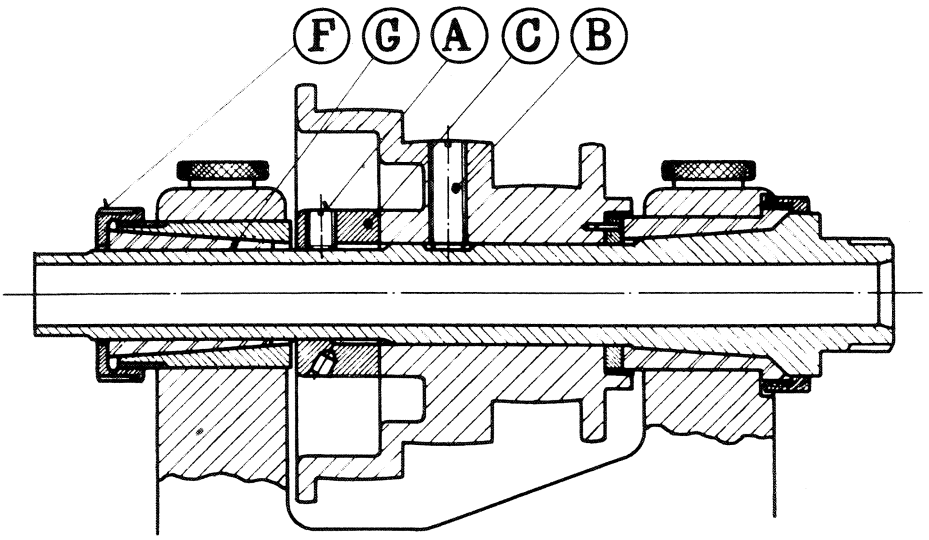
SERVICE INSTRUCTIONS

SCHAUBLIN 70

HIRSCHMANN CORPORATION
PRECISION MACHINE TOOLS
Hirschmann Bldg. Roslyn Heights, L. I., N. Y.
TEL. 516 — 484-0500 TWX 516-626-0688

FABRIQUE DE MACHINES SCHAUBLIN S.A. BEVILARD/SUISSE

ADJUSTING THE HEADSTOCK SPINDLES OF SCHAUBLIN 65 AND 70 LATHES



Owing to its double taper, the front bearing guides the spindle radially and axially.

TAKING UP PLAY IN FRONT BEARING

1. Slacken screw A and B
2. Tighten screw C until the axial play is from 0.01 to 0.015 mm measured with a comparator
3. Retighten screws A and B.

TAKING UP PLAY IN REAR BEARING

1. Slacken nut F
2. Withdraw taper bearing bush G
   Take out the brass strip fitted in a slot in the bearing bush
3. Machine down the brass strip with extreme precision
4. Machine the bore of bearing bush G so that, when it is replaced, the spindle will turn freely with 0.01 mm clearance for the oil.

   Only an experienced mechanic should be entrusted with this work, which calls for the exercise of the UTMOST CARE.

LUBRICATION:

Use a mineral oil of good quality,
viscosity ~ 3° Engler at 50° C (122° F)

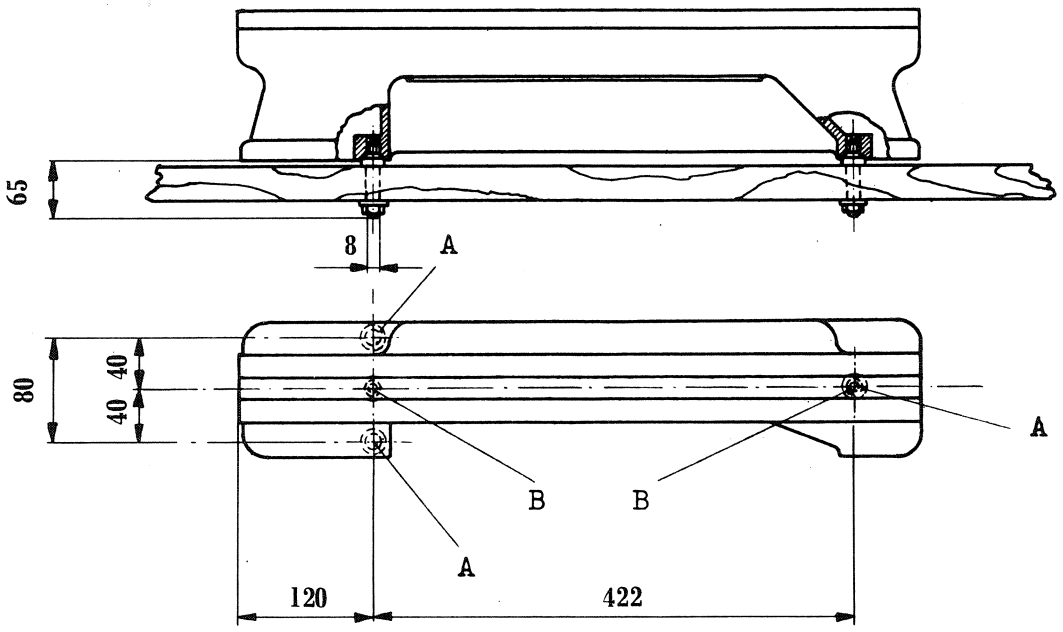
The tanks should be fillet with oil to within about 4 mm (1/5") of the top edge, BUT NEVER INTO THE TUBING.

FABRIQUE DE MACHINES SCHAUBLIN S.A. BÉVILARD/SUISSE

Printed in Switzerland

13.7.61 MCh

INSTRUCTIONS POUR LA FIXATION DU BANC DU TOUR SCHAUBLIN 70
ANLEITUNG FUER DIE BEFESTIGUNG DER DREHBANK-WANGE SCHAUBLIN 70
INSTRUCTIONS FOR MOUNTING THE BED OF SCHAUBLIN 70 LATHE



Le tour d'établi dont le banc est raboté et gratté avec la plus grande précision ne doit pas être fixé sur une base sans que les instructions suivantes ne soient respectées strictement.

D'une manière générale les tables ne sont pas suffisamment plates pour éviter les torsions du banc qui pourraient se produire par une fixation défectueuse, ceux-ci sont livrés avec 3 bagues-rotules qui se placent aux points «A» comme l'indique le dessin ci-dessus. Ceci a pour but de faire reposer le banc sur 3 points. De cette façon toutes torsions du banc sont écartées.

Le banc est fixé par 2 goujons aux points «B».

Die Tischdrehbank, dessen Wange mit grösster Genauigkeit gehobelt und geschabt ist, soll nicht ohne weiteres auf einer unebenen Fläche befestigt werden, ohne folgende Anleitung genau zu beachten.

Da eine Werkbank niemals genau plan ist, so ist es von grosser Bedeutung, dass die Drehbank-Wange nur auf 3 Punkten aufliegt. Zu diesem Zweck werden mit den Tischdrehbänken je drei Spezialringe mit kugeliger Auflagefläche geliefert, welche nach obiger Zeichnung an den Punkten «A» zu unterlegen sind. Dadurch wird eine mangelhafte Befestigung sowie jede Verdrehung der Wange vermieden.

Die Wange wird an den Punkten «B» durch 2 Stiftschrauben befestigt.

Bench lathes, the beds of which are planed and scraped with extreme accuracy, should not be set up on an uneven surface without further preparation; the following instructions should first be carried out carefully.

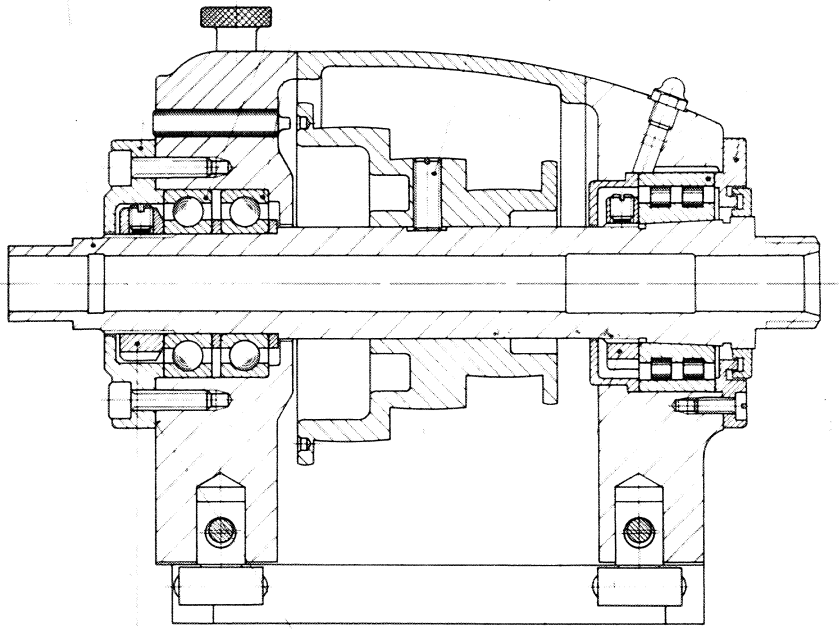
Since a workbench is never perfectly level, it is of the utmost importance that the lathe bed should be supported at three points only. For this purpose, three special ferrules with domed bearing faces are supplied with each bench lathe, and should be fitted at the points marked «A» in the above drawing. Mounted in this way, the lathe bed will be perfectly secure and any twisting or distortion of it avoided.

The lathe bed is fixed by two stud-bolts at the points «B» in the drawing.

Printed in Switzerland

BALL BEARING HEADSTOCKS W10 AND W12 - 70-23-24-30 & 31
Enclosed and open design

23002 24008 Müller 6005X ehG-C3 D M7x17,5 SKF NN 3006 K-SP PR-3



24006 * PR-5

LUBRICATION OF BEARINGS

Use only a *good mineral oil with a viscosity of 3°E at 50°C.*

The front and rear bearings are pressure lubricated through two nipples by means of the hand-operated oil pump supplied with the lathe. The lubricant and the method of lubrication exert a substantial influence on the friction and temperature of the bearings. The purpose of the lubricant is to prevent wear and corrosion, and at the same time to cool the bearings. Frequent but sparing lubrication is recommended.

Never use grease; grease pressed into the bearings may produce such great friction that the rollers or balls begin to slide in their races.

SPINDLE BEARINGS

The two spindle bearings are adjusted when the lathe is assembled. Readjustment is only necessary after a comparatively long running time.

Only an experienced technician should be entrusted with the following readjustments *which must be carried out with the greatest care.*

DISMANTLING THE SPINDLE

1. Undo the three screws of cover PR-3
2. Undo screw D M7x17,5 in the pulley
3. Remove cover 24.008 secured by four screws
4. Undo nut 24.006 after loosening its lock-screw
5. Drive out spindle 23.002 carefully by gently tapping its rear end with a lead hammer.

TAKING UP RADIAL PLAY IN THE FRONT BEARING

1. Accuralely measure amount of radial play with dial indicator showing one-thousandths of a millimetre
2. Dismantle spindle 23.002 (see above)
3. Loosen lock-screw and tighten nut PR-5 in accordance with the amount of radial play to be taken up.

   The fact that the inner race if the roller bearing SKF NN 3006 K-SP is only slightly tapered makes it difficult to tighten nut PR-5 evenly. To achieve this end, the nut must be driven forward a little with the aid of a tube placed over the spindle and arranged concentrically; this will slightly displace the inner race of the bearing on the cone of the spindle 23.002. If this operation is repeated several times, it will be possible to turn the nut PR-5 through the desired angle. Watch the forward displacement of nut PR-5 carefully, for once the inner race of the roller bearing has been pushed too far along the spindle cone, it is difficult to move it back again.

   Advance of nut PR-5 - radial play to be taken up in mm x 13,5
   Pitch of nut = 1 mm
   Example : a radial play of 0.01 mm has to be taken up

   Advance of nut PR-5 = 0.01 x 13,5 = 0.135 mm or a turn of $\frac{0.135 \times 360^\circ}{1} = 48^\circ\ 36'$, which corresponds to a length of $\frac{43 \times \quad \times 48.6}{360} = 18$ mm, measured on the external diameter (43 mm) of nut PR-5
4. Firmly tighten the lock-screw of nut PR-5
5. Fit spindle 23.002 again and check radial play of front bearing again; it should be 0.002 mm, if perfect running conditions are to be achieved.

This test should only be carried out with the ball bearings Müller 6005X ehg-C3 in position and with the roller bearing SKF 3006 K-SP completely dry.

TAKING UP RADIAL AND AXIAL PLAY IN THE REAR BEARING

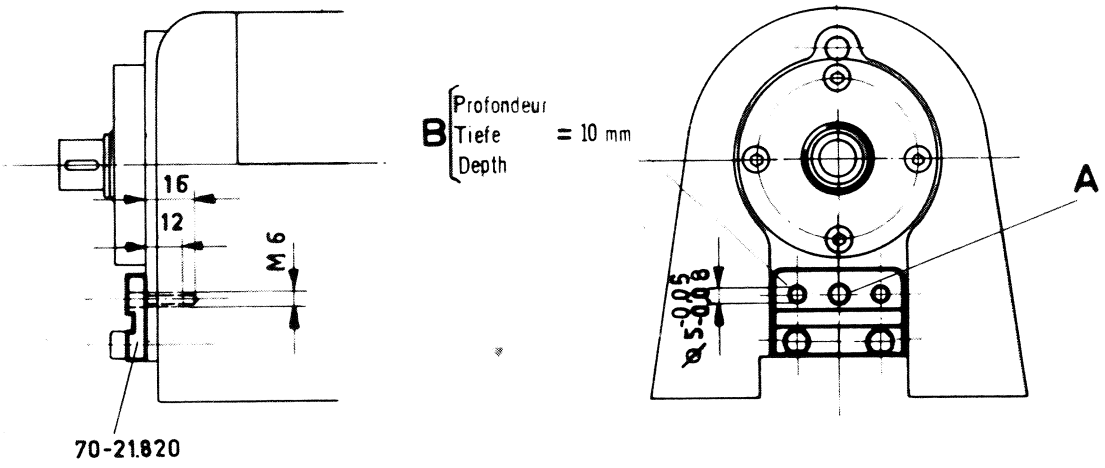
1. Measure the amount of axial play to be taken up accurately with a dial indicator showing one-thousandths of a mm
2. Remove cover 24.008 secured with four screws
3. Remachine the surface marked * of cover 24.008 in accordance with the amount of the play to be taken up. This work must be done with the greatest care. It is most important that this face of cover is perfectly parallel with the face nearest the ball bearing
4. Replace cover 24.008 and check axial play of rear bearing again; it should be 0,003 to 0,005 mm, if perfect running conditions are to be achieved.

   This test should only be carried out with ball bearings Müller 6005X ehG-Ce completely dry

INSTRUCTIONS POUR LA FIXATION DES NOUVEAUX ACCESSOIRES SUR LES ANCIENNES POUPÉES À ROULEMENTS, OUVERTES ET FERMÉES 70-23, 24, 30 & 31 (longue extrémité de broche)

ANLEITUNG FÜR DIE BEFESTIGUNG DER NEUEN ZUSATZAPPARATE AUF DEN ALTEN OFFENEN UND GESCHLOSSENEN KUGELLAGERSPINDELSTÖCKEN 70-23, 24, 30 & 31 (langes Spindelende)

INSTRUCTIONS FOR FIXING THE NEW ATTACHMENTS ON THE OLDER TYPES OF OPEN AND CLOSED ANTI-FRICTION-BEARING HEADSTOCKS 70-23, 24, 30 & 31 (long spindle end)



Afin de pouvoir utiliser les nouveaux accessoires sur les anciennes poupées (longue extrémité de broche) il y a lieu d'adapter une pièce intermédiaire en effectuant les opérations suivantes :

1. Au moyen des vis livrées avec chaque appareil, fixer la pièce intermédiaire 70-21.820 et bien l'aligner.
2. Amorcer le trou de filetage (A) avec une mèche Ø 6,3 mm et terminer le perçage avec une mèche de Ø 5 mm jusqu'à 16 mm de profondeur; tarauder à M6 sur 12 mm de profondeur.
3. Percer les trous des goupilles de fixation (B) avec une mèche Ø 4,8 mm jusqu'à une profondeur de 10 mm.

Um die Verwendung der neuen Zusatzapparate auf den ältern Spindelstöcken (langes Spindelende) zu ermöglichen, ist das Anbrigen eines Zwischenstückes nötig verbunden mit folgenden Operationen :

1. Zwischenstück 70-21.820 mittels den mit jedem Apparat gelieferten Schrauben befestigen und gut ausrichten.
2. Anbohren des Gewindeloches (A) mittels Spiralbohrer Ø 6,3 mm und fertigbohren auf Tiefe 16 mm mittels Spiralbohrer Ø 5 mm; anschliessend Gewinde M6 auf Tiefe 12 mm bohren.
3. Fixierstiftlöcher (B) auf Tiefe 10 mm mittels Spiralbohrer Ø 4,8 mm bohren und auf Ø $5^{-0.05}_{-0.08}$ mm aufreiben.

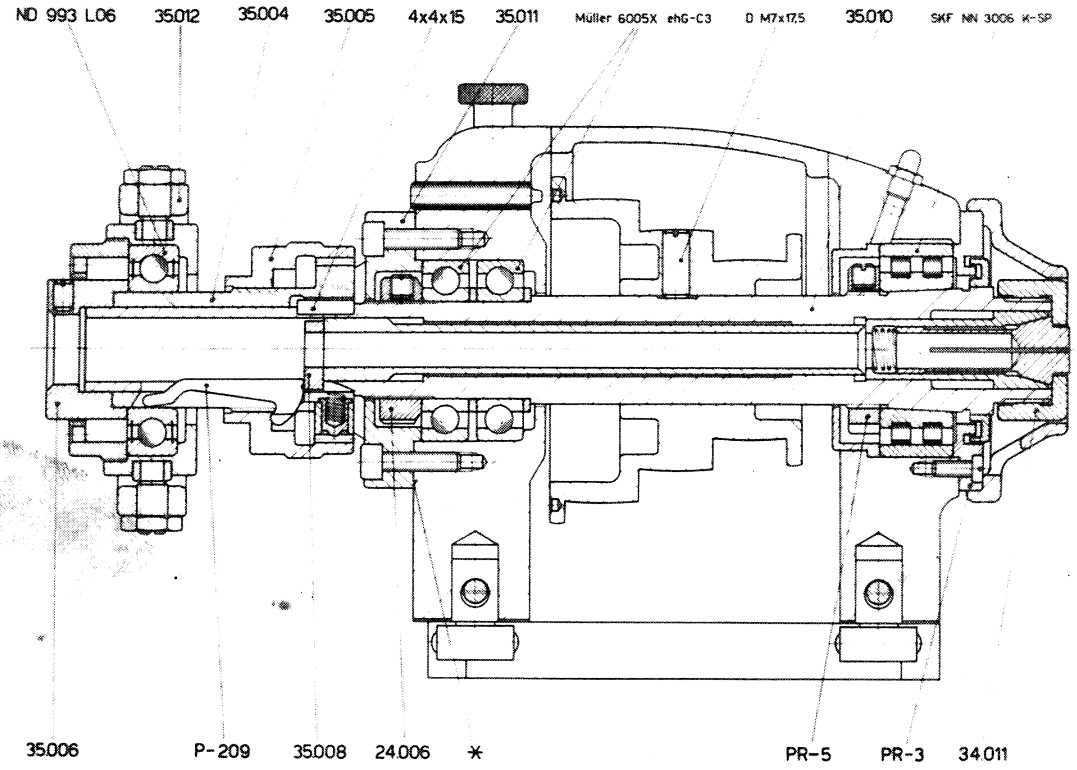
To enable the new attachments to be used on the older types of headstock (long spindle end), it is necessary to fit a packing piece by doing following operations :

1. Fit the packing piece 70-21.820 with the screws supplied with each attachment and align it accurately.
2. Start the tapping hole (A) with a 6.3 mm dia. twist drill and finish to drill with a 5 mm dia. twist drill up to a depth of 16 mm. Tap the M6 thread up to a depth of 12 mm.
3. Drill out the location holes (B) with a 4.8 mm dia. twist drill up to a depth of 10 mm.

6.4.60 MD/MCh

F12 & F16 BALL BEARINGS HEASDTOCKS 70-34-35 & 36

Enclosed and open design



LUBRICATION OF BEARINGS

Use only *a good mineral oil with a viscosity of 3°E at 50°C.*

The front and rear bearings are pressure lubricated through two nipples by means of the hand-operated oil pump supplied with the lathe. The lubricant and the method of lubrication exert a substantial influence on the friction and temperature of the bearings. The purpose of the lubricant is to prevent wear and corrosion, and at the same time to cool the bearings. Frequent but sparing lubrication is recommended.

Never use grease; grease pressed into the bearings may produce such great friction that the rollers or balls begin to slide in their races.

SPINDLE BEARINGS

The two spindle bearings are adjusted when the lathe in assembled. Readjustment is only necessary after a comparatively long running time.

Only an experienced technician should be entrusted with the following readjustments *which must be carried out with the greatest care.*

DISMANTLING THE SPINDLE

1. Unscrew 3 screws of cover PR-3
2. Undo screw D M7x17,5 in the pulley
3. Unscrew nuts 35.006 & 35.005. Remove toggles P-209
4. Remove support 35.011 together with the clamping device. Support 35.011 is secured by 4 screws
5. Remove key 4x4x15 and unscrew nut 24.006 after loosening its lock screw
6. Drive out spindle 35.010 carefully by gently stricking its rear end with a lead hammer.

SCHAUBLIN S.A. BÉVILARD (SUISSE)

Printed in Switzerland

TAKING UP RADIAL PLAY IN THE FRONT BEARING

1. Accurately measure amount of radial play with a dial indicator showing 1/1000 of a millimetre
2. Dismantle spindle 35.010 (see above)
3. After loosening its lock screw tighten nut PR-5 in accordance with the amount of radial play to be taken up

   The fact that the inner race of the roller bearings SKF NN 3006 K-SP is only slightly tapered makes it difficult to tighten nut PR-5 evenly. To achieve this end. the nut must be driven forward a little with the aid of a tube placed over the spindle and arranged concentrically; this will lightly displace the inner race of the bearing on the cone of the spindle 35.010. If this operation is repeated several times, it will be possible to turn the nut PR-5 through the desired angle. Watch the forward displacement of nut PR-5 carefully, for once the inner race of the roller bearing has been pushed too far along the spindle cone, it is difficult to move it back again.

   F12 headstocks : Advance of nut PR-5 = radial play to be taken up in mm x 14

   F16 headstocks : Advance of nut PR-5 radial play to be taken up in mm x 15

   Pitch of nut PR-5 = 1 mm

   Example for F12 headstock : a radial play of 0.01 mm has to be taken up

   Advance of nut PR-5 = 0.01 x 14 = 0.14 mm or a turn of $\frac{0.14 \times 360^\circ}{1} = 50^\circ\ 24'$, which corresponds to a length of $\frac{43 \times \pi \times 50.4}{360} = 19$ mm, measured on the external diameter (43 mm) of the nut
4. Firmely tighten lock screw of nut PR-5
5. Refit spindle 35.010 and check radial play of front bearing again; it should be 0.002 mm, if perfect running conditions are to be achieved. *This test should only be carried out with the ball bearings Müller 6005X ehG-C3 in position and with the roller bearing SKF 3006 K-SP completely dry.*

TAKING UP RADIAL AND AXIAL PLAY IN THE REAR BEARING

1. Measure the exact amount of axial play to be taken up with a dial indicator showing 1/1000 of a millimetre
2. Remove support 35.011 (see "Diamantling the spindle", points 3 & 4)
3. Remachine the surface marked * of support 35.011 in accordance with the amount of the play to be taken up. This work must be done with the greatest care. It is most important that this face of support is perfectly parallel with the face nearest the ball bearing
4. Replace support 35.011 and check axial play of rear bearing again; it should be 0.003 to 0,005 mm, if perfect running conditions are to be achieved. *This test should only be carried out with ball bearings Müller 6005X ehG-C3 completely dry.*

SPINDLE LOCKING DEVICE

The piston 34.021 actuated by a knurled pinion engaged in the toothing of gear 34.016 enables the spindle to be locked at will.

The gear 34.016 is also designed to drive the **THREADING ATTACHMENT** 102-35.500 which can be fitted to the roller-bearing, enclosed headstocks F27 - F38 and F64.

QUICKNACTION CHUCKING DEVICE

Operation

To chuck the workpiece, move lever 35.012 to the left. To unclamp the workpiece, pull lever 35.012 towards you.

To prevent the bar to be turned from shoking, place a guide sleeve in nut 35.006

Adjustment

1. Screw the nut of nose 101 right down
2. Arrange toggles P-209 horizontally and check whether the collar 35.008 is correctly positioned
3. Exert axial pressure on the chuck from the front of the headstock to ensure that the toggles P-209 are correctly positioned
4. Move lever 35.012 to the left
5. Lightly clamp the workpiece by tightening bush 35.005
6. Pull lever 35.012 towards you and finally adjust the clamping by means of bush 35.005

   Bush 35.005 is automatically locked in all its positions by means of two spring-loaded pistons.

When replacing toggles P-209, *it is absolutely necessary to fit two new ones having the same numbers.*

Maintenance

Once a week remove the nut 34.011 from nose, dismantle and oil the clamping members contained inside the spindle 35.010. Also oil the toggles P-209 and the guide of the enclosed bearing ND 993 L06. The pivot of lever 35.012 contains an oiler for injecting oil with the aid of the hand pump supplied with the lathe.

Use a *good mineral oil* having a viscosity of approx. *3°E at 50°C.*

SCREW-OPERATED CARRIAGE 70-45

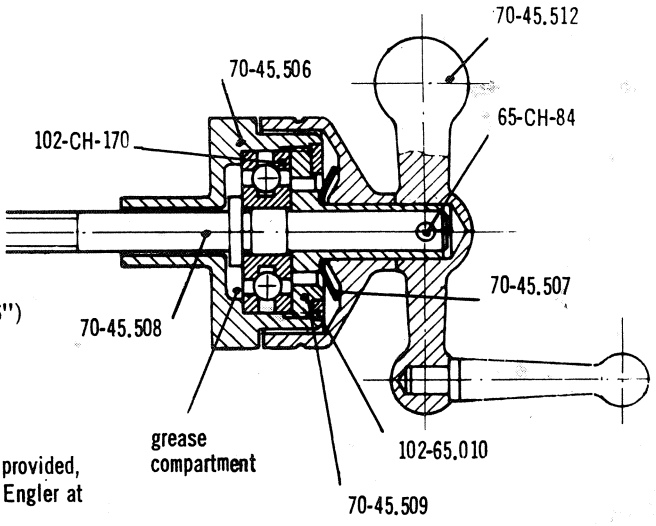
for SCHAUBLIN 70 high-precision lathe
(suitable also for Schaublin 65 lathe with special toolpost)

ADVANTAGES

1. Great rigidity and high precision
2. Fully protected slideways with forced-feed lubrification (cleaning action)
3. Micrometer screws supported at both ends; special patented ball bearing at handle end for taking up axial and radial play
4. Patented device for rapid and accurate resetting of swivel base to zero
5. Dovetail on bottom slide for taking and adjustable rear toolholder
6. Harmonious lines and superior finish

SPECIFICATION

Longitudinal stroke	60 mm (2 3/8")
Transverse stroke	65 mm (2 9/16")
Accuracy of reading of adjustments	1/100 mm (1/1000")
Top slide swivelling	2 x 90°
Height of centre above carriage	16 mm (5/8")
Swing over carriage	
without rear toolholder	85 mm (3 3/8")
with rear toolholder	45 mm (1 3/4")
Size of tools	8 x 8 mm (5/16x5/16")
Net weight	3.4 kg (7.500 lbs.)



LUBRICATION

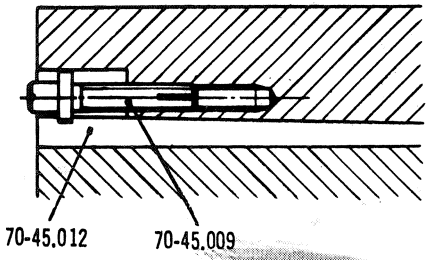
SLIDEWAYS, MICROMETER SCREWS AND NUTS

Give 4 or 5 shots twice a week through the two nipples provided, using a good light mineral oil with a viscosity of 3° Engler at 50°C.

BALL BEARING OF MICROMETER SCREWS

Use a good consistent ball-bearing grease and renew it every 5 years, proceeding as follows :

1. Drive out the taper pin 65-CH-84
2. Withdraw the handle 70-45.512 and the divided drum 70-45.506.
3. Remove the cup spring 70-45.507 and the Seeger clip 102-65.010 and completely unscrew the nut 70-45.509.
4. Remove the ball-bearing ring 102-CH-170 and slightly slacken the screw 70-45.508 in order to be able to fill the compartment with grease. Pack the ball bearing also with grease.



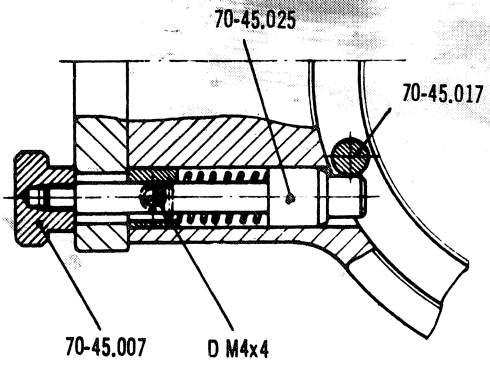
ADJUSTMENTS

BALL BEARING OF MICROMETER SCREWS

1. Drive out the taper pin 65-CH-84.
2. Withdraw the handle 70-45.512 and the divided drum 70-45.506.
3. Remove the Seeger clip 102-65.010 and tighten the nut 70-45.509 according to the amount of play to be taken up.

PLAY IN SLIDES

A taper gib 70-45.012 is fitted to each of the slides. Play caused by wear in the slideways can be taken up by tightening the adjusting screw 70-45.009 as required.



DEVICE FOR RESETTING SWIVEL BASE TO ZERO

1. Fix the carriage securely in correct position on the bed.
2. With the aid of a dial indicator, position the top slide exactly at 90°.
3. Unlock the screw D M4 x 4.
4. Turn the knurled knob 70-45.007 until the end of the rod 70-45.025 is resting against the stop 70-45.017 and then retighten the screw D M4 x 4 securely.

SCREW-OPERATED CARRIAGE 70-45

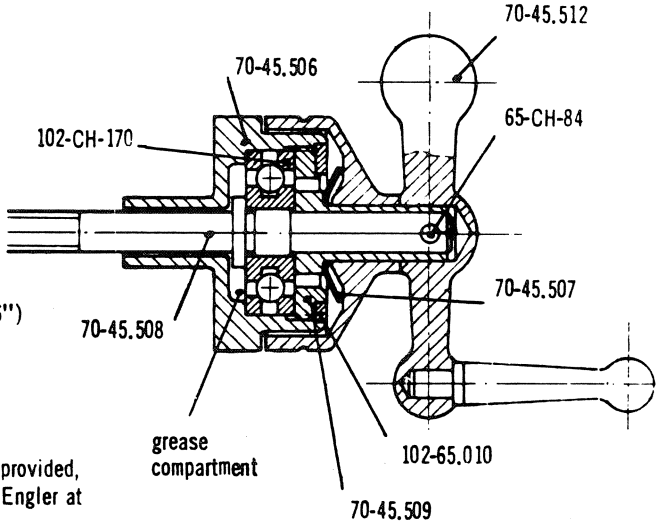
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(suitable also for Schaublin 65 lathe with special toolpost)

ADVANTAGES

1. Great rigidity and high precision
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3. Micrometer screws supported at both ends; special patented ball bearing at handle end for taking up axial and radial play
4. Patented device for rapid and accurate resetting of swivel base to zero
5. Dovetail on bottom slide for taking and adjustable rear toolholder
6. Harmonious lines and superior finish

SPECIFICATION

Longitudinal stroke	60 mm (2 3/8")
Transverse stroke	65 mm (2 9/16")
Accuracy of reading of adjustments	1/100 mm (1/1000")
Top slide swivelling	2 x 90°
Height of centre above carriage	16 mm (5/8")
Swing over carriage	
without rear toolholder	85 mm (3 3/8")
with rear toolholder	45 mm (1 3/4")
Size of tools	8 x 8 mm (5/16x5/16")
Net weight	3.4 kg (7.500 lbs.)



LUBRICATION

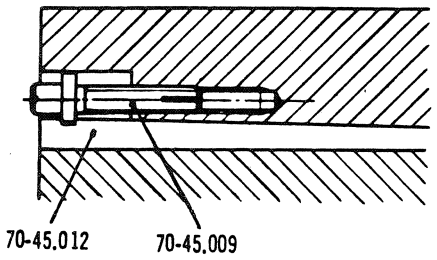
SLIDEWAYS, MICROMETER SCREWS AND NUTS

Give 4 or 5 shots twice a week through the two nipples provided, using a good light mineral oil with a viscosity of 3° Engler at 50°C.

BALL BEARING OF MICROMETER SCREWS

Use a good consistent ball-bearing grease and renew it every 5 years, proceeding as follows :

1. Drive out the taper pin 65-CH-84
2. Withdraw the handle 70-45.512 and the divided drum 70-45.506.
3. Remove the cup spring 70-45.507 and the Seeger clip 102-65.010 and completely unscrew the nut 70-45.509.
4. Remove the ball-bearing ring 102-CH-170 and slightly slacken the screw 70-45.508 in order to be able to fill the compartment with grease. Pack the ball bearing also with grease.



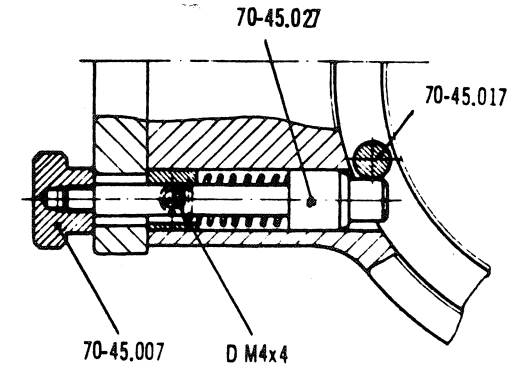
ADJUSTMENTS

BALL BEARING OF MICROMETER SCREWS

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PLAY IN SLIDES

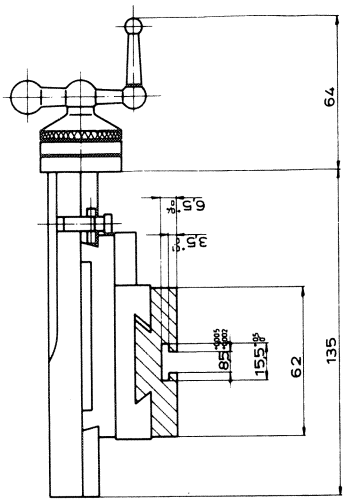
A taper gib 70-45.012 is fitted to each of the slides. Play caused by wear in the slideways can be taken up by tightening the adjusting screw 70-45.009 as required.

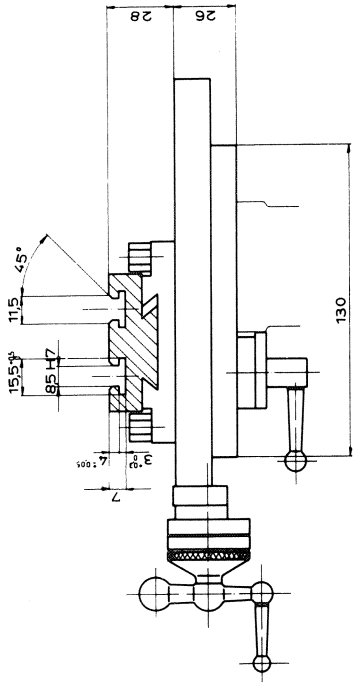


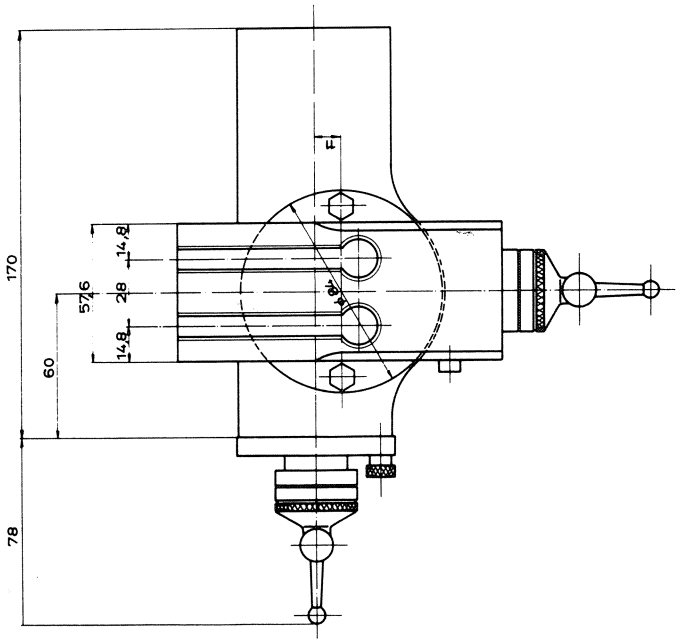
DEVICE FOR RESETTING SWIVEL BASE TO ZERO

1. Fix the carriage securely in correct position on the bed.
2. With the aid of a dial indicator, position the top slide exactly at 90°.
3. Unlock the screw D M4 x 4.
4. Turn the knurled knob 70-45.007 until the end of the rod 70-45.027 is resting against the stop 70-45.017 and then retighten the screw D M4 x 4 securely.

COTES ET DIMENSIONS DU CHARIOT A VIS SCHAUBLIN 70







SCHAUBLIN LATHE TYPE 70 ON BASE

1. Concrete foundation and power supply

The SCHAUBLIN lathe type 70 should preferably be installed on a concrete foundation, the dimensions of which are given in the diagram (see overleaf). The depth of the foundation depends on the nature of the soil; the concreting should be done on firm soil.

Three holes 27 mm (1 1/16") dia. and 90 mm (3 1/2") deep should be provided for the foundation bolts. The position of these three holes can be marked out from the lathe base itself.

The purpose of the foundation is to insulate the lathe from the vibrations of the ground. But if the floor is sufficiently stable and vibration-free, a special foundation may be dispensed with.

The power supply cable should pass through the concrete foundation in a conduit terminating at point 6. For this purpose it is recommended to cast a 26 mm (1") i.d. steel tube into the concrete so that it projects not more than 5 mm (3/16") above floor level. The electric cables themselves should project about 1 m (40").

2. Bolting the machine to the floor and levelling

The lathe base should be fixed to the floor by three flexible foundation bolts (70-80.050), these being provisionally wedged in the 27 mm (1 1/16") dia. holes in the concrete foundation.

The lathe base is provided with five set-screws (70-80.040), which rest on 100 mm (4") dia. support plates.

Levelling should be carried out in the following order, taking the lathe bed as reference :

a) Transverse levelling headstock end :

Provisionally tighten foundation bolts 1 and 2;
level by means of set-screws 1 and 2 and finally tighten foundation bolts 1 and 2.

b) Longitudinal levelling, to be checked over the whole length of the bed :

Provisionnally tighten foundation bolt 3; level by means of set-screw 3 and finally tighten foundation bolt 3.

c) Transverse levelling, tailstock end :

Use set-screws 4 and 5.

On request we will supply a set of three flexible foundation bolts (70-80.050) with 100 mm (4") dia. support plates. The set-screws (70-80.040) are part of the standard equipment of the base.

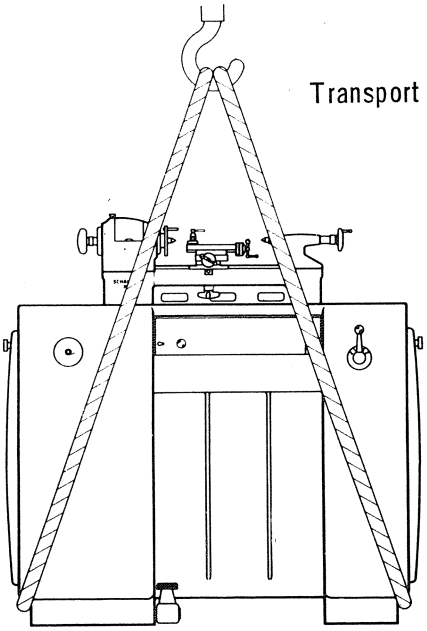
The holes in the base and set-screws are 15 mm (19/32") dia.

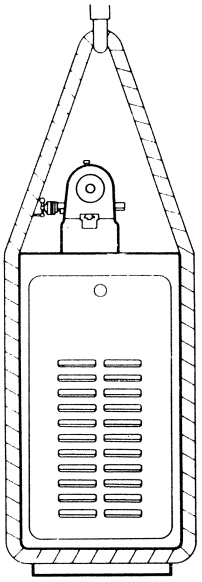
Correct levelling is very important for ensuring the accuracy of the lathe.

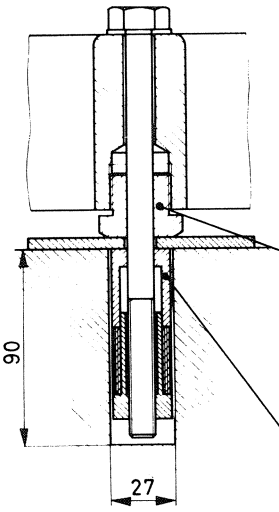
Use a precision spirit level : one graduation = 0,02 mm (0.001") on a length of 1000 mm (39 3/8"). The importance of correct levelling cannot be over-emphasised, and the work should not be scamped.

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Transport of the machine by means of a hoist







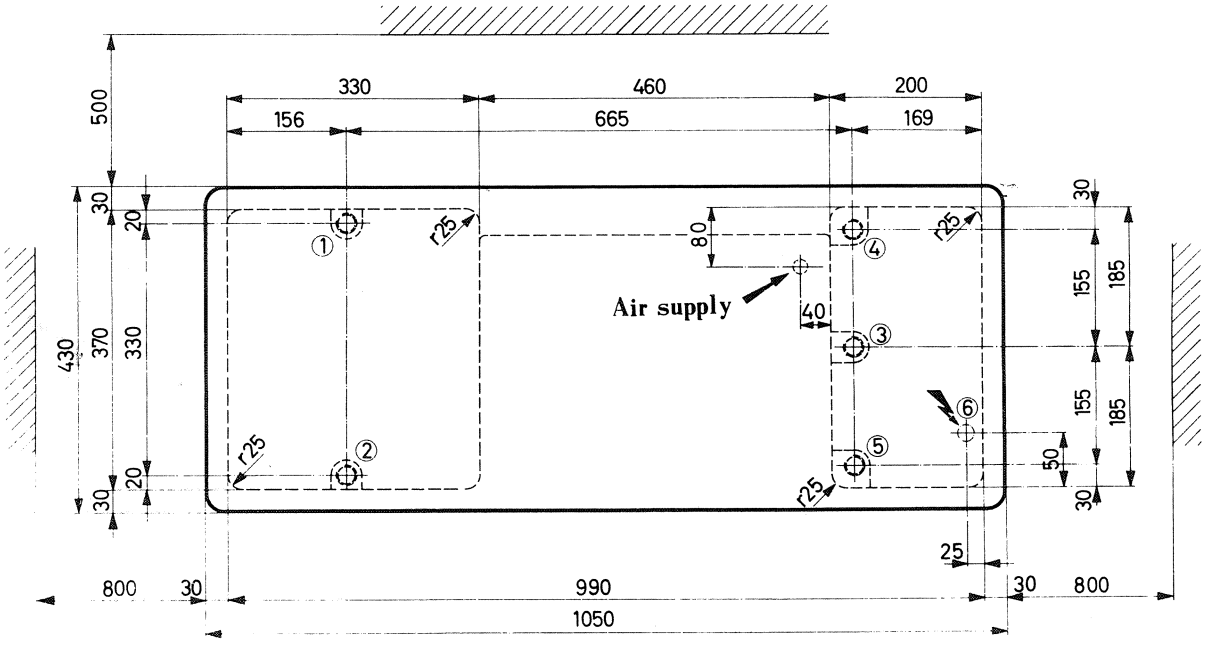
70-80.040
(supplied with every machine)

70-80.050
(supplied on special request)

Foundation bolt

(accessory 70-80.050)
with expanding rubber bush for rigid installation of base

Foundation drawer



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PEDESTAL 70-80 ELECTRICAL EQUIPMENT

The pedestal is supplied with the complete spindle motor equipment (terminal clamps, swich and wiring) and is ready for the connection to the mains.

MAINS SUPPLY

Before connecting the motor, make sure that the voltage marked on the motor data plate corresponds to that of the mains. The whole layout is shown in the diagram overleaf.

The supply line is led to the input terminals inside of the left-hand leg.

The machine is earthed indirectly, the neutral wire of the supply cable being joined to the yellow terminal.

If the motor is not rotating in the right direction, it can be corrected by interchanging two of the lead-in wires at the input terminals.

MAINTENANCE

The control equipment requires no maintenance.

The motor's ball bearing are provided with sufficient grease to last 12 months' of normal running.

When renewing this supply, use a good ball bearing grease.

When ordering replacement parts for the motor, be sure so state the serial number and type of motor; these are marked on the motor data plate.

A Supply lead

B Motor lead

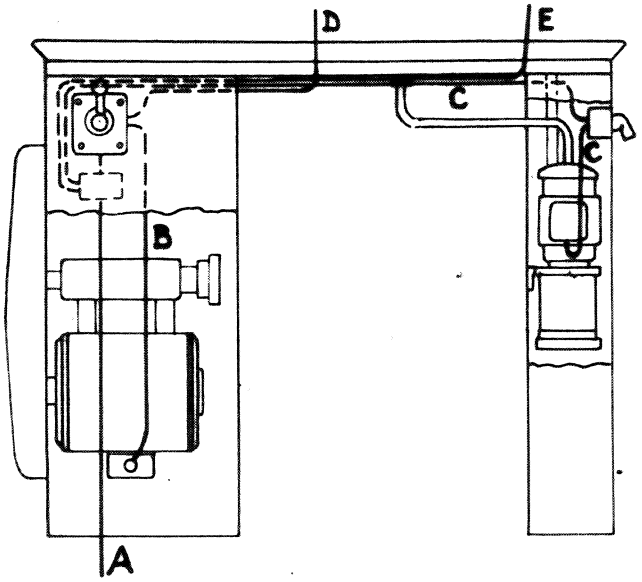
C Pump motor lead

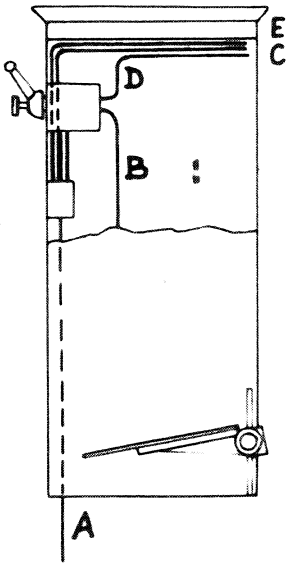
D Motor lead for milling and grinding attachment

E Lighting lead

Leads A and B form parts of the lathe's standard equipment, while lead C, D and E are only supplied if the appurtenant attachments are ordered.

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D
E
C
C
B
A


E
C
D
B
A

PEDESTAL 70-80 CIRCUIT DIAGRAM
WITH TWO - SPEED MOTOR 750 AND 1500 R.P.M.

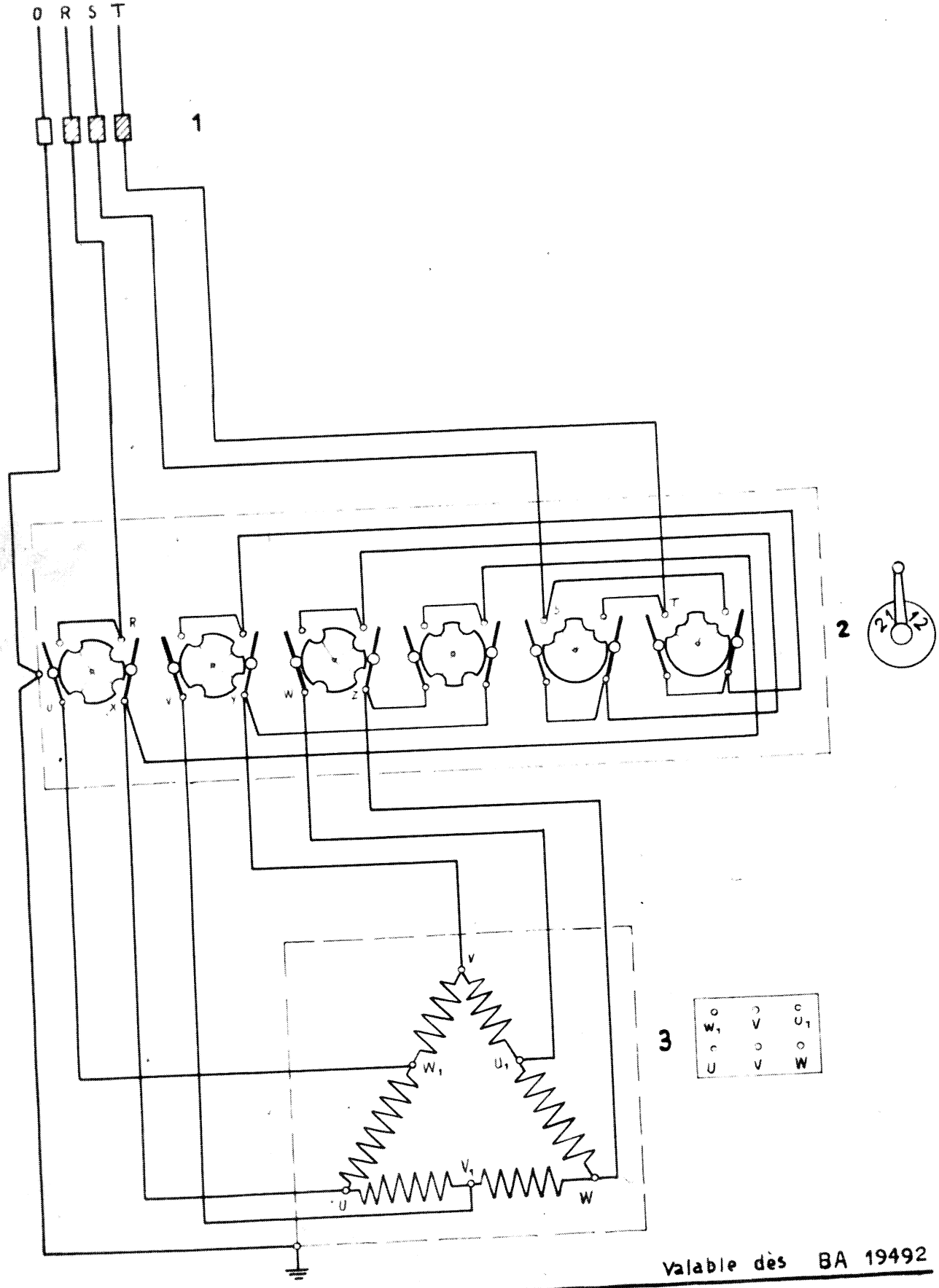
The lathe's electrical equipment comprises :

1. Input terminals for mains supply

2. Combined switch for change of speed and rotation :
   Ghielmetti, Type HKRD, N° 7211, 10A, 500V, 50Hz, Diagram 46211, positions 2-1-0-1-2,
   Scale Drawing 5081/VI

3. Three-phase squirrel cage motor :
   Oerlikon, Type 145c, 750-1500 r.p.m., 0.4-0.6 HP, as per Scale Drawing L 013911.

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Valable dès BA 19492

PEDESTAL 70-80 CIRCUIT DIAGRAM
WITH TWO - SPEED MOTOR 750 AND 3000 R.P.M.

The lathe's electrical equipment comprises :

1. Input terminal for main supply

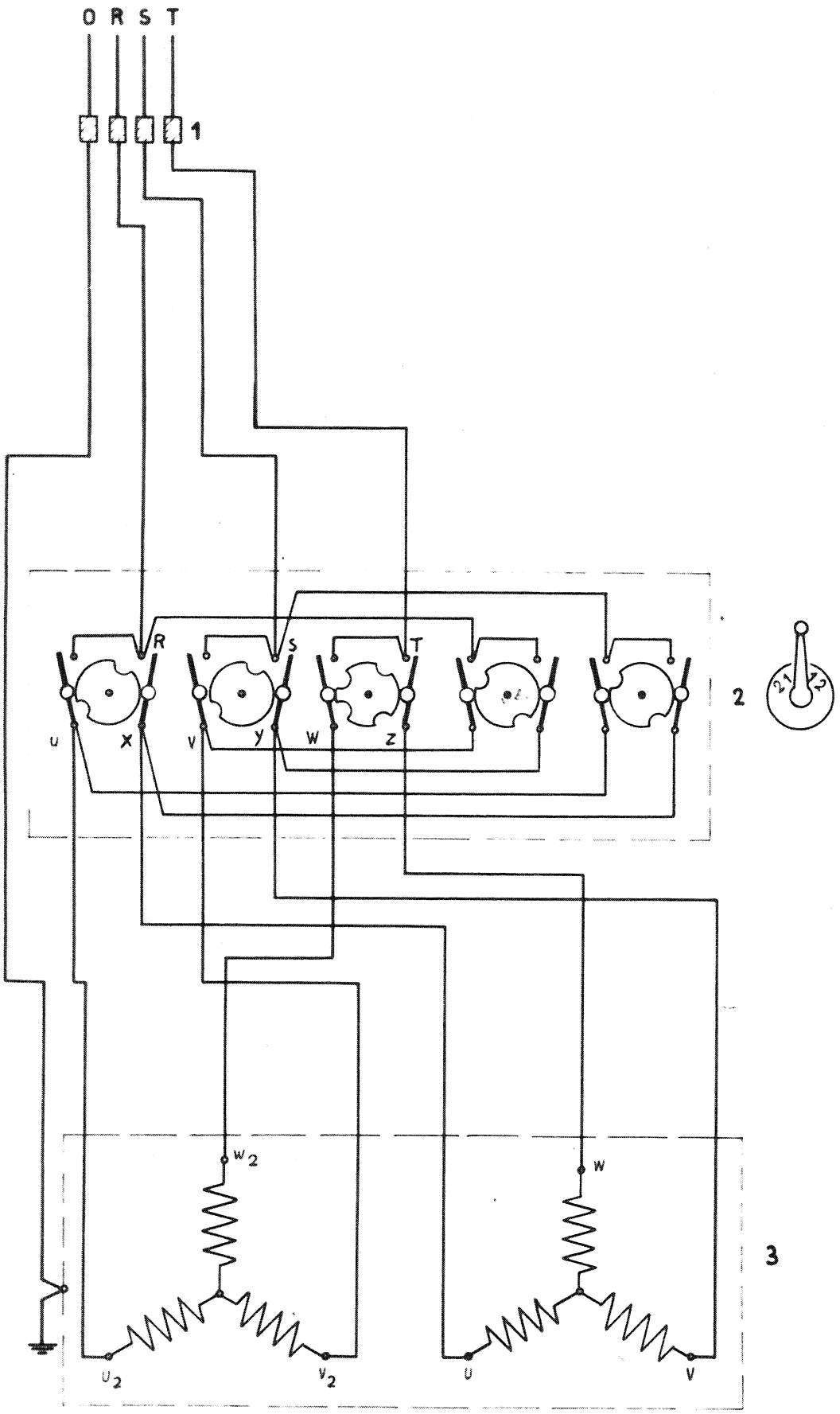
2. Combined switch for change of speed and rotation :

   Ghielmetti, Type HKRW, N° 7191, 10A, 500A, 50Hz, Diagram 46699, Positions 2-1-0-1-2, Scale Drawing 5081/V

3. Three-phase squirrel cage motor :
   Oerlikon, Type 145c, 750-3000 r.p.m., 0.4-0.8 HP as per Scale Drawing L 013911.

FABRIQUE DE MACHINES SCHAUBLIN S.A. BÉVILARD / SUISSE

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O R S T
1
R
S
T
U
X
V
Y
W
Z
2
21
13
W2
U2
V2
W
U
V
3

COOLING SYSTEM 70-80.600

The motor immersion pump is mounted on a tank with a capacity of 10 litres. This tank can take either water-soluble oil emulsions or insoluble oils (cutting oils). The coolant passes through an articulated pipe provided with a cock on to the workpiece, and from there through the inclined chip tray, a chip filter and separator in the tank back to the pump which is also fitted with a filter.

C L E A N I N G

The pump, tank, pipes and filters should be completely drained and dismantled at least twice a year. Clean the various parts thoroughly with petrol or kerosen.

It is most advisable to change the cutting oil, and particularly the soluble oil emulsions frequently. If the latter decompose, their fatty substances combine with the chips (espacially those of light alloys) and other impurities to form a sticky mass which clogs the filters and pipes.

To prevent premature destruction of the fresh coolant, clean the pipes and tanks thoroughly when changing the oil.

The pump should not be operated unnecessarily or without coolant; also, do not forget to switch it off during standstills for it runs noiselessly.

L U B R I C A T I O N

The grease in the ball bearings must be renewed once a year; clean the bearings thoroughly when petroleum beforehand and use only a good ball-bearing grease.

E L E C T R I C A L E Q U I P M E N T

The electrical equipment comprises :

Pump motor;

Protection switch, Type Weber MF6, to be embedded beneath front plate, and lever.

This switch is provided with thermal overload protection.

I N S T R U C T I O N S F O R F I T T I N G A C O O L I N G S Y S T E M D E L I V E R E D S U B S Q U E N T L Y B Y O U R F A C T O R Y

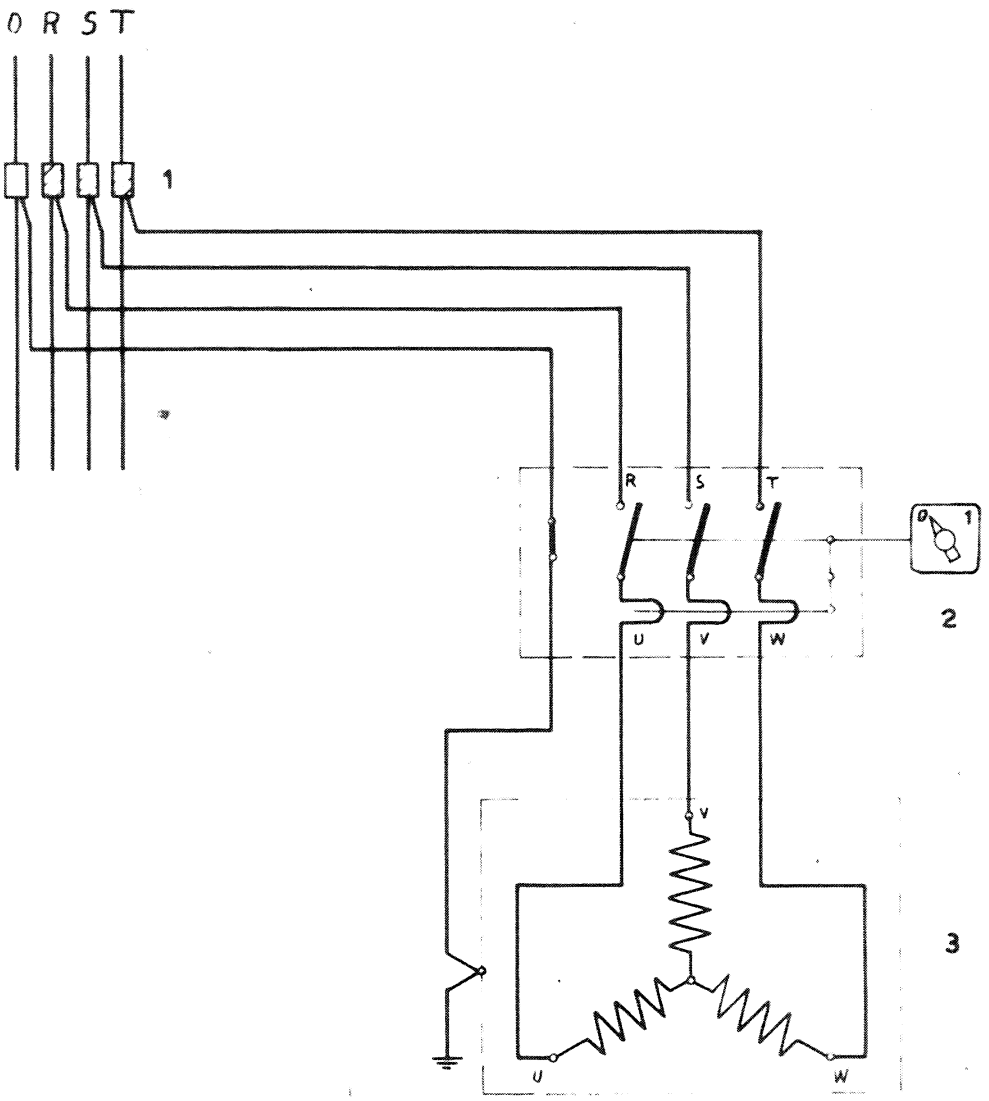
Fit switch MF6 in the provided hole on the righ-hand leg and make the connections as per diagram overleaf.

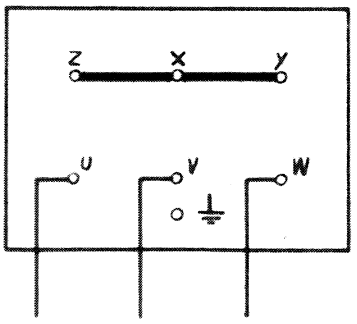
The lead between terminal clamps and pump motor should have 4 insultated wires (1 mm^2) and be placed in a metal sheath with an internal diameter of 11 mm. This lead must be long enough to enable the tank to be removed together with the pump, without the motor needing to be disconnected.

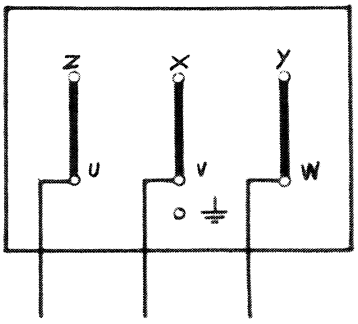
On the motor housing there is a junction box equipped with 6 terminals to which the phases are connected. The motor is designed for 2 voltages, E and $\sqrt{3}E$. Connect the motor as shown in the diagram overleaf, in $\curlywedge$ circuit for the higher voltage and in $\triangle$ circuit for the lower.

To change the direction of rotation, all that has to be done is to permute two terminals, e.g. U. and V.

1 Input terminals
2 Motor protection switch MF6
3 Pump motor


0 R S T
1
R
S
T
0
1
2
U
V
W
V
3
U
W


Z
X
Y
U
V
W


Z
X
Y
U
V
W

CLUTCH AND BRAKE 70-81.000

LUBRICATION

This assembly has 5 nipples K7 through which oil can be injected by means of the hand-operated oil pump supplied with the lathe. A daily lubrication of 2-3 shots for the arbor of the transmission and weekly 4-5 shots for the other points are sufficient.

Use only a good mineral oil with a viscosity of 3°E at 50°C.

SETTING THE CLUTCH PRESSURE

Regulate the pressure of the spring D185-322 by means of the sleeve 81.015. An exaggerated pressure would reduce the life of the bearings New Departure 73 L09, 93 L09 and SKF 6205.

REPLACING THE FRICTION LININGS

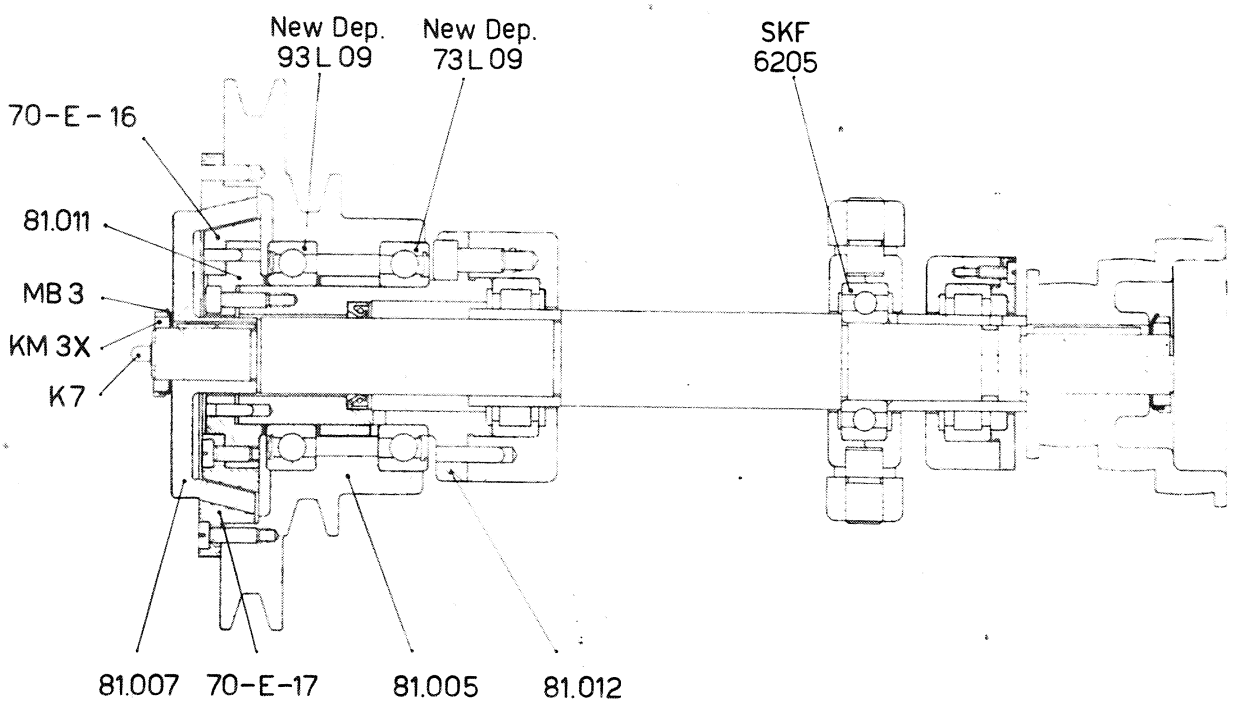
When worn out, linings 70-E-16 and 70-E-17 are replaced as follows:-

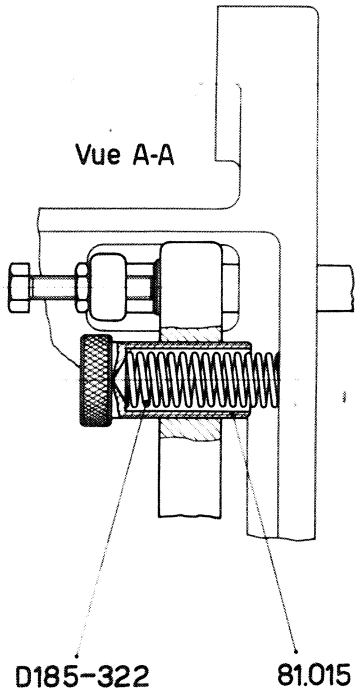
1. Loosen completely and take out the sleeve 81.015
2. Loosen the four lock-screws of lining 70-E-17
3. Loosen the locknut KM3X and the lockwasher MB3. Remove the bell 81.007 with the worn out lining 70-E-17
4. Remove the flange 81.011 which is locked with 3 screws and 1 cylindrical pin. Afterwards remove it from the worn out lining 70-E-16 which is held by 3 screws and 1 cylindrical pin
5. After the new lining 70-E-16 is fitted, turn the 14° taper slightly but with perfect roundness on the flange 81.011. The 14° taper of the lining 70-E-17 has also to be turned perfectly round on the pulley 81.005 which can be removed without difficulty from the slide rest 81.021.

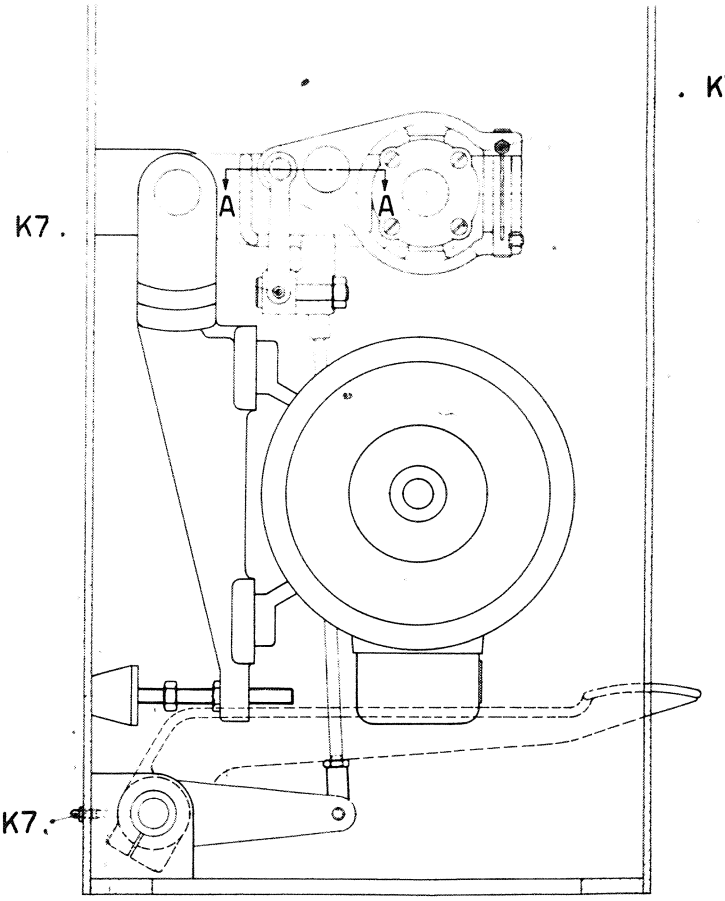
When assembling, do not forget to bend a tooth of the lockwasher MB3 in a groove of the locknut KM3X.

RECOMMENDATION

If the spindle nose is furnished with a chuck or a face plate, it is recommended to brake softly. As a matter of fact, the accessories may screw off themselves by stopping too suddenly.

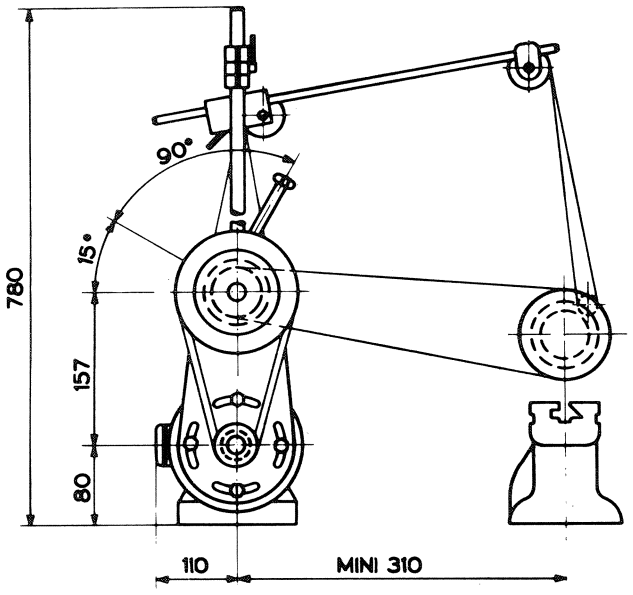

New Dep.
93 L 09
New Dep.
73 L 09
SKF
6205
70-E-16
81.011
MB 3
KM 3X
K7
81.007
70-E-17
81.005
81.012

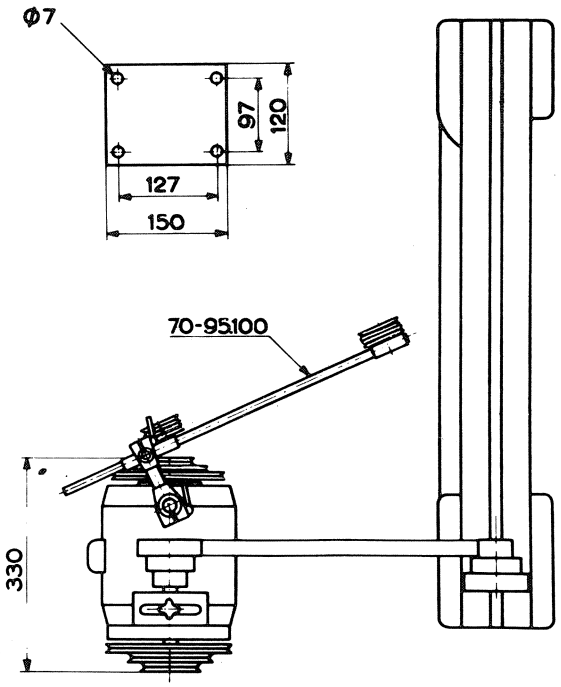

Vue A-A
D185-322
81.015


. K7
K7 .
A
A
K7 .

TYPE 70-96 INDIVIDUAL DRIVE FOR «SCHAUBLIN 70» BENCH-MOUNTED LATHE

with belt-tensioning attachment 70-95.100 for grinding and milling attachments





Three types available :

70-96.000
70-96.100
70-96.250

For specification see overleaf

5.7.60 MD/MCh

FABRIQUE DE MACHINES **SCHAUBLIN S.A.** BÉVILARD/SUISSE

Printed in Switzerland

SPECIFICATION

Item N°	Three-phase motor, 50 cycles			Weight kg (lbs)
	Type	Horse-power	rpm	
70-96.000	Single-speed with switch 70-96.001	0.4	1500	17 (38)
70-96.100	Two-speed, pole-changing, with switch 70-96.101	0.3/0.4	750/1500	17 (38)
70-96.250	Two-speed, pole-changing with switch 70-96.101	0.4/0.6	1500/3000	17 (38)

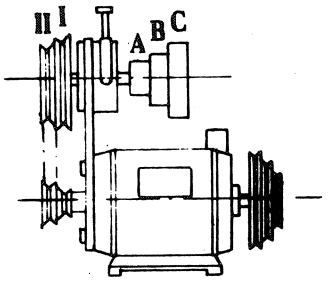


TABLE OF SPINDLE SPEEDS
Valid for all headstocks
types W10 - W12 - F12 - F16

Motor		A	B	C
750 rpm	I	130	220	370
	II	345	580	975
1500 rpm	I	260	440	740
	II	690	1160	1950
3000 rpm	I	520	880	1480
	II	1380	2320	3900

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CHART FOR THREADS

For screwcutting attachment by carriage and universal joints, type 70-85 with pitch of the carriage'screw = 1 mm
Used with open and closed headstocks type W10 and W12, without quick-closing attachment.
Maximum length of screwcutting = 60 mm

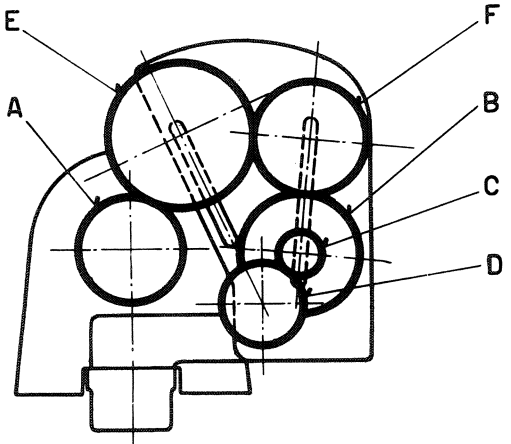
Set of change gears for metric threads (11 pieces normally supplied)
30 - 35 - 40+ - 45 - 50 - 55 - 60 - 70 - 75 - 80 - 120 teeth

Set of change gears for Wthiworth threads (23 pieces)
30 - 33 - 39 - 40+ - 42 - 45 - 48 - 50 - 51 - 54 - 57 - 60 - 63 - 64 - 66 - 68 - 69 - 70 - 72 - 75 - 78 - 80 - 120 teeth.

Complete set of change gears (25 pieces)
30 - 33 - 35 - 39 - 40+ - 42 - 45 - 48 - 50 - 51 - 54 - 55 - 57 - 60 - 63 - 64 - 66 - 68 - 69 - 70 - 72 - 75 - 78 - 80 - 120 teeth

+ The second gear of 40 teeth essential is represented by the driving gear A normally supplied with the attachment.

The two fixing rods normally supplied with the attachment permit only the screwcutting of righ-hand threads.
For left-hand threads, it is necessary to use three fixing rods.



Formula for the calculating of the set of gears :

$$\frac{\text{Pitch to be cut (in mm)}}{\text{Pitch of the carriage'screw}} = \frac{A \cdot C}{B \cdot D}$$

For the Whitworth threads :

$$\frac{\frac{25,4}{\text{Threads per inch}}}{\text{Pitch of the carriage'screw (in mm)}} = \frac{A \cdot C}{B \cdot D}$$

E = Intermediate gear for right-hand threads
E & F = Intermediate gears for left-hand threads

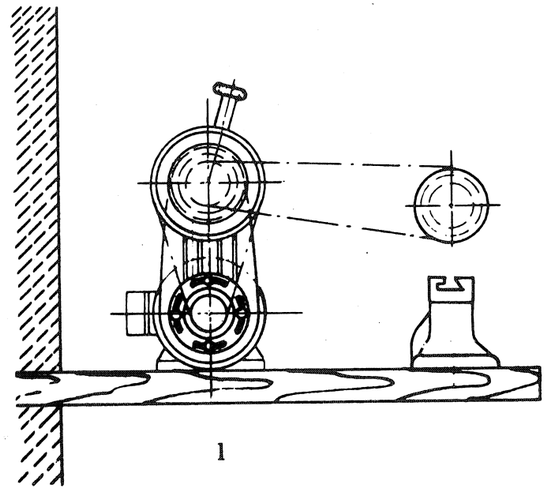
Multiple of an inch : 6,5" = 165 mm
63" = 1600 mm

Metric screwcutting							Whitworth screwcutting						
Pitch mm	Gear (number of teeth)						Threads per inch	Gear (number of teeth)					
	A	B	C	D	E	F		A	B	C	D	E	F
0,25	40	70	35	80	120	60	80	40	63	40	80	120	60
0,3	40	50	30	80	120	60	72	40	63	40	72	120	60
0,35	40	50	35	80	120	60	68	40	63	40	68	120	60
0,4	40	50	40	80	120	60	64	40	63	40	64	120	60
0,45	40	50	45	80	120	60	60	40	63	40	60	120	50
0,50	40	--	--	80	120	60	56	40	63	50	70	120	60
0,55	40	50	55	80	120	60	52	40	63	60	78	120	66
0,60	40	50	60	80	120	60	50	40	63	60	75	120	66
0,70	40	50	70	80	120	60	48	40	63	60	72	120	66
0,75	40	50	75	80	120	60	46	40	63	60	69	120	66
0,80	40	--	--	50	120	60	44	40	63	60	66	120	50
0,90	40	40	45	50	110	60	42	40	48	60	78	120	63
1,00	40	--	--	40	110	60	40	40	--	--	63	120	60
1,25	40	--	--	35	110	60	38	40	63	60	57	120	50
							36	40	63	60	54	120	50
							34	40	63	60	51	120	50
							32	40	63	60	48	120	50
							30	40	63	60	45	120	50
							28	40	63	60	42	120	50
							26	40	39	60	63	120	57
							25	40	63	80	50	120	60
							24	40	63	80	48	120	60
							22	40	33	60	63	120	57
							20	40	30	60	63	120	57
							18	40	39	70	48	120	60

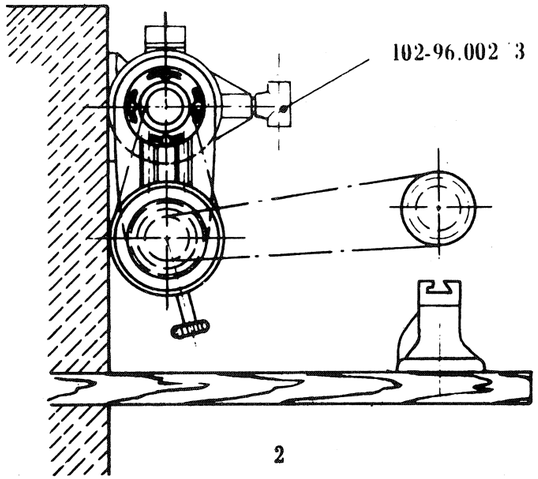
COMMANDE INDIVIDUELLE TYPE 70-96 POUR TOUR «SCHAUBLIN 70» SUR ÉTABLI
Différentes possibilités de montage

EINZEL-ANTRIEB TYP 70-96 FUER «SCHAUBLIN 70» TISCHDREHBANK
Verschiedene Montagemöglichkeiten

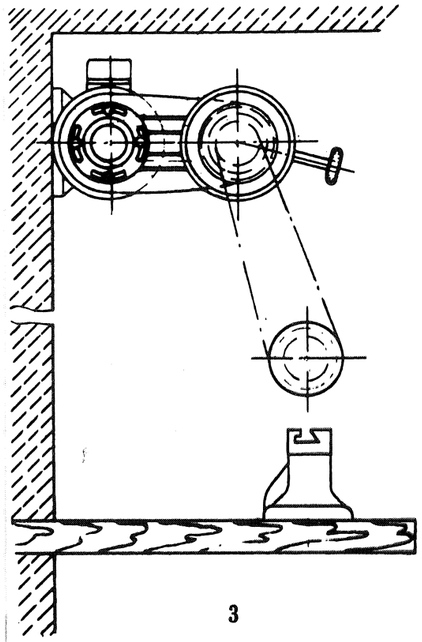
INDIVIDUAL DRIVE TYPE 70-96 FOR «SCHAUBLIN 70» BENCH-MOUNTED LATHE
Miscellaneous mountings



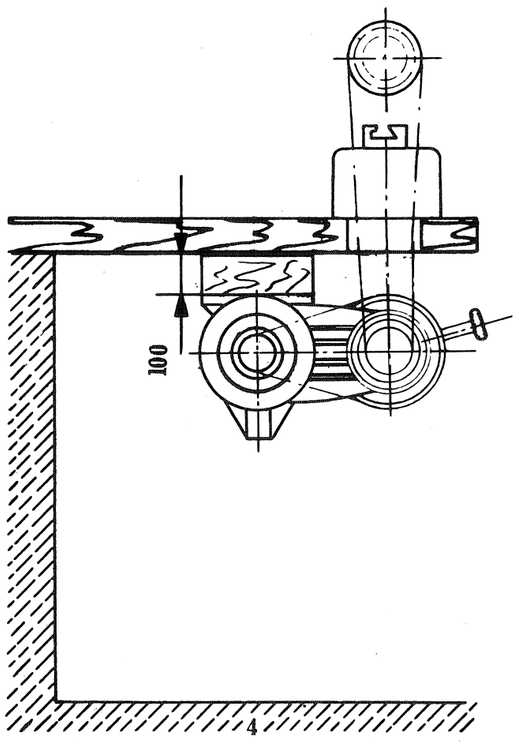
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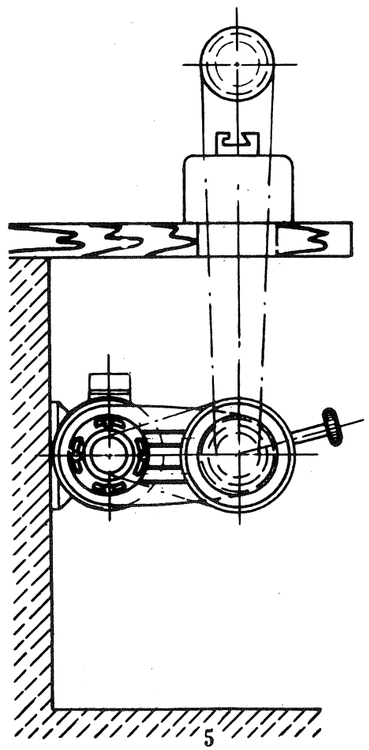
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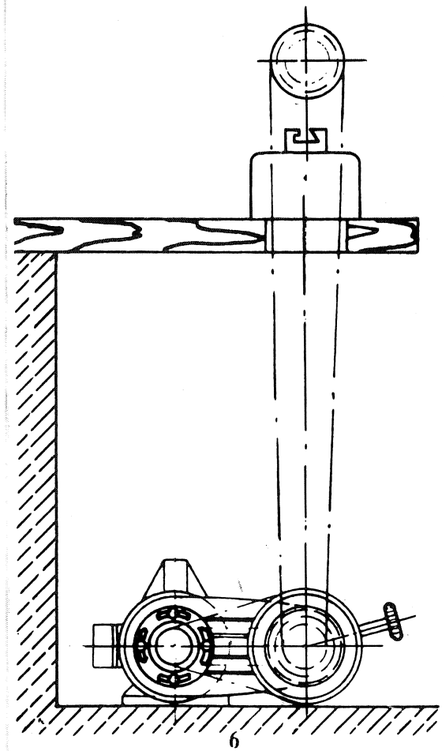
3



4



5



6