
LEAD SCREW LATHE

"SCHAUBLIN 120VM"

SERVICE

INSTRUCTIONS

These instructions should be given to the lathe operator.

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Machine N° : 631
BL N° : 115631
Voltage : 440 V

FABRIQUE DE MACHINES SCHAUUBLIN S.A. BÉVILARD / SUISSE

IN 120VM

Printed in Switzerland

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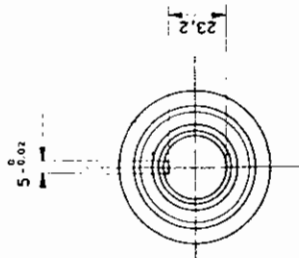
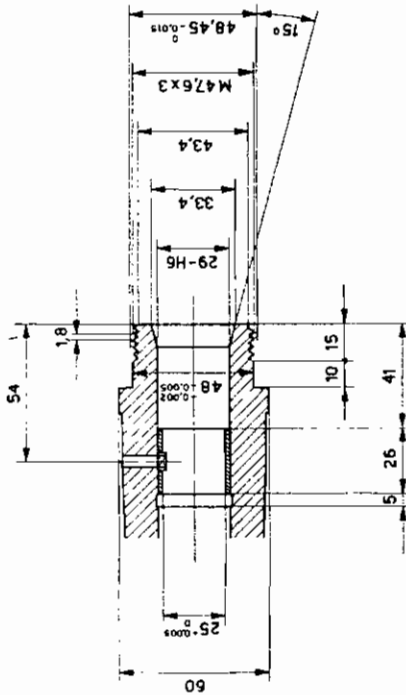
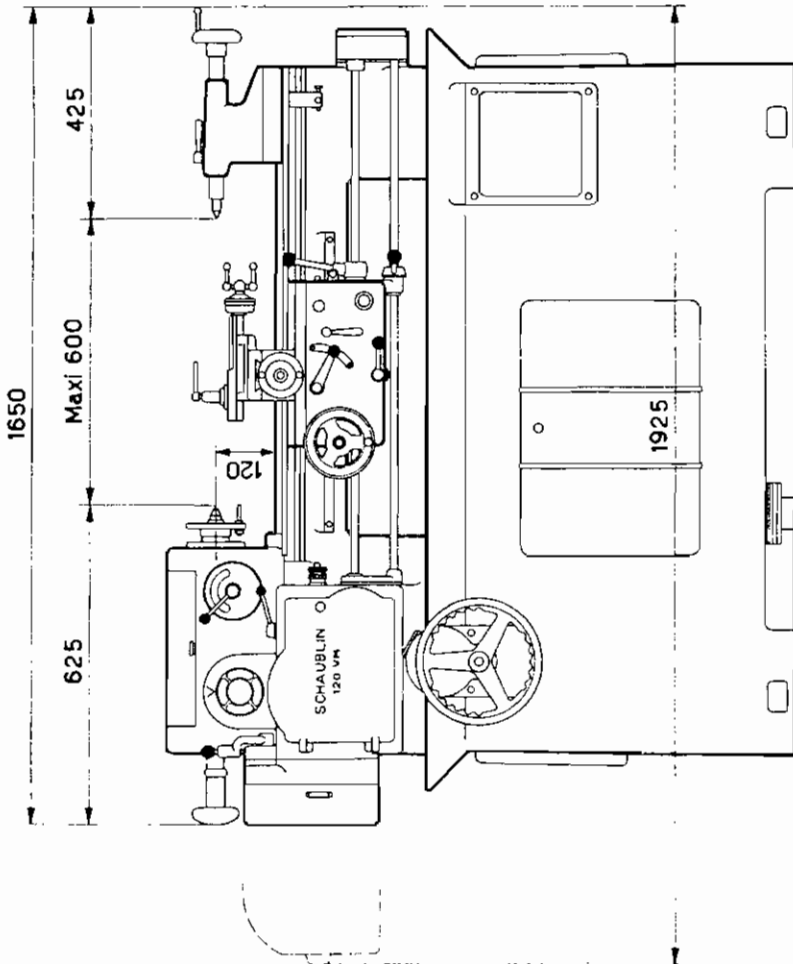
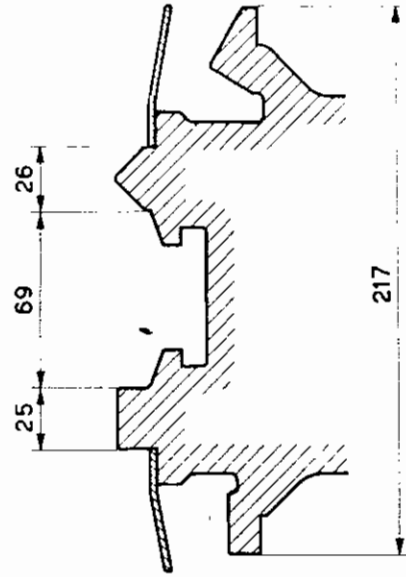
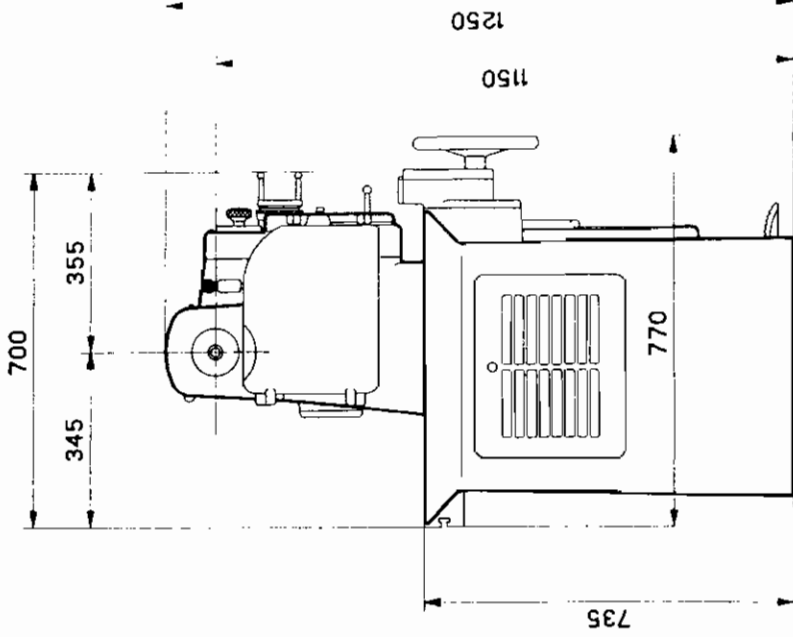
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Instructions concerning the motors

LEAD SCREW LATHE SCHAUBLIN 120VM

MAIN FEATURES

1. Height of centres	mm	120	
Distance between centres	mm	600	
2. BED			
Length of bed	mm	1375	
Height of bed	mm	310	
3. HEADSTOCK FOR TYPE W 25 mm COLLETS			
Hole in spindle	mm	25	
Bore through collet	mm	18	
Swing over bed	mm	250	
Pulley diameter	mm	128	
Width of belt	mm	55	
Speed range of the headstock (intermediate speeds by means of variator)	rpm.	50 - 1750	
Reduction gear, ratio		1 : 5,3	
4. TAILSTOCK			
Spindle, internal taper		Morse 2	
Stroke of spindle	mm	80	
Lateral movement (on either side)	mm	12	
5. CARRIAGE			
Maximum stroke along bed	mm	580	
Stroke of cross slide	mm	170	
Stroke of longitudinal slide	mm	105	
Swing over carriage	mm	135	
Height of centres above carriage	mm	20	
Dimensions of the tools	mm	12 x 12	
Feed per spindle revolution	longitudinal	inch.	.001 - .02
		cross	inch.
6. BUILT-ON MOTOR WITH VARIABLE NUMBER OF POLES			
Rated consumption	CV	1,5/2,7	
Synchronous speed	rpm.	750/1500	
7. Weight of machine, net	kg	880	
Space requirements : length, width, height	mm	1650x700x1250	
	inch.	65x28x50	



INSTALLATION

TRANSPORT

To remove the machine from its packing, the lid of the case should first of all be unscrewed and the wedges removed; the connecting bolts in the base of the standards should be loosened and the packing lifted out. All accessories which might remain concealed in the packing materials should be removed.

The machine weighs approx. 1940 pounds. In order to lift it by means of a hoist the ropes should be attached as shown in the sketch on page 8. The painted parts should be protected against rubbing by the ropes. If the lathe has to be transported on rollers, then wooden rollers, in preference to metal ones, should be used.

CONCRETE FOUNDATION

The Schaublin I20VM lathe must be placed on a concrete foundation having the dimensions shown in the foundation plan on page 8. The depth of the foundation depends on the nature of the soil and the foundation block should rest on solid ground.

The current supply mains are laid in the floor. A channel, terminating at the point 6, should therefore be provided in the foundation block. The supply cable should extend some 20" above the floor level.

The machine is fixed to the ground by means of four foundation bolts mounted in holes 27 mm in diameter and 75 mm deep, which have been previously brought into register with the holes in the pedestal and have been drilled into the foundation. The lathe's pedestal is equipped with five jacks mounted on supporting plates 100 mm in diameter. Proceed to level the lathe, taking the base of the hand-operated cross-slide as reference.

1. Transversal levelling, headstock side.
Tighten the foundation bolts 1 and 2 provisionally, level by means of the jacks 1 and 2 and lock the foundation bolts 1 and 2.
2. Longitudinal levelling, checked over the entire length of the bed, by means of the jack 3.
3. Transversal levelling, tailstock side. Tighten the foundation bolts 4 and 5 provisionally, level by means of jacks 4 and 5 and lock the foundation bolts 4 and 5.

On request, we supply a set of "Seetru" flexibly locking foundation bolts with supporting plates 100 mm in diameter. The jacks form part of the frame's standard equipment. The holes in the jacks have a diameter of 15 mm.

Levelling is most important if the lathe is to work accurately. Use a precision water level (1 division = 0.02 mm over a length of 1000 mm). The importance of this work cannot be overemphasized. Half measures are of no use.

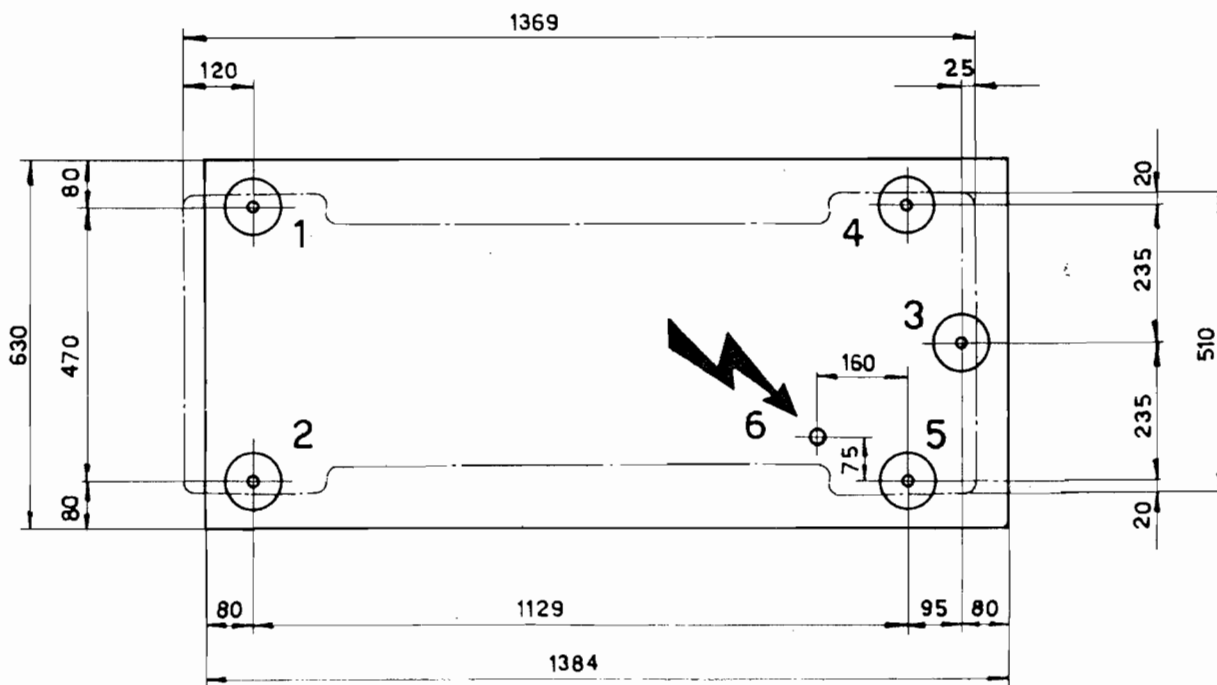
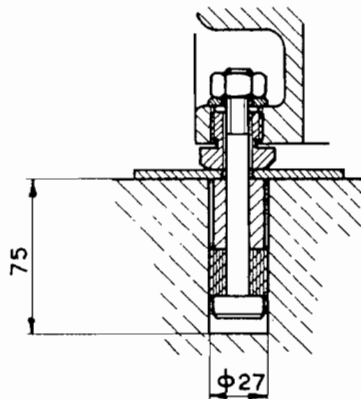
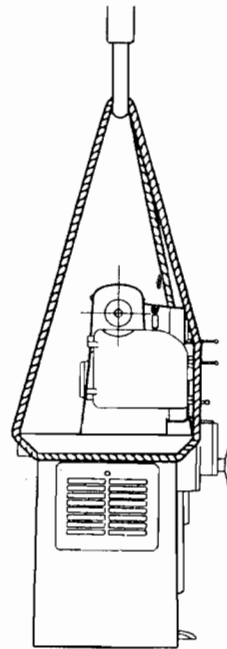
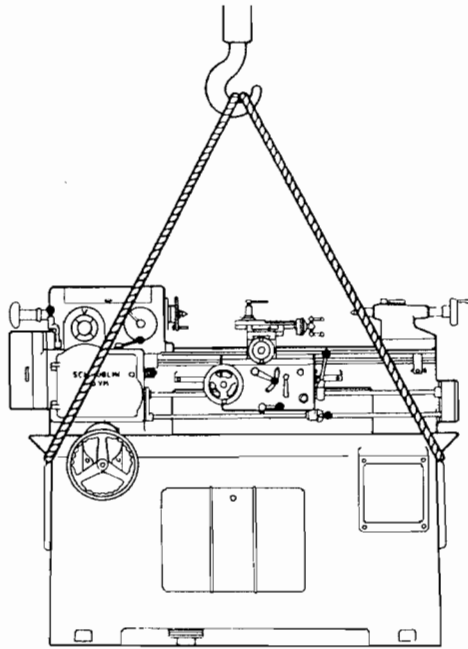
The lathe must be accessible from all sides.

CLEANING

For removing the grease and cleaning the machine use only clean and chemically neutral rags (preferably white ones).

First remove the anti-rust grease with a dry cloth, then wipe the exposed parts with a rag which has been dipped in paraffin and wrung. Do not forget the lead screw in the middle of the bed.

As the anti-rust grease has no lubricating qualities, it should be entirely removed. If it is left, it might give rise to serious seizures, which sometimes occur weeks after the machine has been put into service. While cleaning, take care not to scratch the slide-ways of the bed or the carriage slides. Then cover all exposed metal surfaces with a slight film of lubrication oil.



LUBRICATION AND MAINTENANCE

All parts must be thoroughly oiled before putting the lathe into service.

The following are the oil characteristics recommended for this purpose :

Viscosity 4,5°E at 50°C

The viscosity of the oil for the oil baths should, in particular, not exceed the above figure of 4,5°E at 50°C. The oil baths should be filled and emptied in the following manner :

HEADSTOCK OILBATH

Remove gauge cap 4 and fill in oil until the maximum graduation of the gauge has been reached. The oil in this bath feeds into a pump, which distributes it continuously to all parts of the headstock when the lathe is in operation. The correct functioning of this lubricating system may be checked by looking into the spy holes 5 and 6 after lifting the cover 7.

Contents of the oilbath : approx. 1.7 pint.

The bath may be emptied by means of screw 8; to do this remove cover 9, held in position by the two screws 10.

FEED GEAR BOX OILBATH

Open lid 11. Fill by means of oil opening 12 until the middle of the oil level indicator 13 has been reached.

Contents of the oilbath : approx. 0.17 pint.

Empty by means of screw 14.

OILBATH OF THE FEED REVERSING BOX

Open lid 11. Remove stopper 15 and fill to the middle of oil level indicator 16.

Contents of the oilbath : approx. 0.17 pint.

APRON OILBATH

Unscrew screw 17 marked "Oil" and fill up to the middle of the oil level indicator 18.

Contents of the oilbath : approx. 1.7 pints.

Empty by means of screw 19.

OILBATH OF THE SWIVELLING CHASER HOLDER

Remove stopper 20 and fill completely.

Contents of the oilbath : approx. 0.51 pint.

EMPTYING THE OILBATHS

All oilbaths should be emptied once annually. Rinse out with paraffin before adding new oil.

CLEANING THE FILTER OF THE HEADSTOCK

When the headstock oilbath has been emptied the filter should be carefully cleaned. Cover 9, which is fixed by the two screws 10, should first be removed. Cover 21, held by the three screws 8, is next taken off, whereupon the filter may be removed.

GREASING THE MOTORS

The rear bearing of the main motor and the bearings of the pump motor should be greased with suitable ball bearing grease. An attached instruction sheet gives all necessary information concerning the maintenance and greasing of the motors.

PRESSURE LUBRICATION

The other parts of the machine are lubricated by means of an oil pump which injects the oil. All locations thus lubricated are marked ● on the schematic layout shown on page 11. Four or five strokes of the pump suffice every week for all the oilers.

OIL-CAN LUBRICATION

There are five oilers with covers in the interior of the frame. These are denoted by ○ on the drawing on page 11. It suffices to apply the oil-can to these once a week.

LUBRICATION OF THE CROSS-SLIDE SCREW

Screw out screw 22, marked "H" and fill by means of an oil-can.

ELECTRICAL EQUIPMENT

The Schaublin 120VM lathe is always delivered with a complete electrical installation (motors, switches, relays, cables) all ready for connecting up to the supply. Before making the connection check that the voltage inscribed on the nameplate of the machine corresponds to that of the network.

CONNECTING UP

The lathe is normally equipped with three-phase motors and the current terminals RST to which the supply will be connected are located in a terminal box in the frame. The terminal painted yellow in the same box serves to earth the machine. To connect up, remove cover 23 (see page 15).

As soon as the connection has been made to the supply, check the direction of rotation of the motors in the following manner: Press lever 24 downwards (see page 15). The spindle should then turn in the direction of the arrow.

DESCRIPTION OF THE INSTALLATION

SPINDLE MOTOR 25

This is a three-phase, built-on, variable pole motor, type BBC MQXa 54/8-s, with a copper stator winding and a Dahlander coupling. The motor is rated at 2.7 / 1.5 HP., full load speed 1410 / 715 rpm.

PUMP MOTOR 26

Vertical type, rated at 0.1 HP, 2800 rpm.

SPINDLE MOTOR SWITCH 27

Ghielmetti, type H 15 RD

SPINDLE MOTOR RELAY BOX 28

Type Carl Maier and C° VTp15. The thermal relays are adjustable between 3.2 and 15 Amps.

PUMP MOTOR RELAY BOX 29

Type Carl Maier & C° VTp15 with thermal relays adjustable between 0.28 and 0.5 Amps.

The spindle motor 25 and the pump motor 26 are controlled and protected by the two switch and relay boxes 28 and 29. These relays open the circuit automatically in the event of prolonged overloads. To remake the connection it suffices to push the buttons 28 and 29 (see page 15).

The instruction sheets concerning the motors are attached to the present instructions

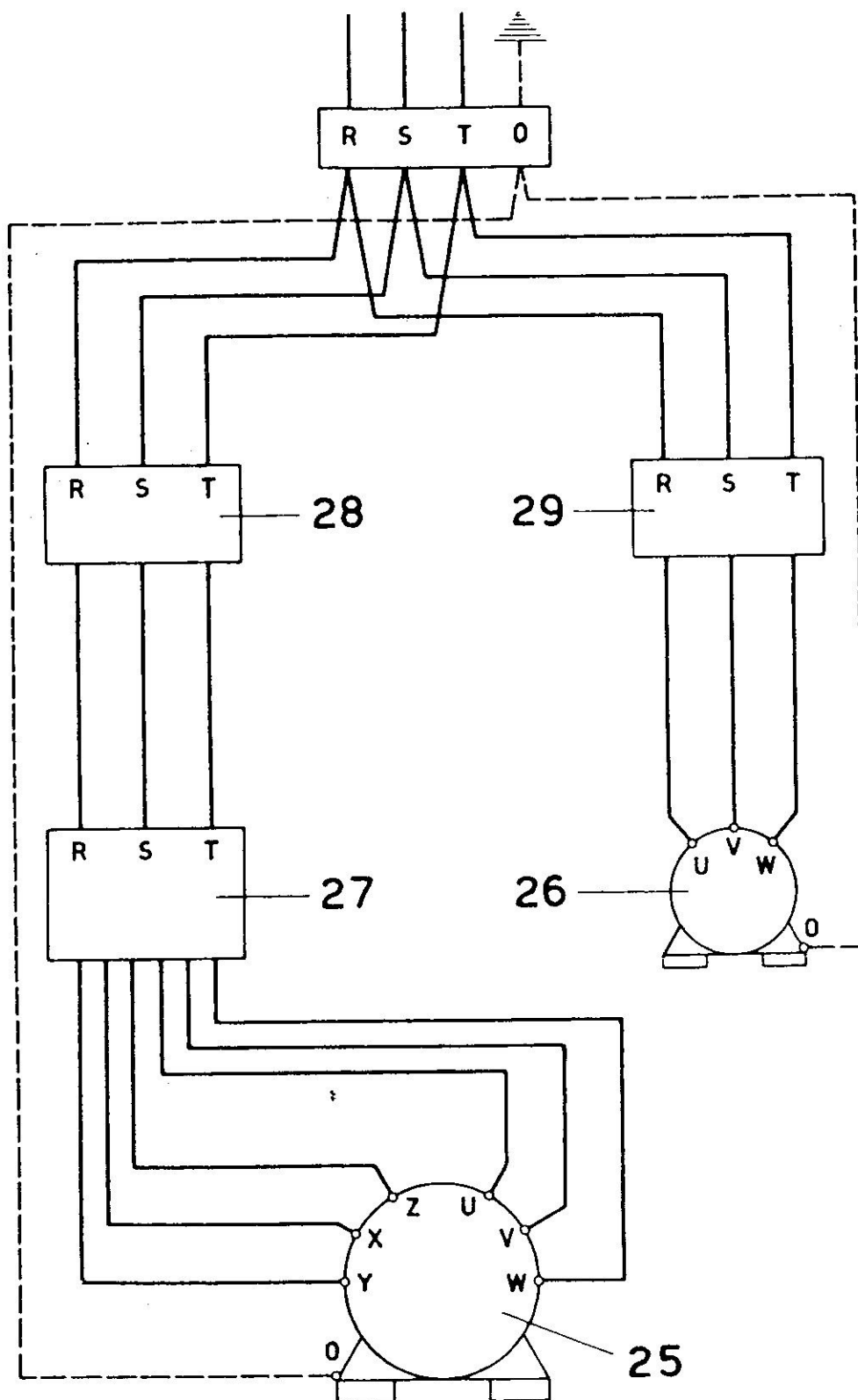
PUTTING INTO COMMISSION

When all the requirements governing assembly, clearing, lubrication, and the electrical equipment have been fulfilled the machine should be put into operation and left turning over on no-load for a few hours. A slow speed should be used at first in order to let the bearings and the moving parts warm up in a normal manner; the speed should then be gradually increased to its maximum value. The correct functioning of each of the individual parts should be checked.

Art. N°	Shank W25 mm
58	Three-prong drivers for wood
51	Screw-type drivers for wood
52	Milling-cutter arbor, 16-22 mm dia.
814	Centre with loose driving pulley for grinding between dead centres
27B	Arbor for drill chuck Jacobs N° 3
27	Jacobs N° 3 drill chuck, capacity 13 mm
79	Blank arbor
79A	Expanding arbor with extraction taper
99	Expanding arbor with two extraction tapers
65	Reduction bush with drawbar for W20 mm type collets
62	Driving dogs for diameters 6.5 - 8 - 10 - 12.5 - 16 - 20 or 25 mm
682A	Adjustable stop for drawbar of W25 mm type collets
174	Lever-operated quick-closing attachments
625V	Chuck adapters
21	Universal chuck, 130 mm dia. with two sets of three jaws
23	Chuck, 150 mm (6") dia., with four independent and reversible jaws
23A	Chuck, 200 mm (8") dia., with four independent and reversible jaws
104A	Plain faceplate, 200 mm dia.
86	Faceplate with 8 slots, 240 mm dia., with 2, 3 or 4 clamps
636	Combined extractor and stop. Adjustable length 30 mm.

TAILSTOCK ACCESSORIES

Art. N°	N° 2 Morse taper
291	Female centre
705	Revolving centre
705A	Revolving female centre
293	Drilling V
294	Arbor for drill chuck
27A	Drill chuck, 13 mm capacity, mounted on the arbor
292	Drilling plate 55-80 of 100 mm dia.



CONSTRUCTIONAL FEATURES AND CONTROL

The Schaublin 120VM lead-screw lathe is characterised by its high precision and the ease with which, thanks to the simple and practical disposition of the control organs, it may be adapted to different kinds of work.

HEADSTOCK

The headstock is totally enclosed. All the parts are automatically lubricated. The location of the pulley between two independent ball bearings protects the spindle from all forces due to belt tension. The spindle takes W25 mm type collets and all other headstock accessories of the Schaublin 120 lathe. When the collets are in use, device 30, which is fixed by the two screws 31, protects the front bearing against the infiltration of soap-water or of dust. This device should be removed when a chuck or a carrier plate is being used, as these provide sufficient protection of themselves.

Adjustment of the spindle : see page 20.

Adjustment of the belt tension : see page 22.

SPEED SELECTION

The different speeds are obtained by means of a friction variator. The speed may be varied between 50 and 1750 rpm.

Once the circuit has been closed by means of button 28, the spindle motor may be controlled by lever 24.

The two low positions of lever 24 correspond to the motor speed range between 750 and 1500 rpm. The two upper positions give the same speed but in the reverse direction. In the centre position the spindle is disengaged. Wheel 32 is used to alter the speed of the friction variator. The change-over from the reduced speed to full speed is accomplished by lever 33.

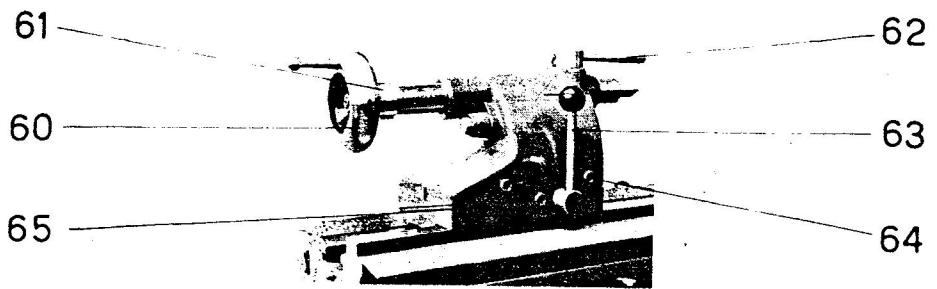
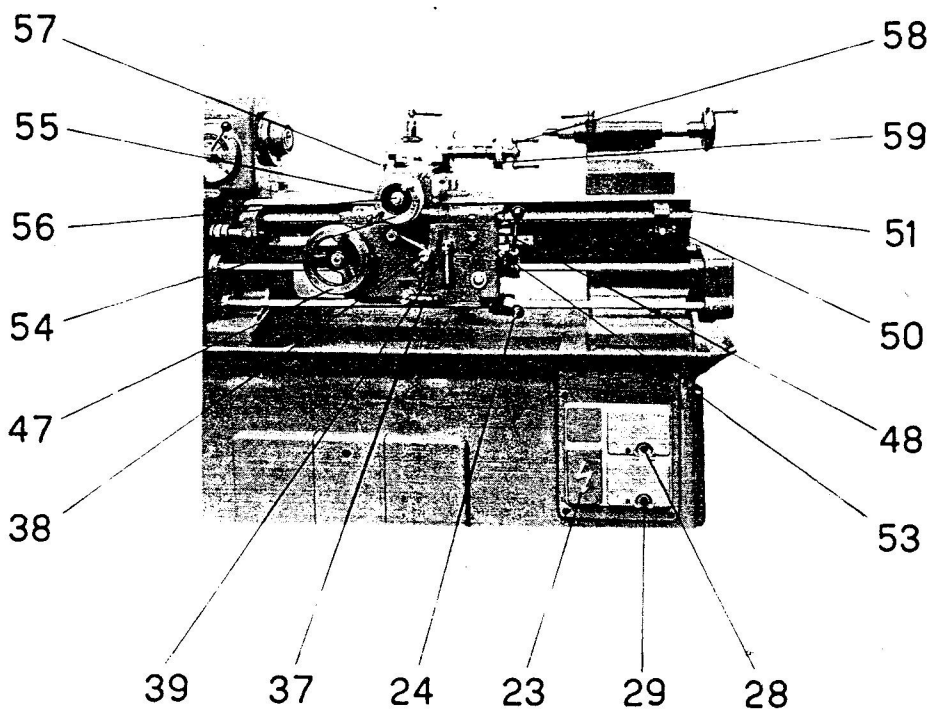
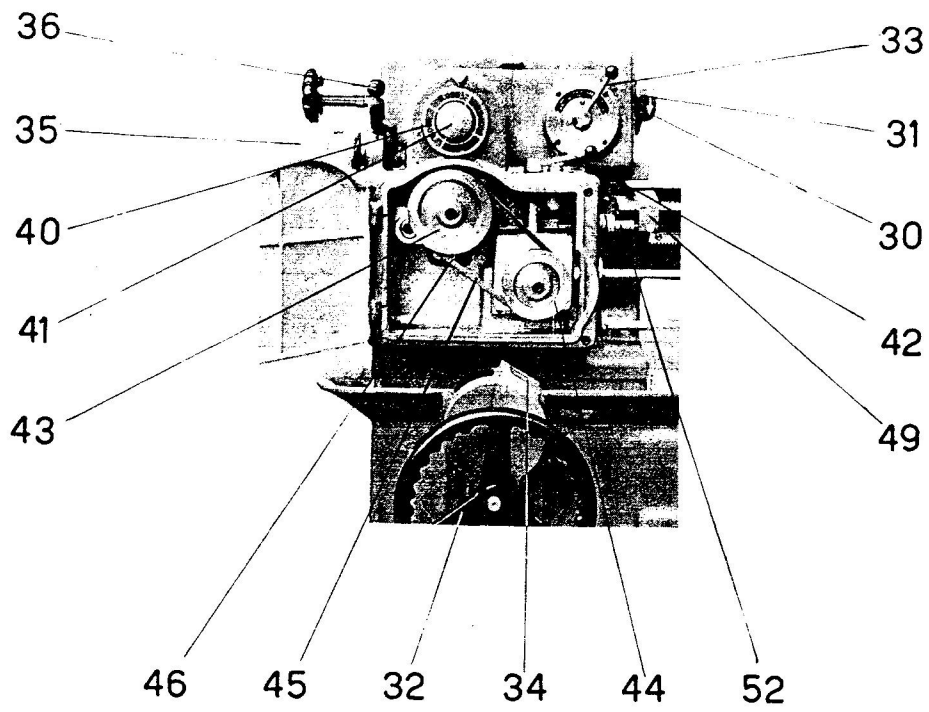
Wheel 32 may be actuated for speed regulation purposes when the machine is running; lever 33, however, should only be shifted when the machine is stopped.

To select a spindle speed, for example 400 rpm., it is necessary to turn wheel 32 until the chosen figure, 400, appears on dial 34.

The table, located at the side of dial 34, will then indicate the necessary position for levers 24 and 33. For a speed of 400 rpm., lever 24 should be placed so that the spindle motor has a speed of 750 rpm., whilst lever 33 should be in the "without reduction" position.

A cross-section of the speed variator is shown on page 23.

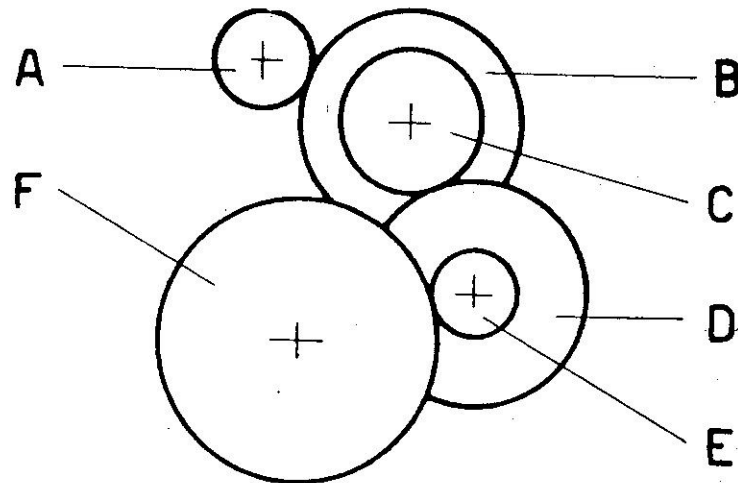
The replacement of the friction rim is explained on page 24.



SCREW-CUTTING

The drive of the screw-cutting mechanism is effected by means of a gear assembly protected by cover 35, and the lead screw, which has a pitch of 6 threads per inch. This latter is located inside, and in the center of the bed and is thus entirely protected from turnings. Greasing of the lead screw is automatically accomplished by means of a roller.

ARRANGEMENT OF THE GEAR WHEELS



A = Wheel driven by headstock and revolving at the same speed.

B, C, D and E = Wheels mounted on quadrants.

F = Wheel attached to the lead screw of 6 threads per inch.

$$\frac{\text{Desired pitch}}{\text{Lead screw pitch}} = \frac{\text{Driving wheels}}{\text{Driven wheels}} = \frac{A \cdot C \cdot E}{B \cdot D \cdot F}$$

The wheels are indicated in the order A, B, C, D, E and F on the screw-cutting table.

Example	Threads	Wheels	A	B	C	D	E	F
	0.25		25	60	30	127	60	100
	0.3		36	66	30	127	55	120
	etc.							

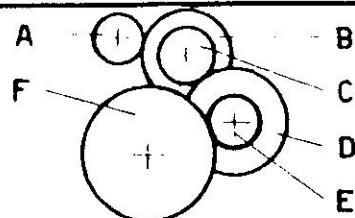
The rear or front position of lever 36 determines whether the thread will be right or left-handed; in the middle position the gear wheels are uncoupled.

Lever 37 couples the screw-cutting tool with the lead screw. This lever cannot be put into the coupling position unless lever 38 is in the screw-cutting position. This interlocking eliminates the possibility of incorrect manipulation when changing over from screw-cutting to turning or vice versa.

Lever 39 should be released during all screw-cutting operations. The accelerated return motion, controlled by lever 24, effects the return of the tool.

Adjustment of the lead screw play : see page 26.

SCREW-CUTTING CHART



LEAD - SCREW PITCH 6 THREADS PER INCH.

ENGLISH PITCH							METRIC PITCH							
Threads per inch.	Wheels						Pitch in mm	Wheels						
	A	B	C	D	E	F		A	B	C	D	E	F	
96	40	80	30	100	50	120								
88	30	55	30	100	50	120								
80	48	80	30	100	50	120								
72	30	80	50	90	40	100	0,25	25	60	30	127	60	100	
64	30	80	50	90	45	100	0,30	36	66	30	127	55	120	
60	32	80	50	90	45	100	0,35	30	60	28	127	75	100	
56	30	70	50	90	45	100	0,40	40	60	30	127	60	100	
54	30	45	30	100	50	90	0,45	45	60	30	127	60	100	
52	30	65	50	90	45	100	0,50	30	60	25	127	90	75	
48	40	40	30	100	50	120	0,60	40	40	30	127	60	100	
44	30	40	40	100	30	66	0,70	60	60	30	127	70	100	
40	48	40	30	100	50	120	0,75	60	60	30	127	75	100	
36	50	90	60	80	40	100	0,80	60	45	30	127	60	100	
32	30	80	50			100	0,90	45	50	25	127	90	75	
30	45	90	40			100	1	50	40	30	127	80	100	
28	30	70	50			100	1,25	50	40	25	127	90	75	
27	40	80	40			90	1,5	50	40	30	127	90	75	
26	30	65	50			100	1,75	50	40	35	127	90	75	
24	40	80	50			100	2	50	40	24	127	120	60	
22	60	66	30			100	2,5	60	40	25	127	120	60	
20	40	40	45	90	60	100	3	60	50	25	127	120	40	
19	30		40			95	3,5	60	32	35	127	120	75	
18	40	80	60			90	4	60	50	40	127	120	48	
16	30		70			80	4,5	60	40	36	127	120	48	
15	28		65			70	5	50	45	36	127	120	32	
14	30		65			70	5,5	55	32	40	127	120	50	
13,5	40		60			90	6	60	25	30	127	120	48	
13	30		70			65	6,5	60	50	65	127	120	48	
12	40		70			80	7	45	50	70	127	120	36	
11	30		80			55								
10	30		80			50								
9	24		90			36								
8	30		90			40								
7,5	40		80			50								
7	30		90			35								
6,5	60		55			65								
6	40		80			40	24	25	28	30 ²	32	35	36	
5,5	60		65			55	40 ²	45	48	50	55	60 ²	65	
5	48		80			40	66	70	75	80	90	95	100	
4,5	40		90			30	120	127						
4	60		70			40								

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

TURNING

SELECTION OF THE FEED SPEEDS

The drive for turning operations, which incorporates a V-belt, ensures smooth running and great flexibility of operation. Faultless turning is thus possible.

The desired feed speed is read directly on scale 40. When knob 41 is pulled out and turned, the following feed speeds per spindle revolution are obtained :

.001" - .0015" - .0025" - .004"

If knob 41 is pushed entirely inwards, the following longitudinal feeds per spindle revolution result :

.005" - .008" - .013" - .020"

The intermediate position of knob 41 disconnects the feeds.

The cross feed is also selected by means of knob 41. The cross feed speeds are one-half those of the longitudinal feed i.e.

.0005" - .0008" - .0012" - .002" - .0025" - .004" - .0065" - .01"

Lever 42 permits of the feed being operated in the forward or reverse direction; when the lever is in the intermediate position no feed takes place. Lever 42 may be operated when the machine is in motion, no matter at what speed; knob 41, on the other hand, may be adjusted only when the feed speed is low.

By transposing pulleys 43 and 44, the feed speeds may be halved.

The following values are thus obtained for the longitudinal feed :

.0005" - .0008" - .0012" - .002" - .0025" - .004" - .0065" - .01"

and for the cross feed

.00025" - .0004" - .0006" - .001" - .0012" - .002" - .003" - .005"

In order to loosen belt 45, untighten screw 46 and let the gear box swing out.

The belt has the following characteristics :

Cross-section 13 x 8 mm Angle 40° Length measured on inside 600 mm

CARRIAGE APRON

LONGITUDINAL FEED

Wheel 47 accomplishes the longitudinal displacement manually.

Handle 39 locks the carriage to the slide of the bed.

To put the automatic longitudinal feed into operation loosen handle 39 and place lever 38 on the "longitudinal turning" mark before manipulating lever 48. The movable stops 49 and 50 cause the feed to terminate automatically. Never loosen screw 51, which limits the extreme position of stop 50.

When automatic turning is being carried out in the neighbourhood of the spindle nose it is preferable to use the adjustable stop 52. In that case the movable stop 49 should be removed.

The automatic longitudinal feed may be uncoupled by hand at any instant by means of lever 53.

Whenever the automatic uncoupling is not sufficiently precise, this can be remedied by finishing the work using handwheel 47. The protective caps, which cover the stop rod going along the apron, then serve as a fixed stop.

The distance between the automatic stop and the stop described is about 0,5 mm.

CROSS FEED

Manual cross feed may be effected with wheel 54. The cross thread pitch is 10 threads per inch and the divisions of vernier 55 give an adjustment down to .001". Vernier 55, which is fixed by means of button 56, is adjustable to the 0 position.

Handle 57 locks the cross slide.

To set the automatic cross feed in action, loosen handle 39 and place lever 38 on "cross feed", before manipulating lever 48.

The automatic cross feed has no automatic uncoupling device; manual uncoupling may, however, be carried out, at any time, by means of lever 53.

UPPER SLIDE

Handle 58 controls the manual displacement.

The thread pitch is 10 threads per inch and the divisions of vernier 50 give adjustment down to .001". Vernier 59 may be returned to the 0 position.

The upper slide can turn through 360° on its baseplate.

Adjustment of the guide strips : see page 26.

TAILSTOCK

Wheel 60 controls the displacement of the spindle. The thread pitch is 10 threads per inch and the divisions of vernier 61 give an adjustment down to 1/10".

Handle 62 locks the spindle.

Lever 63 locks the tailstock to the bed.

The possible lateral displacement of the tailstock on its baseplate, for turning conical tapers, amounts to 12 mm on either side. The two clamps 64 should be unlocked before regulating the displacement by means of screw 65.

FRAME

The frame houses the friction speed variator and its controls, as well as the cooling aggregate.

Adjustment of the belt tension : see page 22.

Cross-section of the speed variator and instructions for replacing the friction rim : see page 24.

Cooling aggregate : see page 28.

BRAKE

The mechanical foot-brake should be actuated after stopping the lathe by means of lever 24.

Adjustment of the brake : see page 22.

ADJUSTMENTS

Only a well experienced specialist should undertake adjustments on the machine members described later on as they demand great care.

ADJUSTMENT OF SPINDLE BEARINGS

The bearings are adjusted at the time of the assembly of each machine so as no readjustment is necessary until the headstock has been in operation for a comparatively long time.

The front bearing comprises a double-row cylindrical roller bearing 66 (SKF NN 3011-K-Sp) which assures a very small deformation by compression, thanks to the great number of bearing points.

The spindle has a very stable run without vibrations.

This bearing is pressed on the taper of the spindle 67 by the nut 68 secured by the locking-washer 69.

No adjustment of the front bearing is necessary.

The rear bearing comprises a deep grooved ball bearing 70 (SKF 6208-C153) and a thrust bearing 71 (SKF 51109-C05). An axial play can only occur through the wear of the ball or thrust bearing collars.

TAKING UP AXIAL PLAY OF SPINDLE

DISMANTLING THE SPINDLE

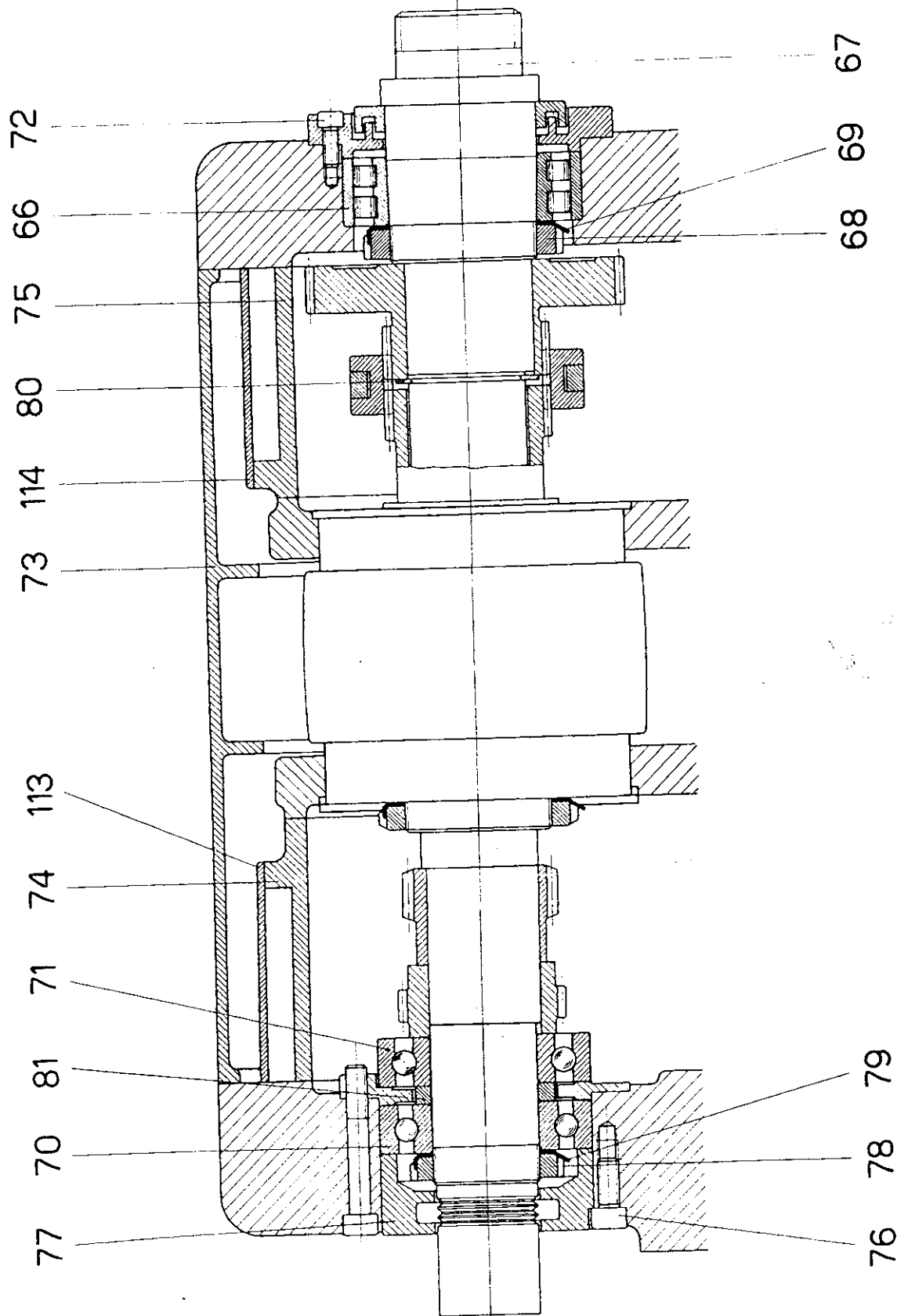
1. Ascertain the exact amount of axial play by an accurate method of measurement.
2. Unscrew the 3 screws 72.
3. Lift up cover 73 and remove covers 74 and 75 maintained each by 4 screws.
4. Unscrew the two screws 76 and take out cap 77.
5. Unscrew nut 78, fixed to the spindle by the locking-washer 79 after having lifted the blade which is engaged in one of the grooves of the nut.
6. To gain access to the elastic collar 80 and to remove this, place lever 33 (see page 15) in the "reduction" position.
7. Carefully drive out the spindle 67 with a lead hammer, striking the spindle on its rear end, and take care to collect all parts mounted on it.

TAKING UP AXIAL PLAY

1. Depending the play to take up, retouch by grinding the thickness of washer 81.
2. Reassemble spindle 67 and take care to pull down one blade of the locking-washer 79 to secure nut 78.

CLEANING

Remove plates 113 and 114 periodically and carefully clean all the holes through which the oil leaves, especially those in the bearings.



ADJUSTMENT OF THE BELT TENSION

Before doing this adjustment and to obtain a uniform belt tension in the extreme positions of the speed variator it is necessary to place plate 85 in a horizontal position. This condition is realised when pointer 86 points in the direction of the line painted on the frame.

1. Unlock the two nuts 82 and 83 (left-handed thread)
2. Adjust the tension of the belt by means of tightener 84
3. Turn the two nuts 82 and 83 well home.

Belt data :

Width 55 mm

Thickness 5 mm

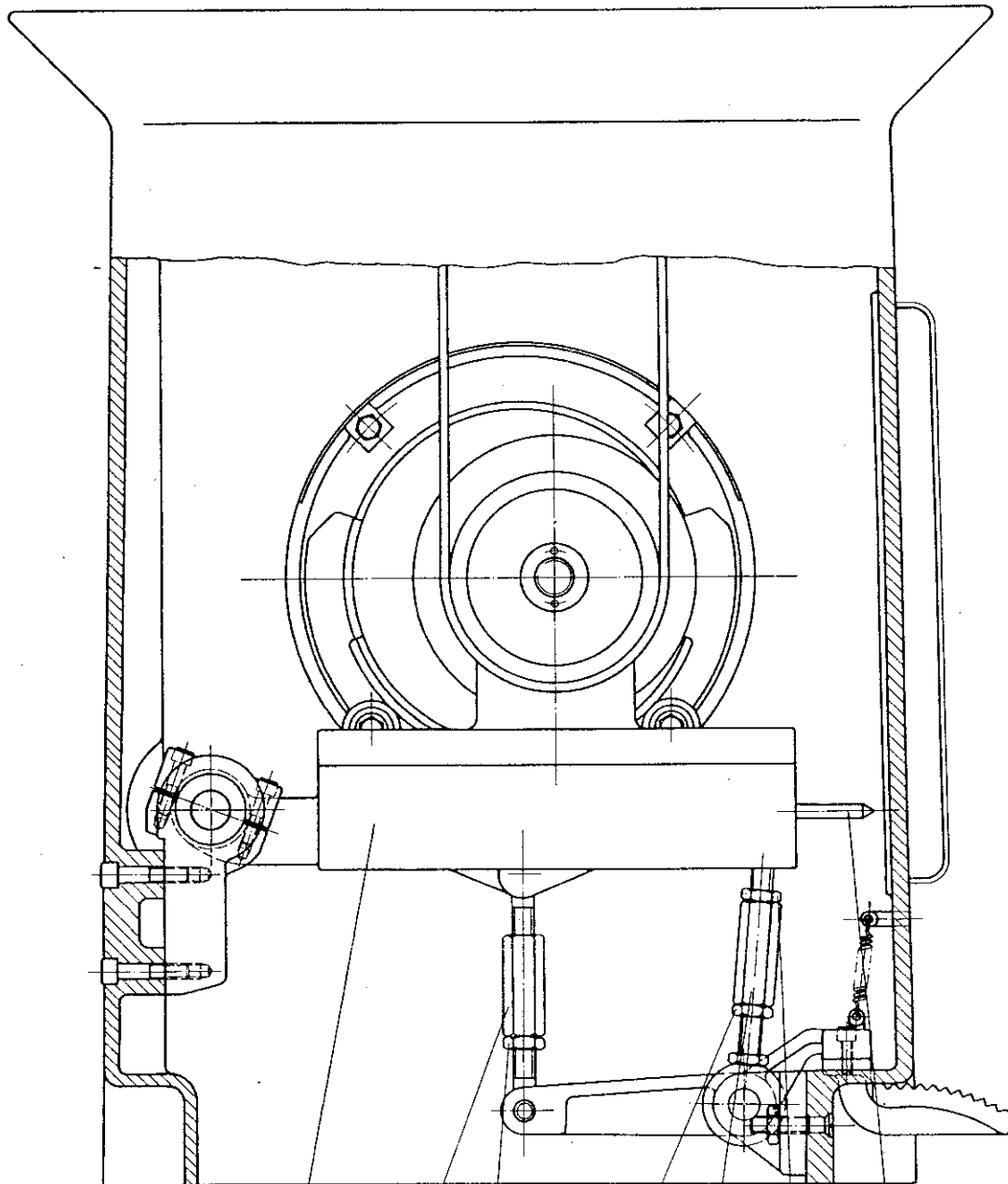
Developed length (unrolled) 1930 + 150 mm for glueing
together = 2080 mm.

We use and recommend only best quality belts.

BRAKE

Whenever the stroke of the pedal becomes too large, as a result of wear of the brake lining, or whenever the belt has been replaced, the brake should be readjusted.

1. Unlock nut 87
2. Adjust by means of tightener 88
3. Screw nut 87 well home.



85 88 87 83 84 82 86

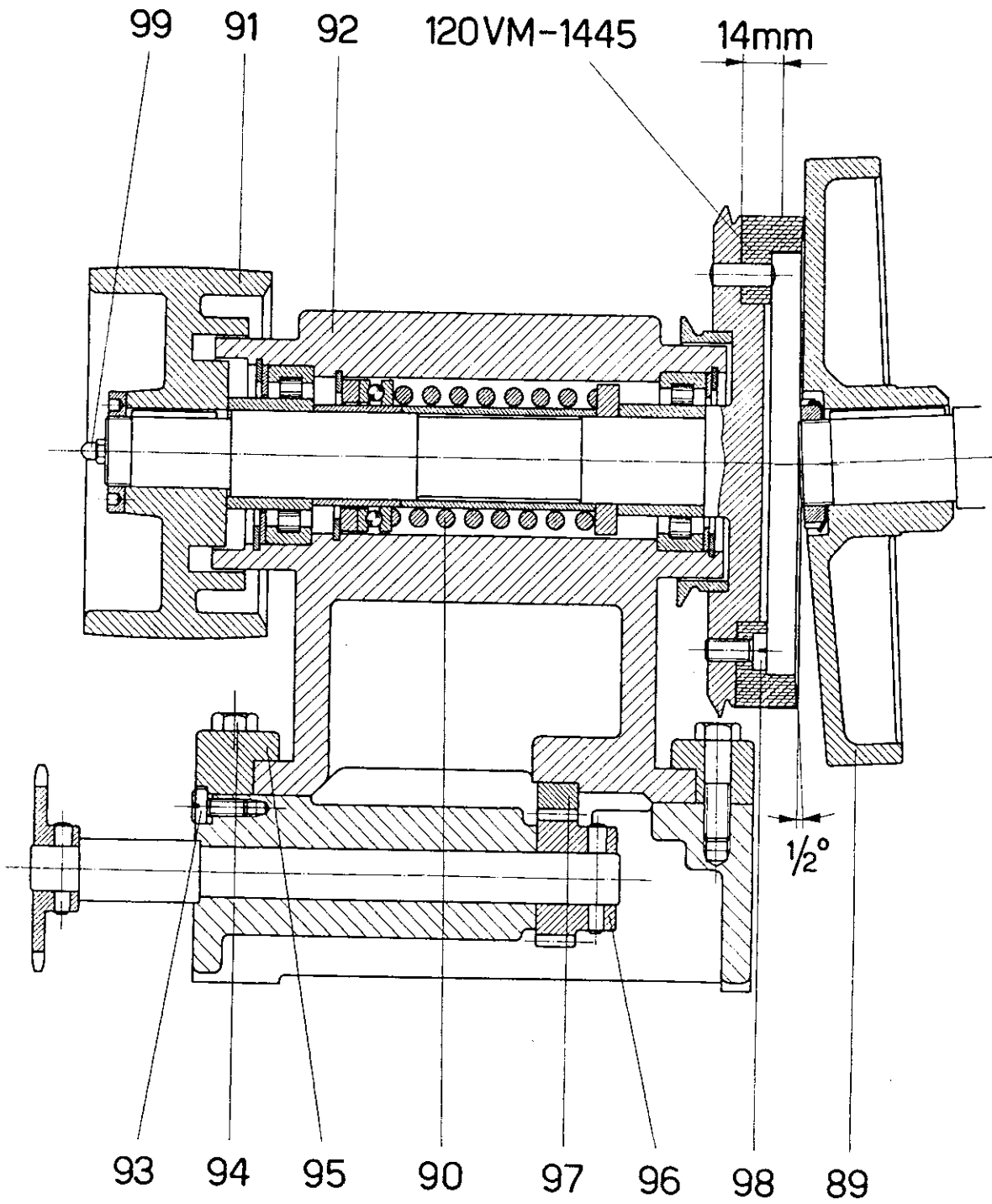
SPINDLE SPEED VARIATOR

To obtain the best driving conditions rim 120VM-1445 and friction disc 89 should be kept absolutely dry. Apart from lubricating the bearings, in accordance with the instructions on page 11, maintenance of the speed variator, consists in checking the wear of the rim 120VM-1445 when the motor is being overhauled. The rim requires replacement only after several years' running under standard conditions. When the limit of 14 mm has been reached one should proceed as follows :

1. Compress spring 90 by pulling out pulley 91, and place a 12 mm wedge between this latter and bearing 92.
2. Unscrew the two screws 93 and the four screws 94; remove guide 95 and bearing 92.
3. Mark the position of pinion 96 in relation to the rack 97. This precaution is indispensable in order to maintain the correct reading on the speed indicator.
4. Remove rim 120VM-1445 which is fixed by the six screws 98.
5. Attach the new rim : turn this rim in situ with the necessary $1/2^\circ$ taper so that it runs smoothly. This operation is carried out between centres after removing oiler 99.
6. Reassemble in the reverse order. Place pinion 96 in the previously noted position

If the speed variator operates noisily, the taper of $1/2^\circ$ should in this case be turned in situ.

Twice or three times a month clean accurately the friction surface of the driving disc 89.



ADJUSTMENT OF THE LEAD SCREW PLAY

1. Remove screw 100
2. Loosen screw 101 and adjust nut 102 according to the amount of play to be taken up, this having been previously determined by an accurate measurement.
3. Turn screw 101 tightly home and replace screw 100.

ADJUSTMENT OF THE GUIDE WAYS

A) Longitudinal and cross-guide way of the carriage.

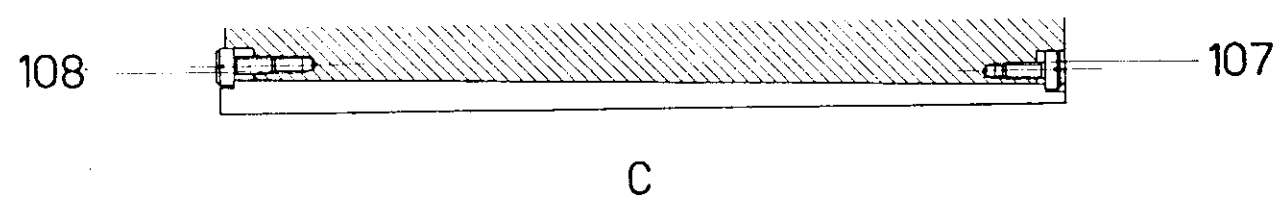
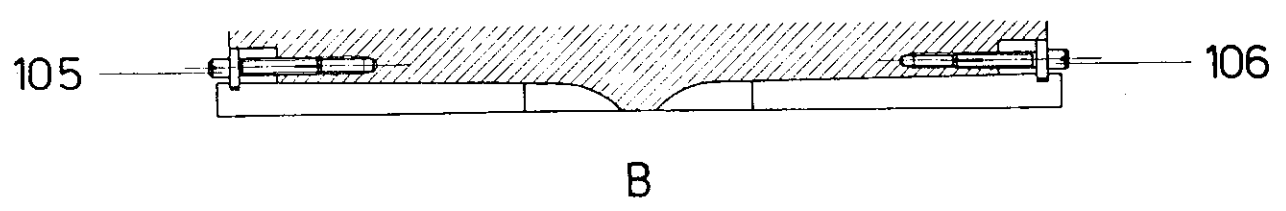
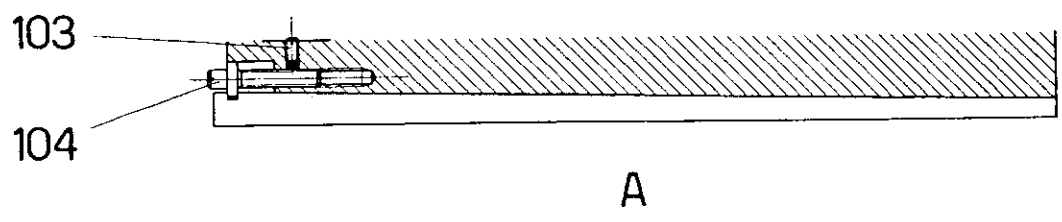
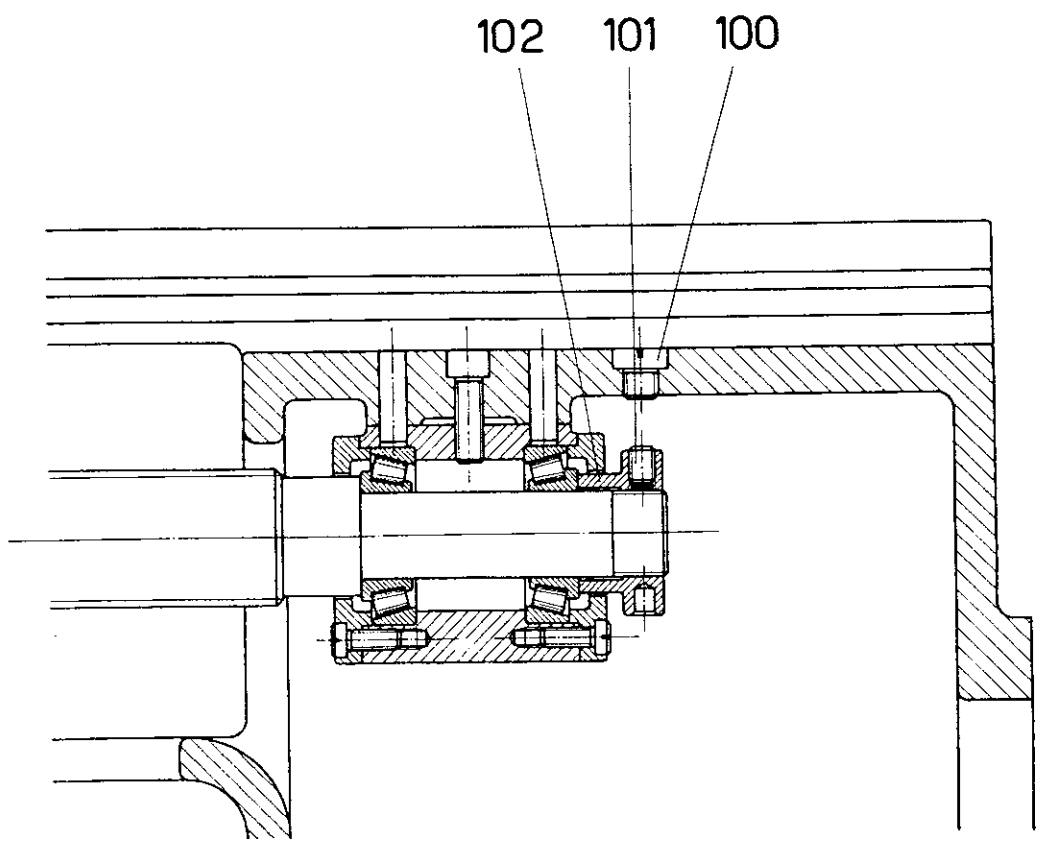
1. Loosen screw 103.
2. Adjust the play by means of screw 104.
3. Turn screw 103 tightly home.

B) Guide way of the apron.

1. Adjust the play with screws 105 and 106.

C) Rear guide way of the support.

1. Loosen screw 107
2. Adjust the play by means of screw 108.
3. Turn screw 107 tightly home.

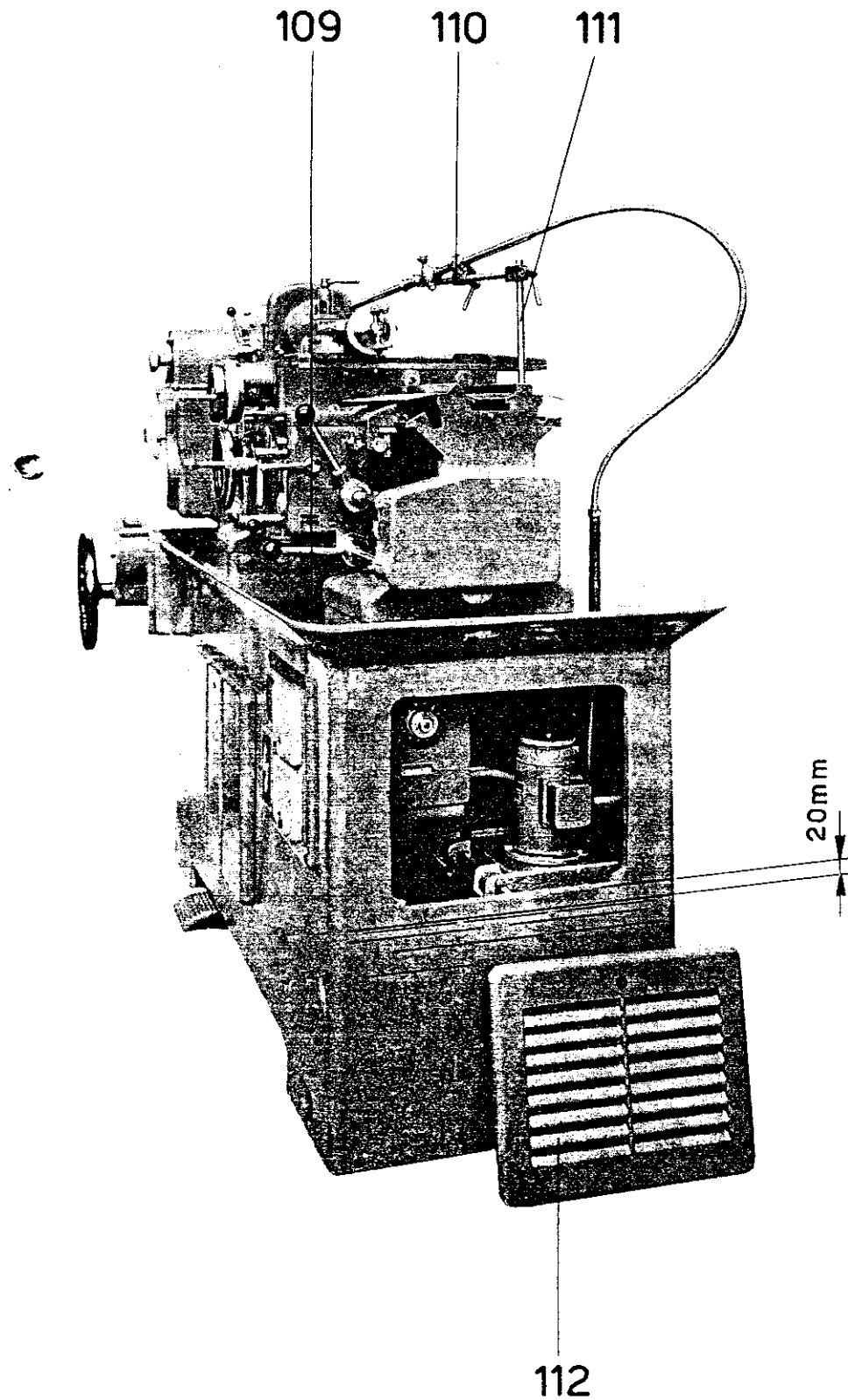


COOLING

The coolant circuit is shown on page 29.

The tank is incorporated in the frame. It may be filled by removing perforated sheet 109. The upper and lower tanks have 32 litres capacity. For the pump to dip deeply enough into the liquid a level of 20 mm must be maintained. The electrically-driven pump unit is mounted above the tank. The mouth of the flexible tube, which conducts the fluid to the workpiece, is maintained in the correct position by means of collar 110, mounted on column 111, which latter is fixed to the support.

The pump, the tank as well as the piping, filters etc. should be cleaned at intervals. (see ING-1 attached). Access to the tank is gained through a rectangular entry in the frame by opening door 112.



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

ACCESSORIES

STANDARD ACCESSORIES (supplied with the lathe)

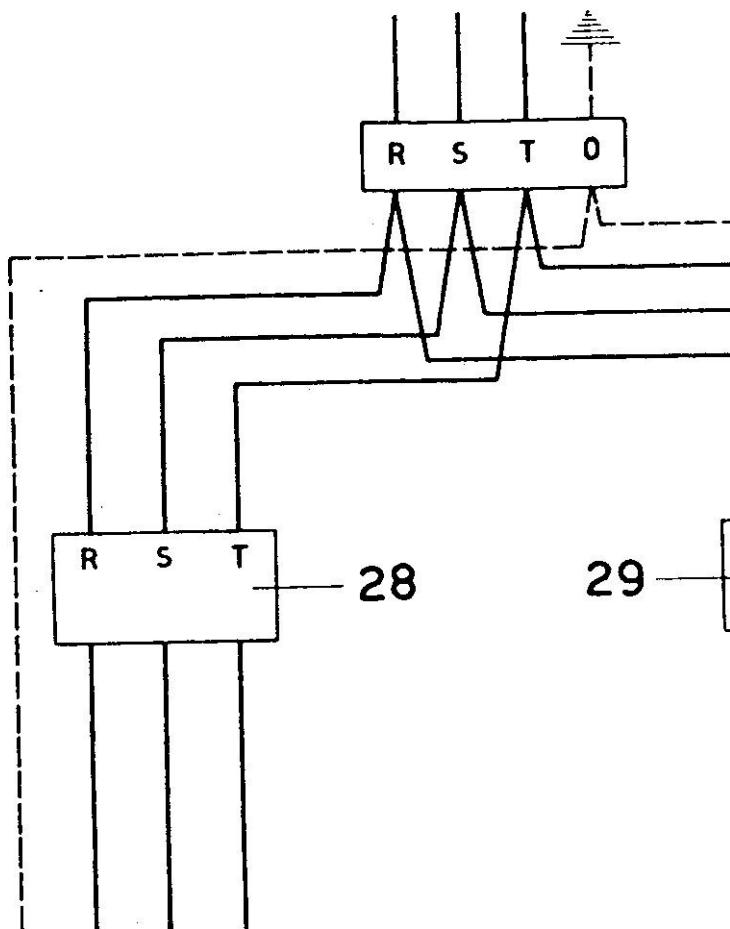
- 1 Male centre W 25 mm ✓
- 1 Carrier plate 118 mm dia. ✓
- 1 Protecting ring for the spindle nose
- 1 Aluminium cap for the spindle nose
- 1 Aluminium cap for the chuck
- 1 Toolpost
- 1 Male centre for the tailstock, Morse taper 2 ✓
- 1 3-jaw steady ✓
- 1 Travelling stay ✓
- 1 Hand rest ✓
- 1 Protecting sheet on tray ✓
- 1 Oil-gun, large model ✓
- 1 Set of 26 wheels with
24 - 25 - 28 - 30 - 30 - 32 - 35 - 36 - 40 - 40 - 45 - 48 - 50 - 55 - 60 - 60 - 65
66 - 70 - 75 - 80 - 90 - 95 - 100 - 120 and 127 teeth. ✓

- 1 Fork wrench 10 mm
- 1 Fork wrench 14/17 mm
- 1 Fork wrench 22 mm
- 4 Hexagonal keys for interior sizes 4 - 5 - 6 - 8 mm ✓
- 1 Hexagonal key for interior size 10 mm, N° 120VM-767

ACCESSORIES SUPPLIED UPON REQUEST

Headstock accessories

Art. Nr.	Shank W25 mm
14	W25 type collet, bore through collet up to 19 mm (3/4")
69	Stepped collets, internal gripping, unmachined
69A	Stepped collets, internal gripping, finished
74	Stepped collets, external gripping, unmachined
74A	Stepped collets, external gripping, finished
45	Female centre
43	Centre holding bushes with internal taper Morse 2
43A	Centre holding bushes with internal taper Morse 1
43B	Centre holding bushes with internal taper Morse 3



CARRIAGE ACCESSORIES

Art. N°

- 379 2-screw toolpost
- 683 Rest for tool post, with tool with one two screws
- 683A Adjustable support for rear toolholder with 1-screw or 2-screw toolpost
- 384A Tool clamp, including upper part of carriage
- 395 4-tool turret, including upper part of carriage
- 851 Hinged toolholder for internal screwcutting
- 393 Set of 7 tools with hard metal tips, including wooden case.

VARIOUS ACCESSORIES

- 409 Milling attachment with inclinable headstock
- 441 External-grinding attachment
- 444 Internal-grinding attachment
- 302A Starwheel operated drilling tailstock
- 676 Milling and grinding drive, with an independent
1/3 HP motor, 1400 rpm., motor support and switchbox
- 120PE Cooling assembly complete with electrically driven
pump, switchbox and piping.

