00 rpm.	33,33 rpm.	16,66 rpm.
For 50 cycles :	77,92 rpm.	45,11 rpm.	33,33 rpm.	16,66 rpm.

Fig. 7 : Stroboscopic patterns.

a) The stroboscope of the TD-124 turntable permits control and adjustment of the speed while the record is being played. Thus, for maximum accuracy, the speed should be adjusted while the record is actually playing.

b) During the warm-up period of about 10 minutes the speed may progressively vary a fraction of 1 % about the nominal speed. Though such extremely slow speed variations cannnot be detected by the ear, critical transcription work should preferably be made when the motor has reached its normal working temperature.

c) Owing to the very large scale and high precision of the stroboscope, extremely small **differences of speed** as compared to the nominal value will be made visible though entirely undetectable through the ear.

For example, at 60 cycles, 72 dots coming out of the mirror each minute correspond to a 1 % speed difference and to a pitch variation of $^1/_6$ of a semitone only in equal temperament. Speed differences of about ⅓ of 1 % normally encountered between the beginning and the end of a 12" record with modern light weight pick-ups (less than 6 grams on the record) correspond to about 24 dots each minute and to a pitch variation of $^1/_{18}$ of a semitone. They are well within NARTB Standards.

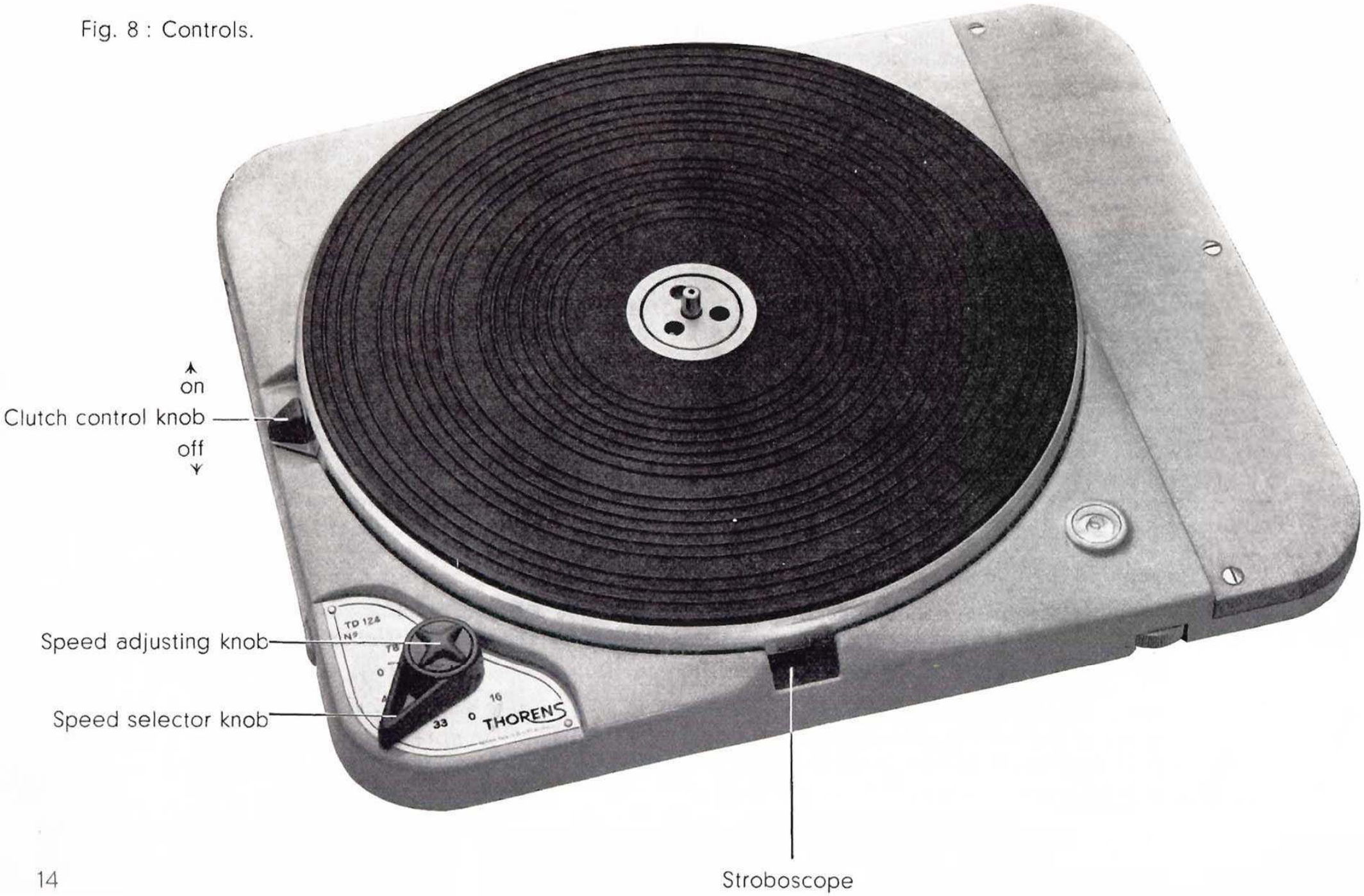
At 50 cycles, the corresponding number of dots are respectively 60 and 20 each minute.

For special technical tasks, the speed may easily be maintained constant to the highest accuracy of 0,1 % throughout the playing of a record thanks to the precision speed adjusting device which allows a permanent checking of the speed when the record is actually playing.

d) **Periodical speed variations occurring from one to many times at each revolution of the turntable and designated by wow and flutter, cannot be seen on the stroboscope, being, for the TD-124 turntable, of the order of 0,1 %.**

For example, an already very large wow of 0,5 % peak to peak occurring twice each revolution of the turntable would produce a maximum swing of a dot of less than 1/64" (0,37 mm) at 33 ⅓ rpm and 60 cycles, a value that is beyond the precision of the stroboscope.

Fig. 8 : Controls.



SUMMARY OF THE OPERATING INSTRUCTIONS

1. Move the Speed Selector knob to the desired speed.

2. Move the Clutch Control knob to the « Off » position.

3. Check the speed on the stroboscope and adjust with the Speed Adjusting knob until the dots of the row corresponding to the desired speed (see Fig. 7) are slowly advancing in the direction of the turntable rotation.

4. For large hole records, the built-in adaptor is brought into playing position by pushing down and revolving it.

5. Place the record on the turntable.

Notice. Records with undersized central hole may exert a slight braking action on the revolving record spindle and a corresponding speed drop on the stroboscope. This will be of no consequence on the final speed when the record is playing.

6. Move the Clutch Control knob to the « On » position.

7. Place the pick-up on the outer non-modulated edge of the record or between two modulated tracks.

IMPORTANT NOTICE.
If the pick-up is first brought on the non-revolving record, the Clutch Control knob should not be roughly pushed to the « On » position, but accompanied by the hand with a sensitive continuous move, otherwise vibrations may be communicated to the unit plate.

8. Make the final speed adjustment while the record is playing.

9. **To stop the turntable for changing the record,** move the Clutch Control knob to the « Off » position.

10. **To stop the motor when the audition is at an end,** move the Speed Selector knob to an « O » position.

MAINTENANCE

I. TURNTABLE SPINDLE

The turntable spindle is revolving on special bushings and on a nylon thrust plate. A sufficient lubricant reserve is foreseen for the whole life of the unit under normal use conditions. If a new lubrication is nevertheless necessary, **use Caltex or Texaco Regal Oil B.**

Older type : with nylon bushings (black bright appearance). Use exclusively Rhodorsil X 58 silicone oil (made by Rhône — Poulenc, France) — U.S. equivalent : General Electric Silicone Fluid F. 50.

Notice. If, through inobservance of the instructions of this manual (see p. 8 chap. 4, point 4) dust, lint or grit have been allowed to come inside of the bearing, it should be disassembled from the base plate. To do this loosen, the three screws located on the underside of the base plate, around the bearing. Wash thoroughly both the bearing and the turntable spindle with the recommended oil.

Older type (nylon) : with **cold** carbona, carbon tetrachloride or denatured alcohol.

II. STEPPED PULLEY.

The bearing of this pulley is presently of the oil retaining type and rarely needs lubrication. Proceed as follows for a new lubrication :

1. Place the speed selector knob on an « O » position. Carefully remove the turntables.
2. Remove the rubber idler wheel from its spindle.
3. Turn the stop plate outside of the stepped pulley and carefully lift up the pulley with its spindle out of the bearing.
4. Introduce 4 to 6 drops of Caltex or Texaco Regal Oil B (ROB) into the bearing.
5. See Fig. 9 for proper mounting of the idler wheel.

Older type with fixed spindle and plastic upper cap :

1. Place the speed selector knob on the intermediate position between the 33 ⅓ and 16 rpm position. Carefully remove the turntables.

2. Turn the stop plate outside of the stepped pulley, take out the plastic cap from the top and carefully lift up the pulley.
3. Introduce 4 to 6 drops of Caltex or Texaco Regal Oil B (ROB) into the bearing.
4. To ease the introduction of oil, move the pulley slowly up and down its spindle. **CAUTION :** If the thrust ball does not immediately take back its normal position at the top of the bearing, **do not force,** but revolve the pulley in both directions on its spindle.

If the recommended lubrication does not assure a noiseless functioning of a least 500 hours, proceed as follows :

1. Remove the rubber idler wheel from its spindle.
2. Turn the stepped pulley upside down, clean the inside of the bearing, by means of a small rolled piece of cloth and oil with industrial castor oil. See Fig. 9 for proper mounting of the idler wheel.

IMPORTANT NOTICE : do not allow oil to overflow top of bearing. The pulley should be cleaned with a clean dry rag ; if necessary, use denatured alcohol.

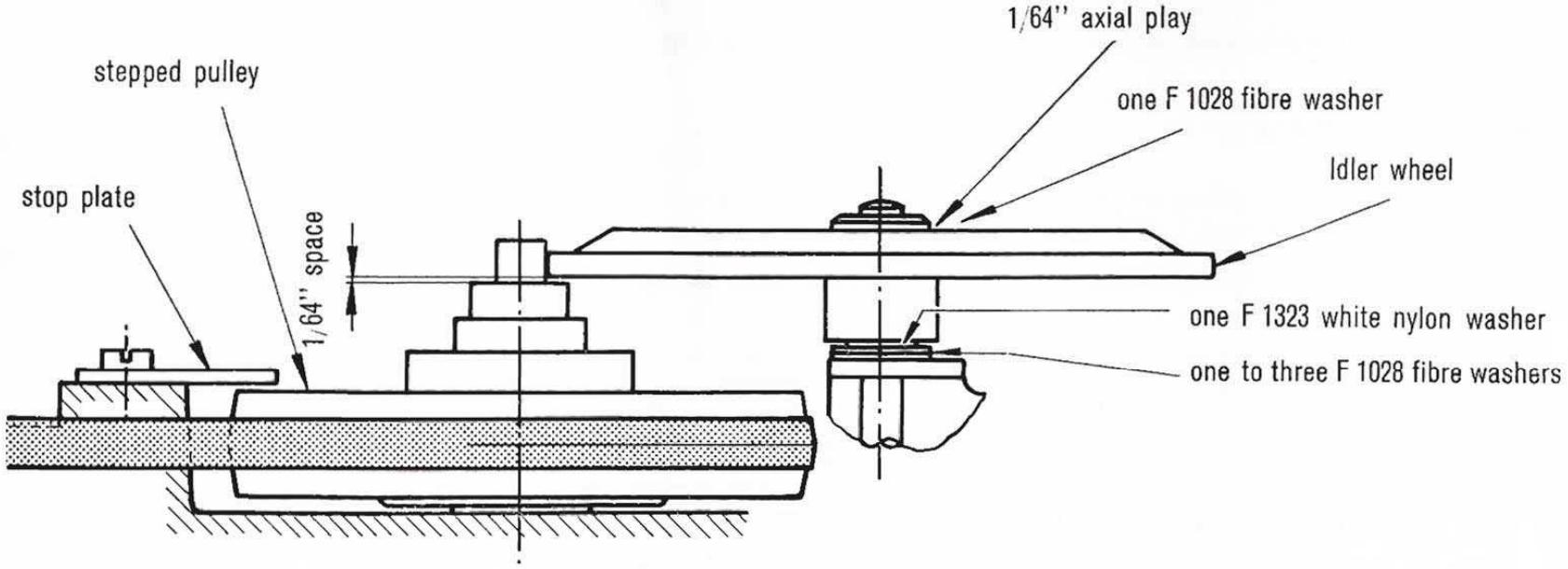


Fig. 9 : Stepped pulley and intermediate wheel.

III. IDLER WHEEL

The bearing of this wheel is of the oil retaining type and rarely needs lubricating. When necessary, introduce two to three drops of recommended oil on top of the bushing, between the stop ring and the wheel. The idler wheel should be perfectly free on its spindle ; see that an axial play of about $^1/_{64}$" is present between the stop ring and the wheel.

Thanks to the exclusive design of the turntable drive of the TD-124 as well as to the special synthetic rubber tread of the idler wheel, this latter will last indefinitely if the complete operating instructions of this manual are followed.

IV. RUBBER BELT.

The specially developed synthetic rubber belt running on very large diameter pulleys will not, under normal use, be subject to wear or deformation. If a replacement is necessary first remove the stop plate of the stepped pulley (see Fig. 9) to give free access to the belt **and clean the two pulleys with denatured alcohol.**

V. MOTOR.

The motor bearings are of the oil retaining type with large oil reserve in felt pads. Under normal use conditions, the initial lubrication made at the factory should be sufficient for about 5000 hours run. When the need for a new lubrication becomes apparent, proceed as follows :

Upper bearing

Place a few drops of recommended oil on top of the bearing, where the shaft comes out of the top motor shield.

Lower bearing

Oil should be put on the lower part of the shaft, underneath the rotor. This lower part can be reached with a pressure oil can through the lubrication hole, on the side of the bottom motor shield.
Notice. For turntables of the first series without this lubrication hole, the shaft can be reached through the holes on the bottom of the shield.

IMPORTANT NOTICE.

For a perfect functioning of the drive system of the TD-124 turntable the following parts should be entirely free from any trace of oil or grease on their external working surfaces : the motor pulley, the stepped pulley, the idler wheel, the rubber belt and the inner skirt of the cast iron turntable. Therefore any excess of lubricant may interfere with proper operation. If the presence of oil or grease on the mentioned parts is suspected, they should be thoroughly cleaned with a clean rag impregnated with denatured alcohol.

VI. REPLACING THE NEON STROBOSCOPE BULB.

The neon bulb must be replaced from the underside of unit plate :

1. Disconnect unit from AC current.
2. Remove the stroboscope mirror (Fig. 12 No. 59) by loosening the mounting spring (No. 60).
3. Remove the retaining plate (No. 63).
4. Take out the complete bulb assembly and remove the plastic sleeve.
5. Replace the bulb with type NE 48 or Philips : Z 2 W.
6. See Fig. 10 for the exact location of the bulb assembly.

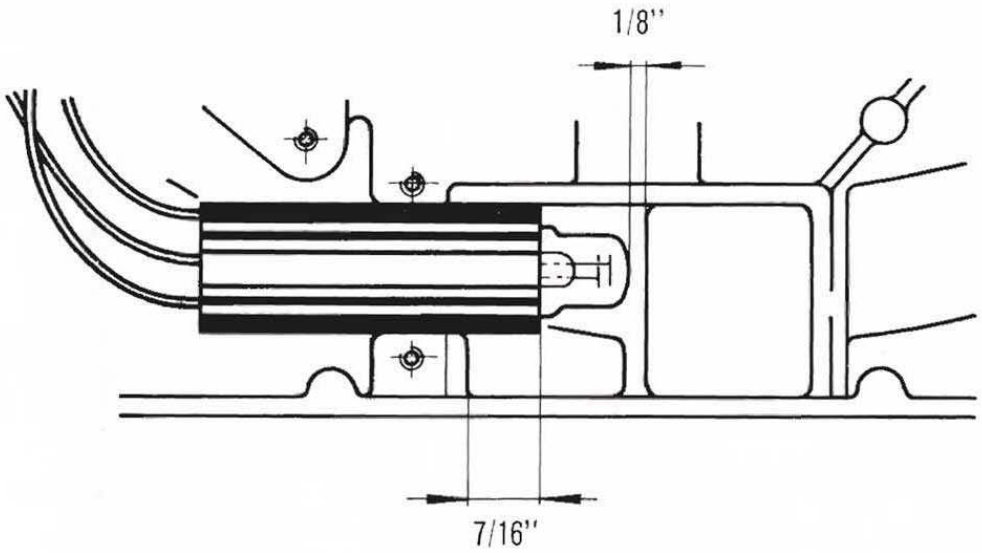


Fig. 10 : Neon bulb.

Recommended oil. If the indicated Caltex or Texaco Regal Oil B (as used for hydraulic power transmissions) is not available, use a non-oxidizing, non-sticking, high-grade light mineral oil (SAE 20). **A lubrication kit with recommended lubricants is available as accessory upon request.**

PARTS LIST TO FIG. 11 AND 12

1. Turntable Model Number
2. Turntable Serial Number

Motor

3. Motor Model E 50
4. Motor Suspension Devices
5. Motor Spindle
6. Motor Pulley
7. Line Cord
8. Power Supply Connecting Block
9. Voltage Commutator Block
10. Voltage Commutator
11. Voltage Commutator Screw
12. Switch
13. Switch Suppressor Condenser

Turntable Drive

14. Rubber Belt
15. Stepped Pulley
16. Stepped Pulley Stop Plate
17. Stepped Pulley Spindle
18. Idler Wheel
19. Idler Wheel Spindle
20. Idler Wheel Stop Ring
21. Second Arm of Idler Wheel Bracket
22. Second Spindle of Idler Wheel Bracket
23. Disengaging Pin for Idler Wheel
24. Spring for Idler Wheel Bracket
25. First Arm of Idler Wheel Bracket
26. First Spindle of Idler Wheel Bracket
27. Spring for First Spindle
28. Stop Ring for First Spindle
29. Turntable Bearing
30. Turntable Bearing Set Screws
31. Thrust Bearing Cover Plate

Speed Change

32. Speed Selector Knob
33. Speed Change Drum
34. Spring for Speed Selector Knob
35. Steel Ribbon for Speed Change Cam
36. Steel Ribbon Adjusting Part
37. Speed Change Cam

Switch Control

38. Switch Lever
39. Switch Lever Adjusting Arm
40. Switch Actuating Pin and Spring
41. Switch Lever Spring

Speed Adjustment

42. Speed Adjusting Knob
43. Speed Adjusting Knob Spring
44. Stop Ring
45. Speed Adjusting Link
46. Eddy Current Brake Control Pin
47. Brake Magnet
48. Brake Magnet Set Plate and Screw

Clutch

49. Clutch Control Knob
50. Clutch Lever
51, 52, 53. Clutch Lever Lifting Pins
54, 55, 56. Clutch Lever Height Adjusting screws and nuts
57. Clutch Lever Pivot
58. Clutch Lever Guide

Stroboscope

59. Stroboscope Mirror
60. Stroboscope Mirror Spring
61. Stroboscope Screen
62. Stroboscope Lucite Cover
63. Neon Bulb Retaining Plate

Levelling Device

64. Spirit Level
65. Levelling Knobs
66. Mounting Studs

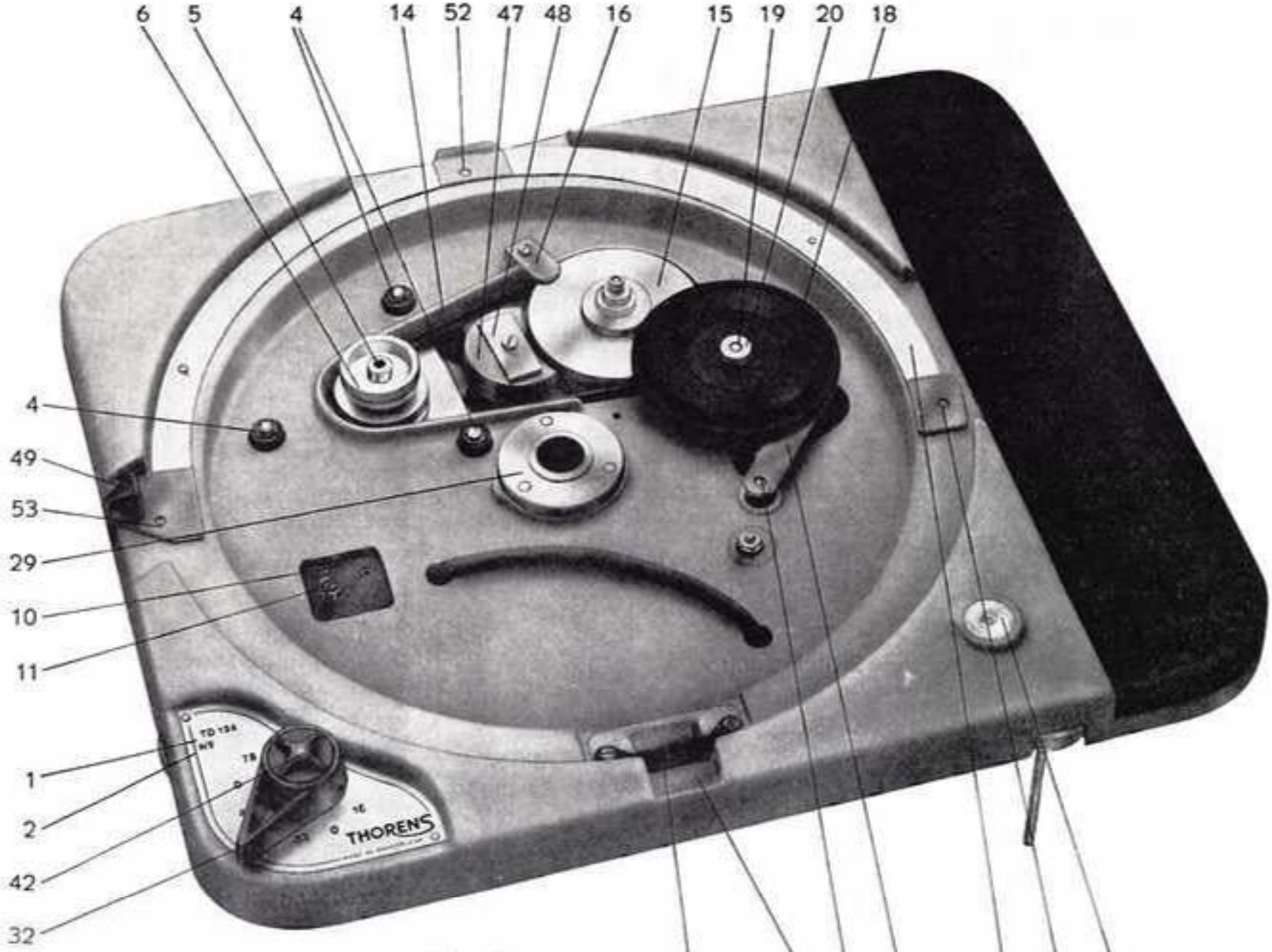

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Fig. 11

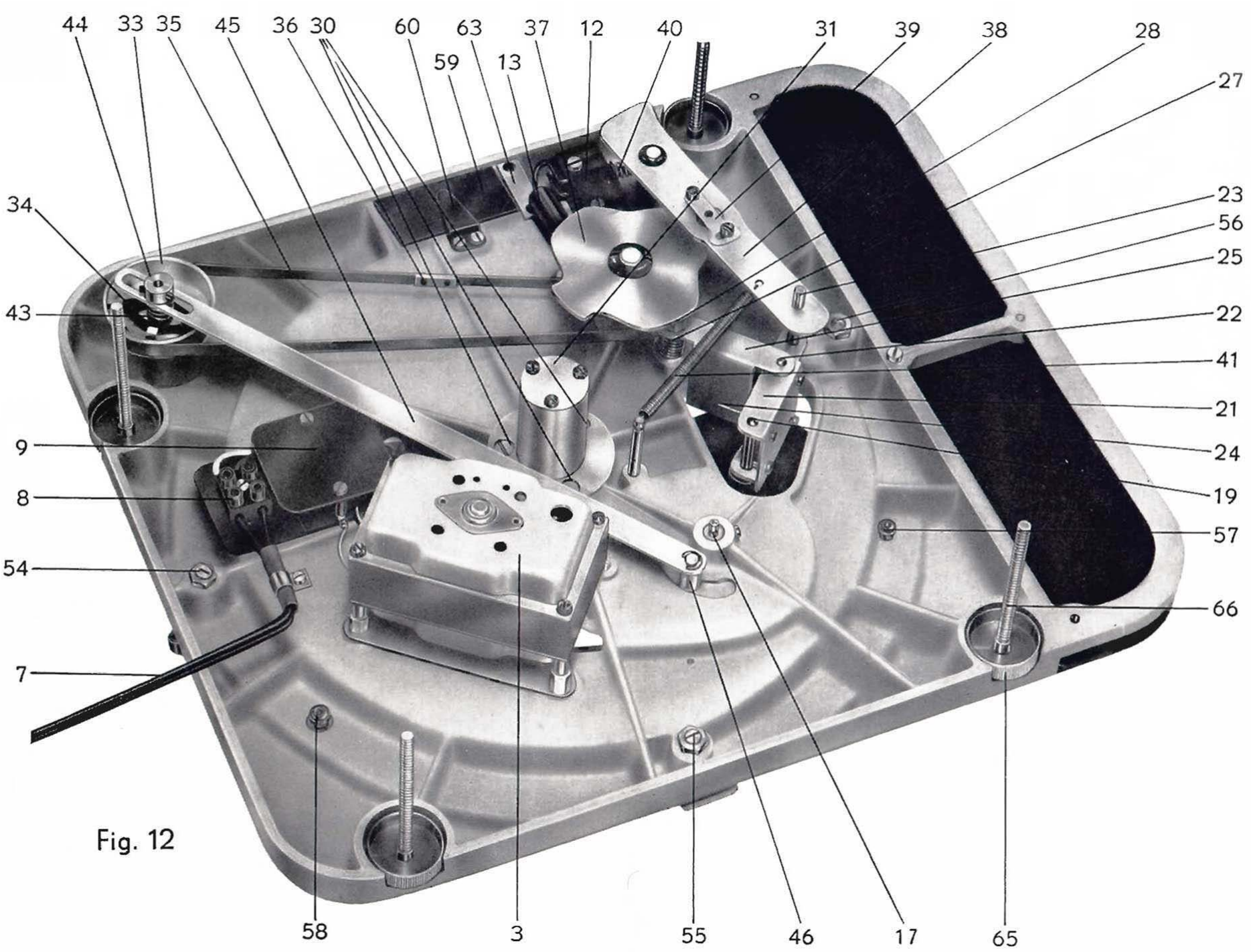
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Fig. 12

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