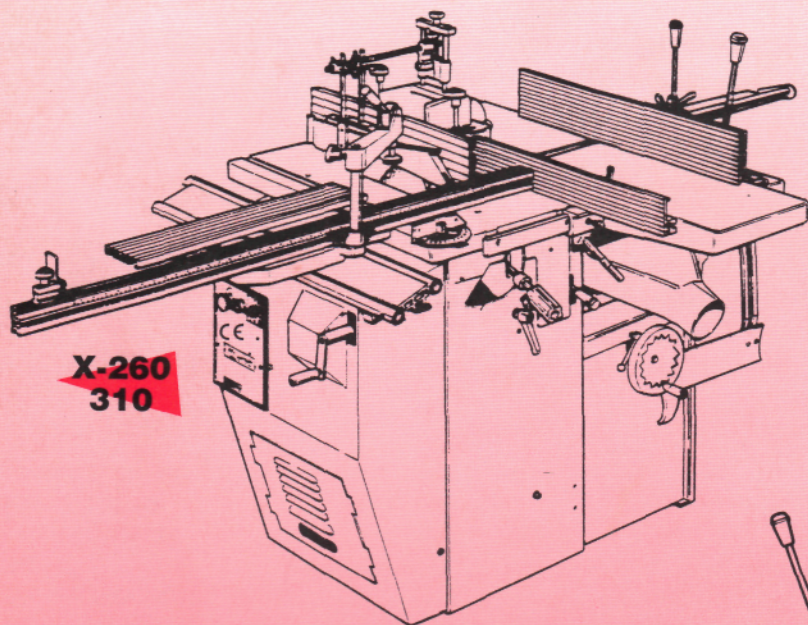
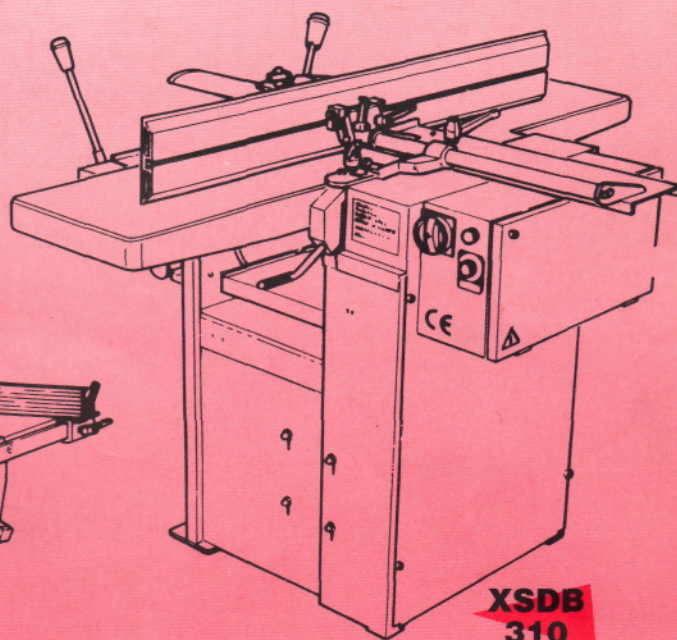


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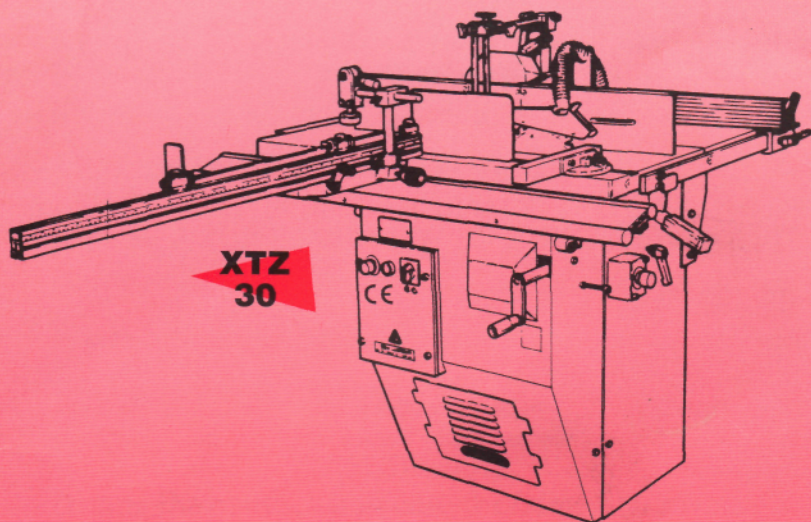
Serie-X



**X-260
310**



**XSDB
310**



**XTZ
30**

Instruction manual

RS ROBLAND®

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Operating instructions

- The following recommendations for safe working methods are given as examples, additional to the information on the machine characteristics.
- When working with the spindle fence or the spindle, between 2 fixed stops and when tenoning, safety equipment must be used.
- Nevertheless, the user must also follow the operating instructions in order to avoid accidents.

1. Training of machine users

It is absolutely necessary that the spindle-moulder user receives comprehensive training regarding operating and adjusting the machine. In particular :

- a) the risks involved in working with the machine;
- b) the operating principles, the correct usage and adjustment of the machine;
- c) the correct choice of the tools for each operation;
- d) the safe handling of parts to be machined;
- e) the position of the hands in relation to the cutterblock;
- f) storing the pieces in a safe way before and after machining them.

2. Stability

In order to be able to use the machine in a safe way, it is absolutely necessary to place it in a stable position on the ground or another stable surface.

3. Adjustment and installation

- a) Disconnect the machine from its power supply before every adjustment.
- b) The recommendations of the manufacturer must be followed when adjusting and installing the tools.
- c) The tools must be suited to the material which has to be worked in order to assure a safe and efficient usage.

The tools must be correctly sharpened and installed, with toolholders that are carefully balanced.

4. Handling of tools

In order to avoid severe cuts, safety measures must be taken when handling tools.

5. Installing tools

Special equipment, such as tool setting gauges, must be only used when the machine is not operating. Table insert rings must be used in order to reduce to a minimum the space between the table and the spindle shaft.

6. Rotation direction and choice of speeds

It is very important that the chosen tool turns in the right direction. When the piece is presented, the operator must take care that the workpiece is fed in the correct direction and that the correct speed has been chosen. The speed must also be suited to the tool on the machine.

7. Functioning of the machine, choice of safety equipment and adjustment

Because of the various tasks that can be carried out with the various types of spindle shafts, spindle holders and cutterblocks, different types of safety equipment must be used.

Every operation must be examined separately, then the correct guarding must be chosen. The minimal opening in the table also depends on the type of cutterblock, diameter of the knives and height in which the cutterblock is adjusted. This can be done by using the table insert

rings which are delivered with the machine. In that way, the opening is as small as possible, and the piece can no longer flip over and hit the knives.

Using a power feeder can prevent most serious accidents involving the hands. Such feeders can easily be adjusted and adapted to the size of the pieces.

When no power feeder is used, the woodpushers must be used, the horizontal and vertical springs making a tunnel in which the piece can be slid. This pusher, together with other safety equipment, reduces the gap between the cutting tool and the guide fences.

8. Working with the spindle fence when the total length of the piece has to be machined

In most cases a straight spindle guard fence is used. The pieces can therefore be guided in the angle made by the table and the fence. The vertical and horizontal pushers can be placed in such a way that they make a tunnel in which the first piece can be pushed. The second piece is then used to push the first one, the last piece is pushed forward with a woodpusher. Special blocks must be used relative to the dimensions of the piece. When working panels of small thickness, only the top of the spring may be used, on condition that the thickness matches.

On a spindle-moulder, the distance between the 2 extremities of the spindle guard fence must be large enough to leave enough space for the cutter block. Thus the knives, the cutter block and the spindle shaft may be exposed and the extremity of the piece may come in contact with the nose of the exit spindle guard fence.

These risks can be avoided by using a false fence between the 2 spindle guard fences thus limiting the opening between them.

9. Working with the spindle fence when only a part of the piece is machined

When working with the spindle fence, and this between 2 stops fixed onto the machine table or fences, only a part of the workpiece is machined. By doing so, the cutting tool starts to machine the wood in the full section of the wood, and does not start at the front, where the cutting action is more gradual, and less severe.

The cutting action is stopped before the workpiece end is reached. This action is very dangerous and needs special care and attention. A stop, solidly fixed at the front and back, must be used (see the example further in this manual).

!!! A piece may only be guided by hand when it is sufficiently large, in all other cases a gauge or a support with protection must be used in order to avoid serious accidents. By means of the gauge, the piece can quickly and precisely be put into place and firmly held there.

A quick clamping system, working with tumblers or with cams, is the most practical system to hold the piece.

When the front and backstops are fixed to the spindle guard fence or to the table, a better control of the gauge is possible.

10. Working with the ring guard

When working with the ring guard, a support must be used, except when a certain process does not allow this, i.e. when the piece is too large to make the use of the support practical, or when the piece is so small or so difficult to machine that it cannot be held in the support without danger.

The final shape is obtained by holding the gauge against a guidance bearing which is fixed to the spindle while the piece is held against the tool. The gauge can be part of the support.

11. Chamfering

When chamfering, a solid support or a tiltable adjustable spindle guard fence must be used. A woodpusher must be used for the final part of the machining.

12. Working in the same direction as the tools

It is extremely dangerous to work in the same direction as the tools, as the operator cannot exert force to resist the strong movement of the piece as the tool comes into contact with it. Working in the same direction as the tools is absolutely forbidden, even when a support is used.

13. Other machining

For other types of work, e.g. tenoning, special gauges or supports can be used in order to avoid accidents.

Use of safety accessories

The following safety accessories can be used to help the operator during his work :

- supports
- woodpushers
- power feeders
- rollers
- stops

14. Noise reduction

- a) The condition of the tools is important to keep the noise level as low as possible.
- b) The material and the position of the guards is important to reduce the noise level.
- c) Using the correct speed will reduce the noise level.
- d) What is mentioned above does not take away the fact that separate safety equipment must still be used.



Explanation of acoustic levels

The values given are the output levels; these are not necessarily the levels on which the operator can work safely.

Although there is a link between the output values and the safe working levels, it cannot be used in a reliable way to determine whether supplementary measures should be taken.

Acoustic levels



- measurements : as per ISO norm 7960
- as per annexe D

Work station und load	Level continuous acoustic pressure as per index A dB(A)	Level account. power dB(A) (MW)	Max. value account. pressure as per index C (instantaneous) dB
Sawing	88	103 (19,9)	< 130
Moulding	84	97 (3,2)	< 130
Tenoning	86	97 (5)	< 130
Planing	92	98 (6,3)	< 130
Thicknessing	83	97 (5)	< 130
Mortising	86	107 (250,1)	< 130

Dust emission values



Type examination was carried out by the following approved body :

Prüfinstitut für Holzstaubmessungen
Institut für Werkzeugmaschinen
Universität Stuttgart - Germany

Measurements : as per DIN 33 893 (GS-HO-05)

Measurement values show that the TRK-value of 2 mg/m³ has not been exceeded.

Notification number and date : 08.03.1996 / FPH-AZ : 029/95



Normal use and prohibited use

CIRCULAR SAW

The table saw assembly is designed for the following working processes and equipped with protective devices. It is not designed to work materials such as ferrous or non-ferrous materials, and therefore tasks that differ from the ones stated below are prohibited.

- Ripping with the parallel saw fence with/without tilted saw blade with the fence upright or in the low position.
- Right-angled or miter cuts with the 90° fence mounted to the sliding table with tilted or vertical saw blade.
- Cross cutting workpieces with the adjustable stop on the 90° fence.
- Cutting panels or solid wood on the sliding table.

PROHIBITED USE

Following tasks are prohibited on the table saw :

- submerged cuts by removing the riving knife and/or guard;
- all types of cuts without using the table saw fence, the 90° fence or sliding table;
- cutting large workpieces that exceed the table capacity without using aids such as roller supports.

REMAINING RISKS

Main risks on a table saw are :

- unintentional contact of the hands with the running saw blade;
- workpiece kickback;
- tipping of the workpiece due to insufficient support.

MOULDER-SHAPER

The shaper assembly is designed for the following tasks and equipped with protective devices.

Other tasks than listed below are therefore prohibited.

- mould and form straight and curved pieces on the vertical spindle;
- shaping of curved workpieces using a ring guard fence;
- mortising, tenoning and panel edge shaping using corresponding safety devices

PROHIBITED USE

The following tasks are prohibited on the moulder-shaper unit :

- down-cut shaping, i.e. when feed and tool rotation direction is the same
- slotting with saw blades
- using tool diameters which are not adapted to the spindle by using reducing sleeves
- using larger tool diameters and higher speeds than shown in the diameter-speed diagram.
- the use of ferrous and non-ferrous materials

REMAINING RISKS

Spindle shapers are one the main causes of injuries in woodworking. Nearly all accidents result in hand injuries. They are due to contact with the rotating tool when the workpiece is fed by hand and kickback occurs due to sudden forward movement of the workpiece.

The main danger areas on the shaper-moulder are :

- the working area
- the moving machine and tool parts
- the kickback area

Always use appropriate protection devices, and always observe the specific regulations for accident prevention.

PLANER-THICKNESSER

The planer-thicknesser is designed for the following processes and equipped with protection devices.

All working processes that do not comply with these instructions are therefore prohibited.

- planing the wide surface of workpieces on the planer unit;
- planing the narrow side of workpieces on the planer unit;
- beveling an edge on workpieces on the planer unit;
- thicknessing on the thicknesser unit.

PROHIBITED USE

The following tasks are prohibited on the planer-thicknesser unit : - down cut planing, i.e. when the feeding direction and the planer's arbor rotation direction are the same, and the outfeed planer table is set lower than the infeed table;

- insertion cuts on the planer unit, i.e. when the workpiece is not worked along its entire length;
- the use of other materials than wood, such as ferrous or non-ferrous materials.

REMAINING RISKS

The most common danger areas on the planer-thicknesser unit are :

- the working area
- the rotating tool, e.g. contact with the blades, getting caught in the rotating planer arbor, ejection of workparts, knots, etc.
- the workpiece kickback area.

MORTISER

The mortiser unit is composed of the removable support and the chuck mounted on the planer arbor. It is designed to work wood, the use of all other materials, e.g. ferrous and non-ferrous materials is prohibited.

- mortising holes in all wood types with or without depth stop;
- mortising slots in solid wood, e.g. sinking doorlocks, flush sinking of hardware;
- mortising dowel holes, boring out knot holes, and making plugs for knot holes

PROHIBITED USE

The following tasks are prohibited on the mortising unit ;

- routing work of all types using router bits;
- grinding metal parts e.g. planer knives

REMAINING RISKS

The main sources of danger on a mortiser unit are :

- unintentional contact of hands or other parts of the body with the rotating tool;
- tipping of the workpiece due to insufficient support;
- contact with the planer arbor as it rotates.



Types of tools

Cutter blocks and toolholders with interchangeable knives are frequently used when moulding. The cutter blocks can be made in 1 piece, the cutting part being fitted in a body of hard steel, mostly chromium steel. The toolholders consist of the part on which the knives are fitted mechanically. Their cutting part is made out of hardmetal (HSS) or calcium- carbide (K), as is the case for the cutter blocks.

Circular saw

The use of saw blades in hardmetal (HSS) is strictly forbidden. Always use carbide-tipped (K) saw blades.

Planer-thicknesser

The most frequently used planer knives are carbide (K) or hardmetal blades (HSS).

Mortiser

Only use "left" drills on the mortiser. To avoid vibrations short drills should be used as often as possible.

IMPORTANT : for each tool and for each diameter, the correct speed must be chosen.
Please check the INRS sticker on the machine.



Technical data

Voltage	V	220/380 - 220 single
Motors three phase	HP	3 or 4
Motors single phase	HP	3
Weight X260	Kg	350
Weight X310	Kg	400
Weight XTZ-30	Kg	250
Weight XSD-B-310	Kg	150

Planer-thicknesser

Spindle diameter	mm	70
Knives		3 HSS
Dimension of knives	mm	260-310x25x3
R.P.M.		4500
Depth of cut	mm	4
Width	mm	260-310
Max.thickness capacity	mm	230
Table size planer	mm	260-310x1400
Table size thicknesser	mm	260-310x430
Planer table length	mm	700
Feed speed	m/min	6

Saw

R.P.M.		4000
Max.depth of cut at 90°	mm	85
Max.depth of cut at 45°	mm	55
Saw table size	mm	800x445
Saw blade diameter and bore	mm	250x30
Saw stroke X260 - X310 standard	mm	960
Saw stroke LX310	mm	1290
Saw stroke option long bars X260-X310	mm	1290
Cross cut table size standard	mm	370x355
Cross cut table size option	mm	370x800

Spindle

R.P.M. three phase		3000/6000
R.P.M. single phase		6000
Spindle diameter	mm	30 - option 50
Spindle capacity	mm	125
Rise and fall	mm	140
Table opening diameter	mm	180
Maximum diameter tool using the fence	mm	180
Maximum diameter tenoning tool	mm	250
Spindle table size	mm	800x445

Mortiser

R.P.M.		4500
Table size	mm	200x425
Stroke : cross in/out/up	mm	165x140x85
Capacity chuck - 2 jaws	mm	0-16
Chuck mounting		left M24x1.5
Type of tools		left - short type

General information

Diameter outlet on all units

Overload trip setting

mm

100

5A three phase 380V 3HP

6.4A three phase 380V 4HP

8.5A three phase 220V 3HP

11A three phase 220V 4HP

15A single phase 3HP

2.5 mm² minimum

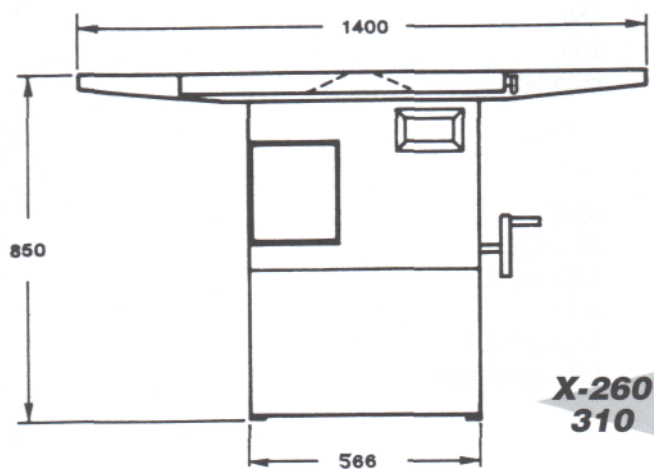
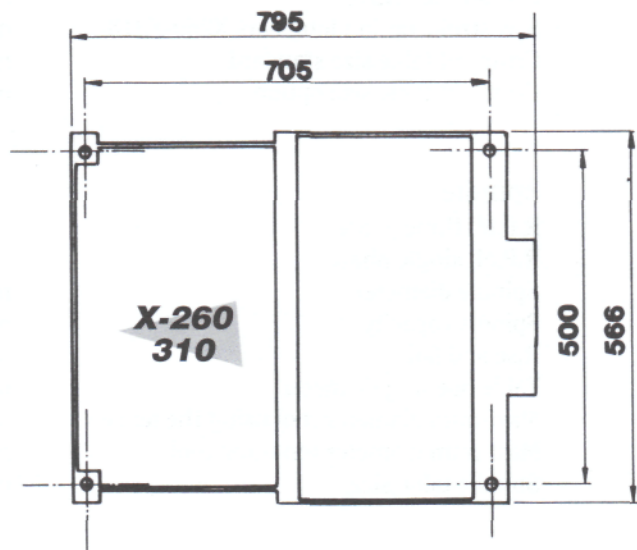
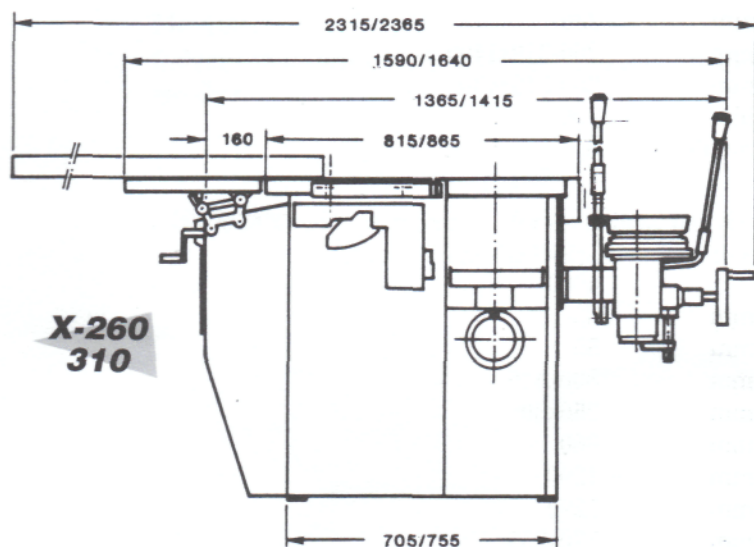
50 - 60Hz

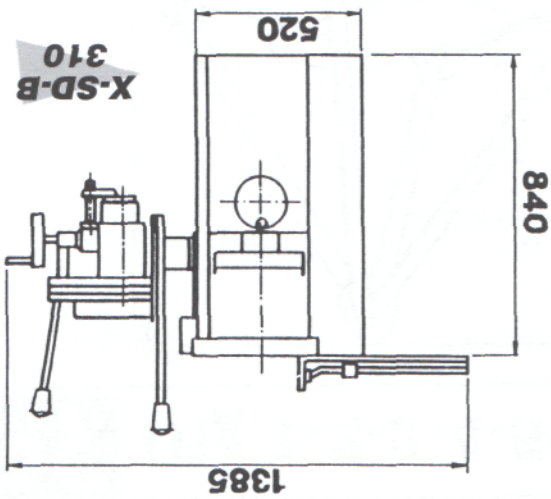
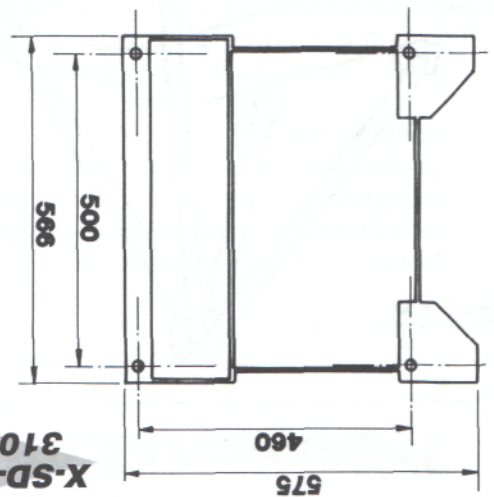
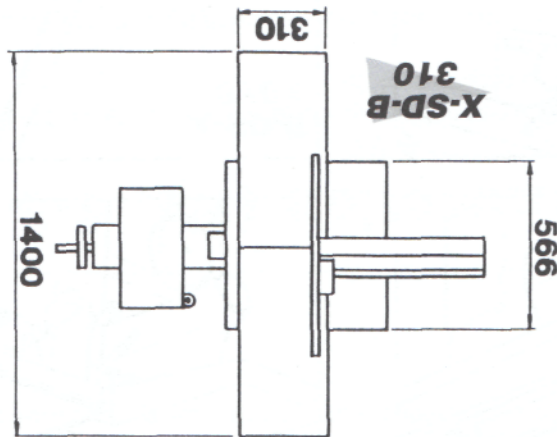
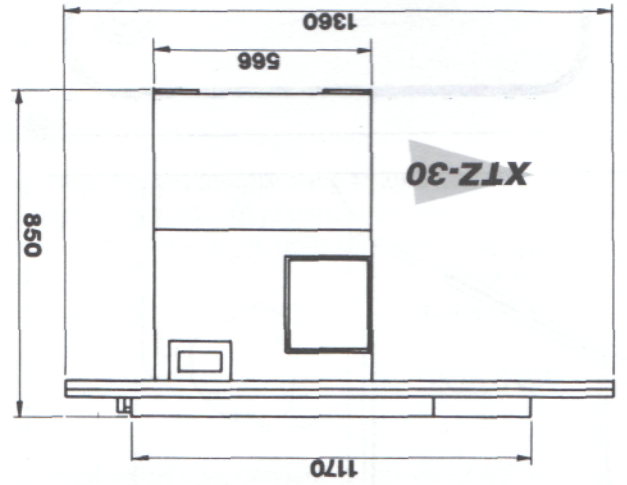
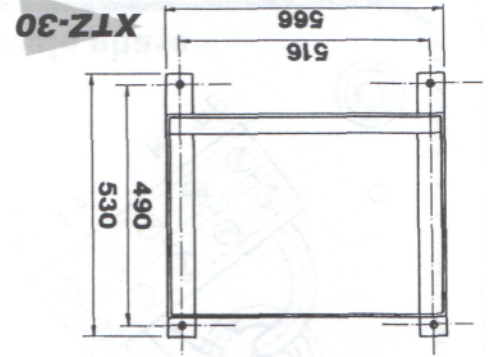
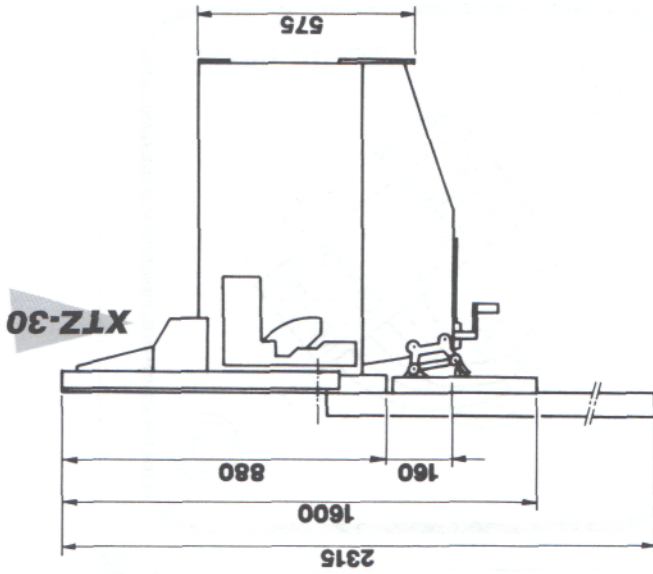
Power supply cable section

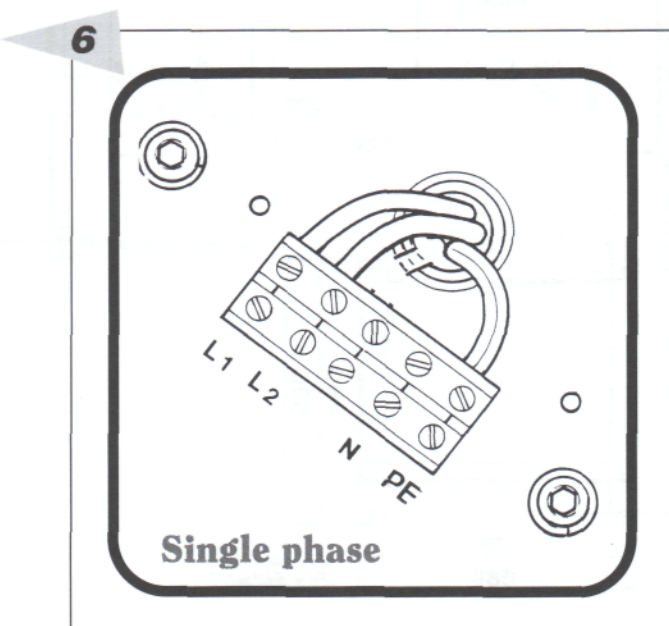
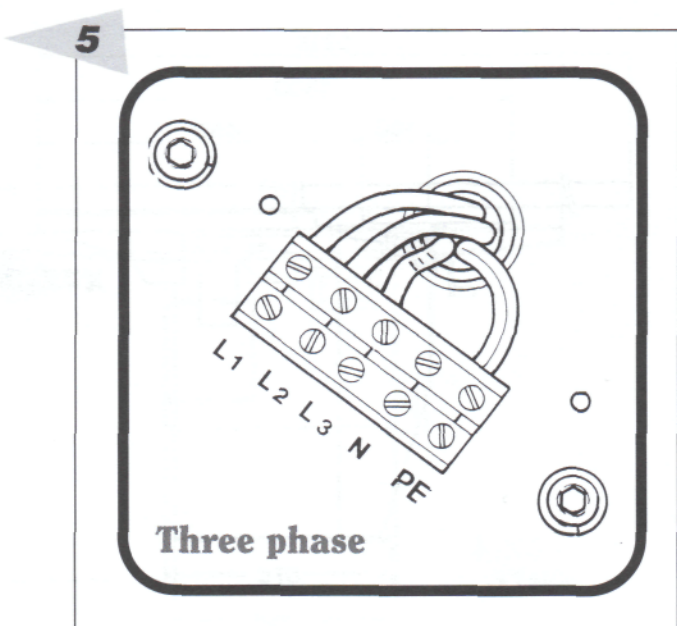
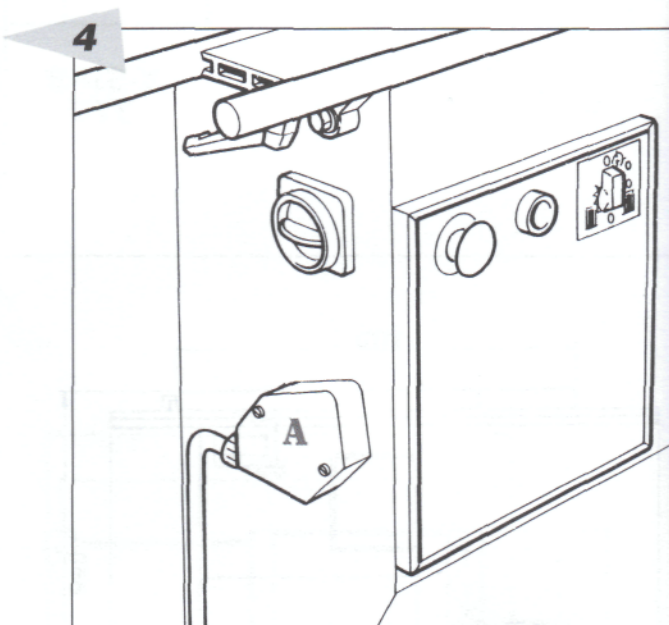
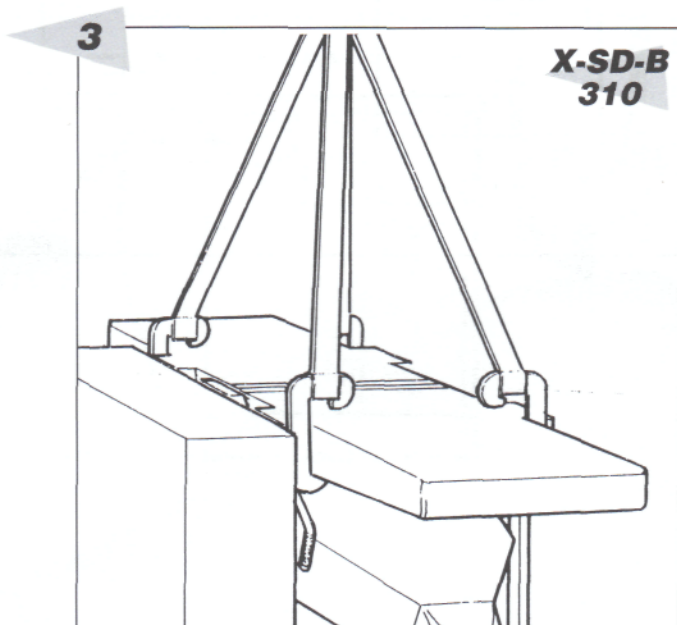
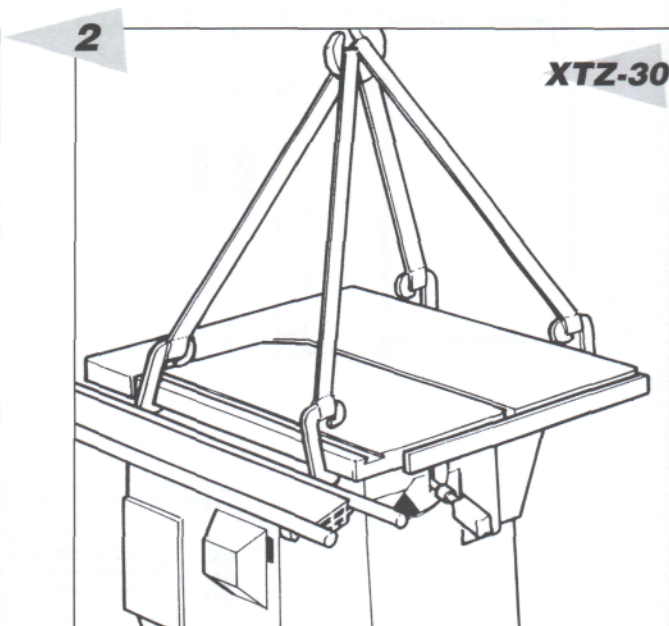
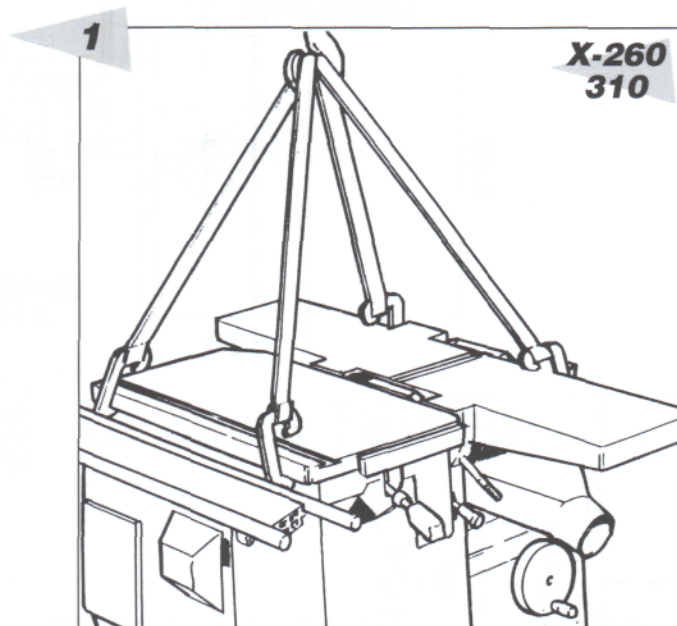
Frequency



General Dimensions







Transportation (fig. 1-2-3)



Depending on the method of transport or shipping, you will receive the machine in a case or on transport blocks.

Remove the sides of the case and slide the hoisting equipment under the table.

You can also use 4 hoist hooks, as shown on fig.1-2-3. Then the machine can be lifted with a fork-lift truck, but severe shocks must be avoided.

The machine must always be placed on a concrete base and must be leveled perfectly horizontally in the 2 directions.

It is very important that all working elements are easily accessible, and that there is enough space around the machine to use it safely.

The machine is constructed in such a manner that it is not necessary to fix it to the ground, but if you wish to do so, fixing bolts must be introduced through the base plates. Please check the dimensions for the space required.

Electrical connection (fig. 4-5-6)



The electrical connection must be carried out by a qualified electrician who is able to calculate exactly the required wire section and amperage of the fuses.

- Check that the mains voltage of your machine corresponds with the voltage in your workshop; then open the electrical connection box at the back of the machine (fig.4A).
- Connect the 3 phases to the terminals marked L1, L2, L3 (fig.5).
- If there is a neutral conductor (blue), it is connected to the terminal N.
- Connect the earth (green+yellow) to the terminal marked with the earth symbol.
- Fig.6 shows the connection for a single phase machine.

WARNING :

- Check if the spindle runs freely and if all protections are mounted before starting up the machine.
- If the rotation direction of the spindle is not correct, the wires L1 and L2 must be exchanged (the rotation direction of the spindle is anticlockwise = left).
- This may only be done without tools on the spindle (safety reasons !).

Mounting of the saw blade (fig. 7)

1. Remove the table insert completely (1).
2. Raise the saw arbor to the full height using the lever (fig.9.1).
3. Make sure both the saw blade and the flange are clean before putting the saw blade on, to avoid wobbling of the saw blade.
4. Now put the locating pin in the saw table and turn the arbor by hand to introduce the pin into the saw arbor pulley.
5. When the saw blade is put onto the arbor, tighten the saw nut with the hookspanner (4).
Warning : lefthand threaded saw arbor !
6. Do not forget to remove the pin which holds the saw arbor in place while tightening the nut.
7. Always make sure the insert (1) is put back properly in the saw table.

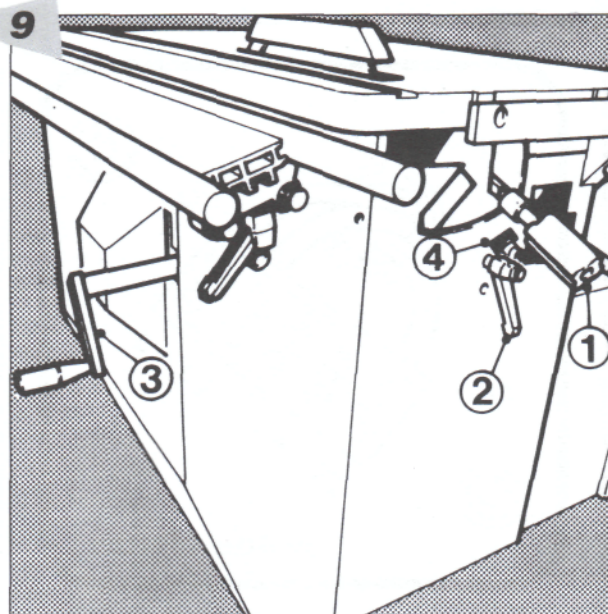
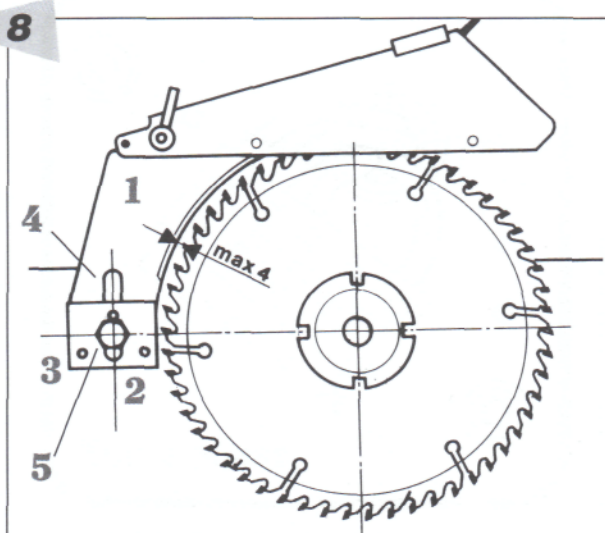
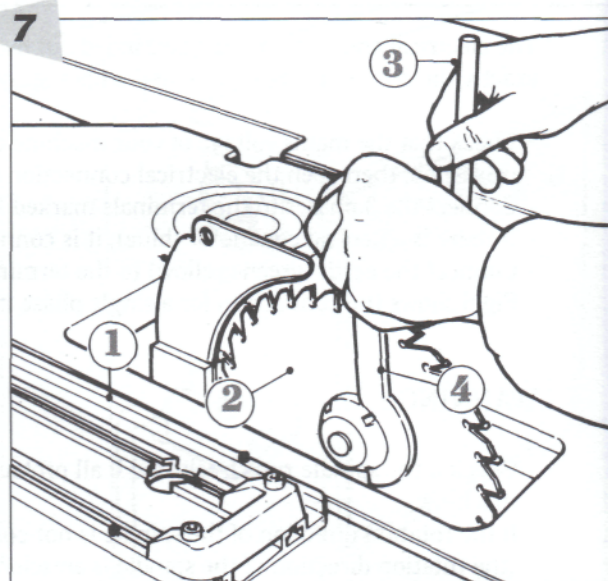
Adjusting the riving knife (fig. 8)

The saw is equipped with a riving knife suitable for saw blade diameters of 200 and 250 mm. Never cut without the riving knife ! Kickbacks are highly brutal and dangerous.

1. Always set the riving knife (1) close to the saw blade so that the gap never exceeds 4 mm (fig.8).
2. The riving knife can be set perfectly in line with the saw blade by using the adjustment screws (2-3-4).
3. After adjustment always tighten the central locking bolt of the riving knife clamp (5).

Tilting, rise and fall of the saw blade (fig. 9)

1. The handle can be loosened by turning it 1/2 turn to the left (1). Then the saw blade can be raised or lowered either by pushing the handle down or pulling it up. To lock the height, turn the handle (1) to the right (clockwise).
 2. After loosening the locking handle (2), the saw blade can be tilted from 90° to 45° by turning the cranc handle (3).
- After setting the saw blade, always lock the handle (2)



Saw fence (fig. 10)

The saw fence (1) is mounted onto the support (3) and can be secured anywhere along the scale bar (4) using the locking handle (5). The fence itself can be set in two positions : high position for normal cuts with the saw blade at 90°, and low position for cuts with the saw blade at 45°. The fence can also be slid backwards and forwards and should be positioned in such a way that the end of the fence corresponds +/- with the back side of the riving knife.

Warning : for narrow cuts along the saw fence always use a push stick !

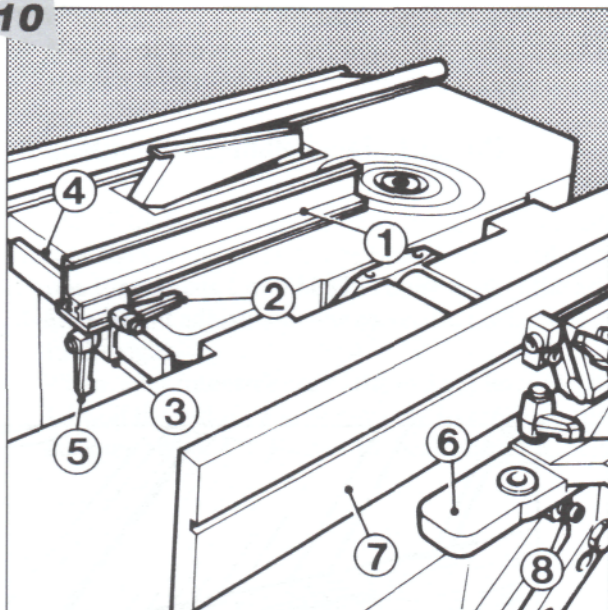
Planer fence used as saw fence (fig. 10)

For cuts exceeding the length of the table saw scale, the planer fence can be used. Simply slide off the normal saw fence and put the planer fence on the outfeed planer table as shown in fig.10.

Put the planer fence support (6) onto the table with the locating pin and autorelease handle in place.

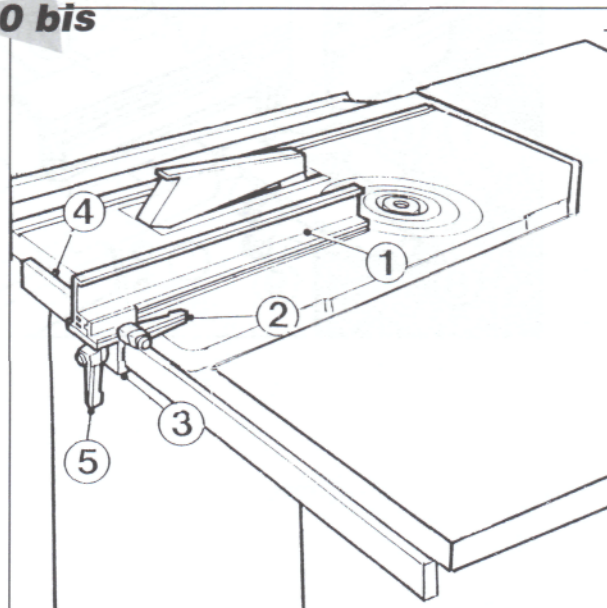
This planer fence should be set parallel to the saw blade, using the adjustment screw (8) under the cast support (6).

10



**X-260
310**

10 bis



XTZ-30

Cross cut table and fence (fig. 11)

The machine is delivered with the guide rail for the cross cut table mounted onto it.

To alter the cross cut capacity, the bars can be slid to the front or back using the two handles (9) situated at the front and rear side of the machine.

The cross cut table can be placed onto the guide rail by removing the cotter pin in the upper bar and by sliding on the table.

The cross cut fence (5) pivots around the wood clamp bar (3) and is held underneath the table with a bolt and wingnut.

The fence can be set at any angle from -45° to $+45^{\circ}$.

A special tenoning table, fixed onto the cross cut table with bolts and wingnuts, is available optionally (Q1362).

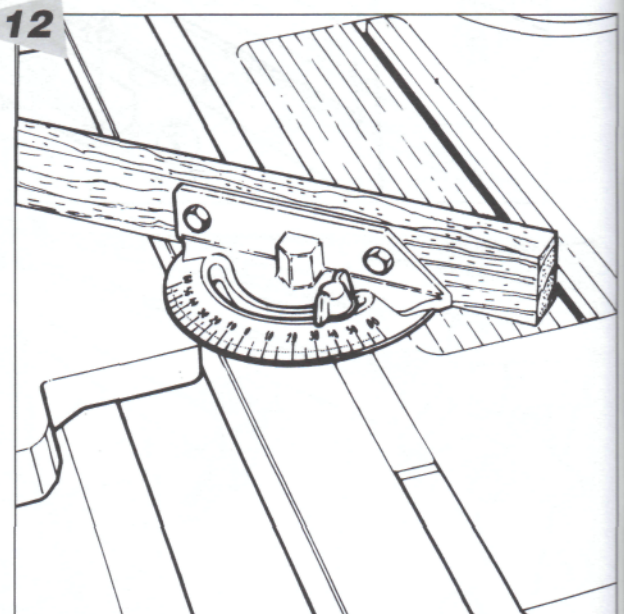
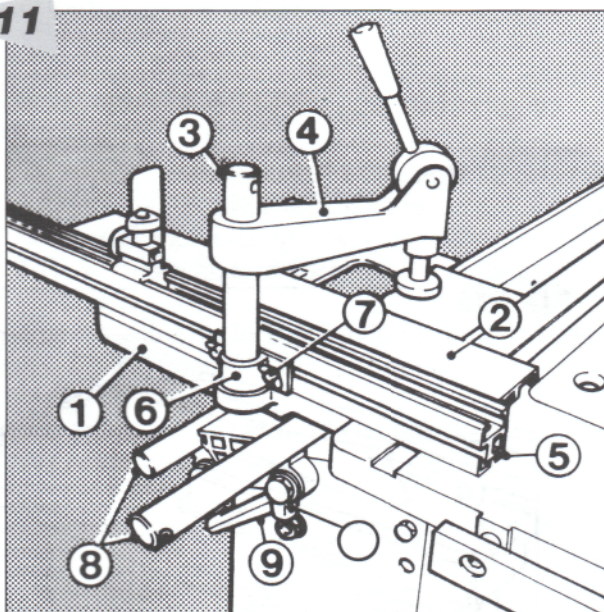
The woodclamp itself is then fixed onto the tenoning table and permits clamping of the wood close to the tool.

Mitre fence (fig. 12)

Mitre cuts can be made by using the mitre fence. This fence can also be orientated from -60° to $+60^{\circ}$.

The use of this fence however should be restricted to short pieces of wood not exceeding 1 m in length.

Always put a splinter protection in wood as shown in fig.12.



Installation of tools (fig. 13)



Always put the tool as low as possible on the spindle, to minimize spindle flexing and obtain higher quality work. Using the rings of different thickness, it is possible to precisely adjust the height compared to the sliding table; this is also the case for tools that are installed above the table. It is important that the rings and the arbor itself are perfectly clean.

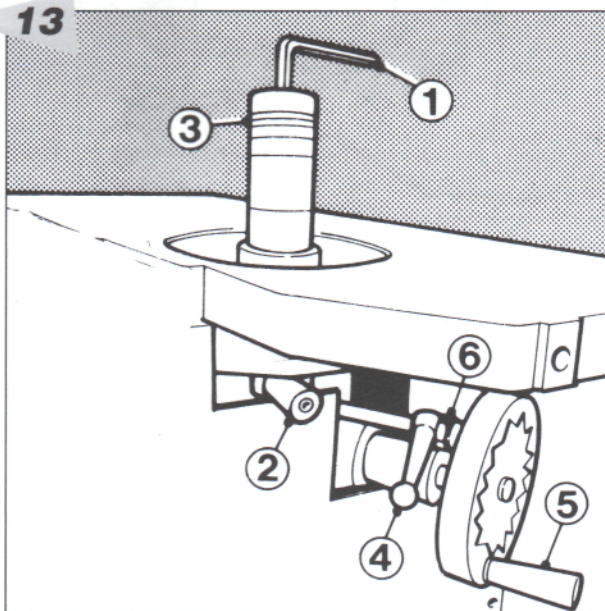
IMPORTANT !!

Please take care that the top ring with the safety bolt is correctly fitted into the spindle groove, to avoid the tools from loosening accidentally.

1. Put the corresponding Allen Key (1) onto the locking bolt of the arbor.
2. Push the locking lever (2) to the right and, at the same time, turn the arbor with the Allen key until the locking pin (which is activated by the lever (2)) locks into the hole in the spindle.
3. Now loosen the top bolt and remove the spindle rings (3) according to the tool's thickness.
4. Put the tool onto the arbor and put on the correct number of spindle rings. Make sure the tool is set in the proper rotation direction. The spindle arbor should protrude +/- 10 mm over the last ring, this to enable safe mounting of the top spindle ring.
5. When the lever (2) is released, the locking of the spindle arbor is automatically disengaged.
6. Always put the appropriate number of table insert rings around the spindle, to ensure a smooth finish and also to avoid serious risk.

Adjusting the spindle height (fig. 13)

1. Unlock the locking lever (4) by turning it to the left.
2. Now the spindle arbor can be raised or lowered using the handwheel (5). Please note that one turn equals 4 mm height adjustment of the arbor.
3. After height adjustment always secure the spindle arbor by locking the lever (4) by turning it to the right.
4. When, after intensive use of the locking lever (4), it is no longer possible to lock this lever, take off the nut (6) and remove the lever. Then turn it 1/6 turn to the left before putting it back on again. Put the nut (6) back on and tighten it.



Installation of tools (fig. 13)



Always put the tool as low as possible on the spindle, to minimize spindle flexing and obtain higher quality work. Using the rings of different thickness, it is possible to precisely adjust the height compared to the sliding table; this is also the case for tools that are installed above the table. It is important that the rings and the arbor itself are perfectly clean.

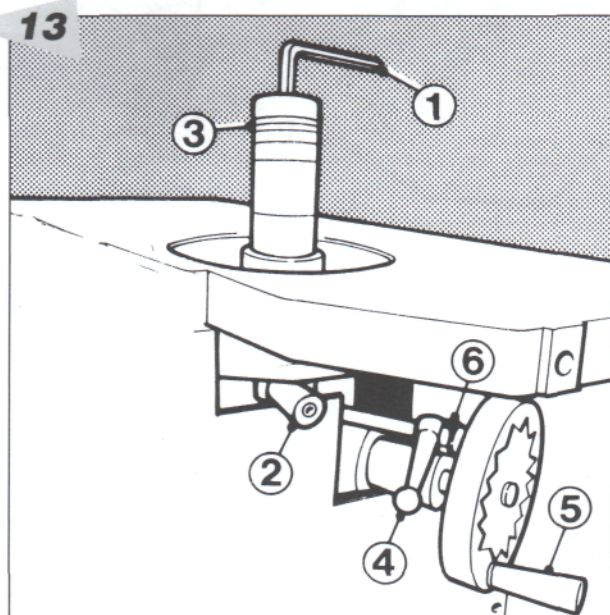
IMPORTANT !!

Please take care that the top ring with the safety bolt is correctly fitted into the spindle groove, to avoid the tools from loosening accidentally.

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4. When, after intensive use of the locking lever (4), it is no longer possible to lock this lever, take off the nut (6) and remove the lever. Then turn it 1/6 turn to the left before putting it back on again. Put the nut (6) back on and tighten it.



The spindle fence and woodpushers (fig. 14-15-16-17)

The spindle fence (fig.14) is fitted onto the table with two threaded knobs (1).

By loosening these two knobs, the complete fence can be slid to the front and back in the two slots.

The fence plates (2+3) should always be set as close as possible to the outer tool diameter.

The depth of the back fence can be set and adjusted with the knob (4). To align both fences a very precise, straight edge should be held against the fences and the back fence alignment, adjusted in such a way that there is no gap left between both fences.

Before starting any work always make sure that all knobs and clamps are correctly locked.

Never operate the spindle-moulder without using the woodpusher safety device or a feeder.

A feeder is the safest way to work with a spindle moulder. The spindle- moulder table can be equipped with a table extension and a pivoting feeder support. These enable the user to clear the table simply by pivoting the complete feeder under the table extension without having to dismantle it each time when the saw or planer is used.

This option can be ordered at your Robland dealer under ref. A42452.

In order to operate the spindle in a safe way, some adjustments must be made on the woodpushers (fig.15-17).

1. Adjustment of the fences (1) as close as possible to the outer tool diameter.
2. Adjustment of the horizontal pusher (3) according to the width of the workpiece.
3. Adjustment of the vertical pusher (2) according to the height of the workpiece.
4. When both pushers are correctly adjusted, there is enough pressure exerted to hold the workpiece against the fences.
5. The horizontal woodpusher (3) is to be set in such a way that the push stick (1) can be used. Therefore, the screen of the horizontal pusher should not be set lower than 10 mm above the table.

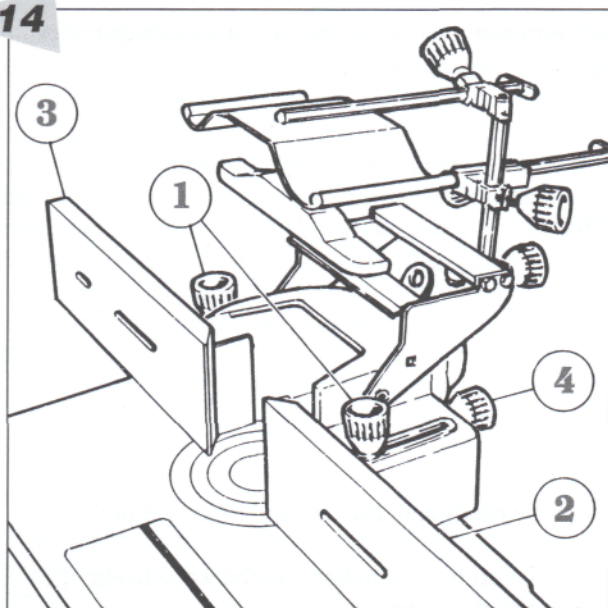
To change tools, the whole pusher system can be cleared by flipping it over to the back of the spindle fence.

1. Pull lever (fig.16,1) to the right to unlock the system.
2. Lift up a little the cover plate (fig.17,5).

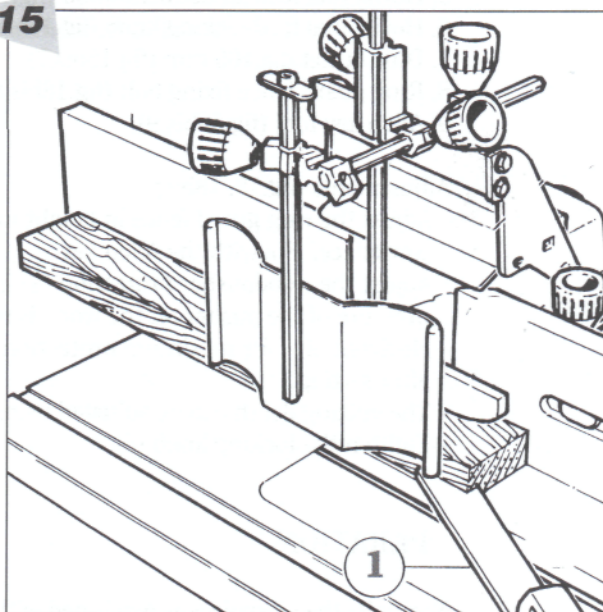
Now the system can be flipped over to the back. To put it back in place simply lift the cover plate up again (fig.17,5) to clear it from the lock (fig.16,3) and push the system to the front.

The cover plate (fig.17,5) will lock itself automatically and prevent the woodpushers from flipping over to the back.

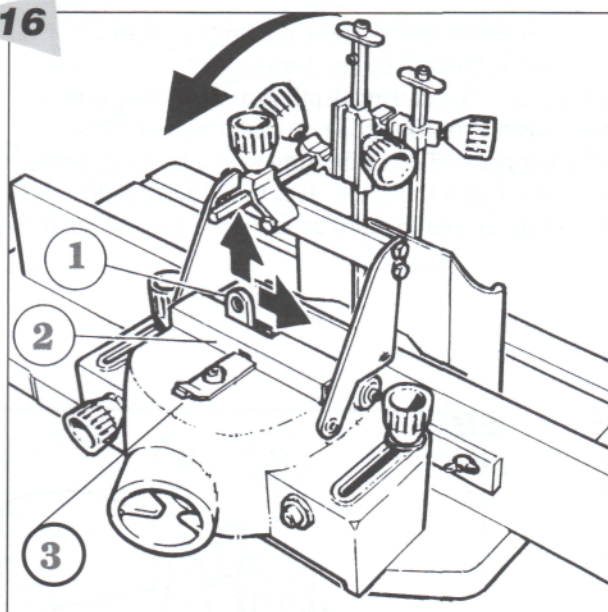
14



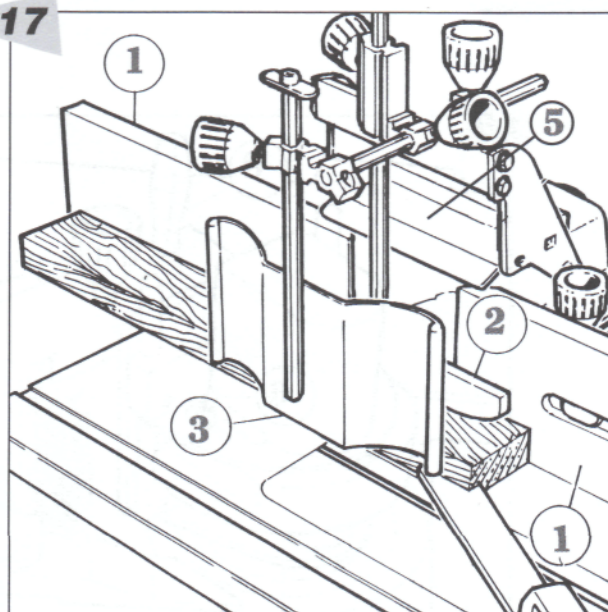
15



16



17



Ring guard fence (fig. 10 + 18 bis)

Warning : the use of a ring guard fence is obligatory when curved workpieces have to be machined

The ring guard fence is made for tools with a maximum diameter of 150 mm and a spindle diameter of 30 mm.

Description :

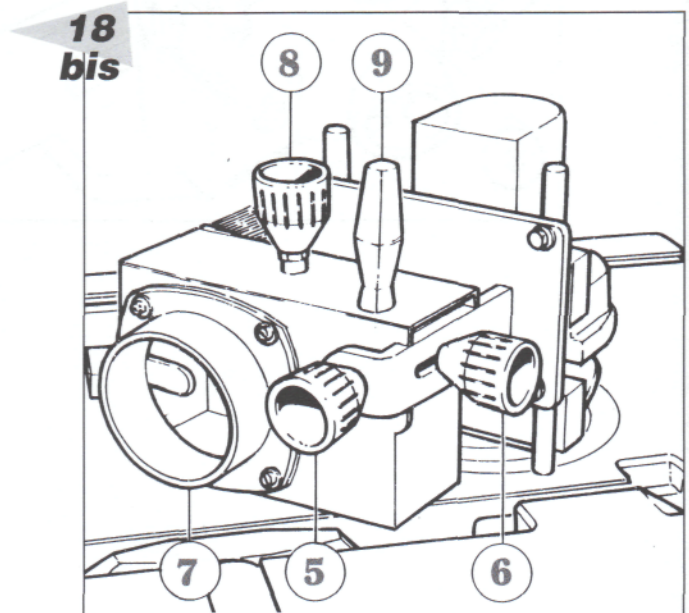
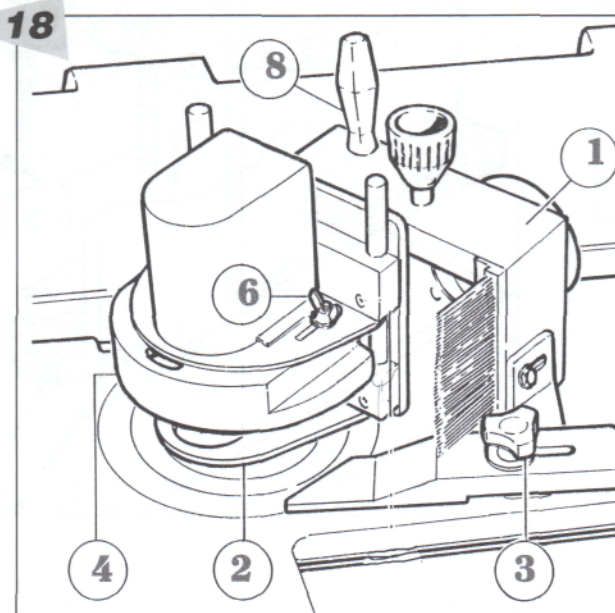
1. Body ring guard fence (fig.18,1)
2. Guiding template (fig.18,2)
3. Wood guide (only for use with ball-bearing) (fig.18,3)
4. Woodpusher protection (fig.18,4)
5. Horizontal feed adjustment knob (fig.18bis,5)
6. Horizontal feed locking knob (fig.18bis,6)
7. Dust outlet dia.100 mm (fig.18bis,7)
8. Ring guard fence fixing bolt (fig.18bis,8)
9. Allen key tool (fig.18bis,9)

Adjustments (fig.18, 18bis)

- Adjust the ring guard fence in height in relation to the position of the tool and thickness of the workpiece. Fix with the Allen key.
- Adjust the woodpusher protection (4) in height in relation to the thickness of the wood (a slight pressure of the pusher on the wood is needed). Fix with the Allen key.
- Horizontally : for maximum protection and in relation to the tool diameter, fix the two screws (6) after setting.
- The cutting depth can be adjusted using knob (5).
- Tighten the locking knob (6).

OPERATION

Normally the workpiece is machined with the tool mounted underneath the guiding template. Before starting, check that the workpiece travel will not be blocked by any handle. The wood is guided along the straight part of the template. The cutting depth is progressive, with a maximum on the index of the template (that index is visible through the horizontal pusher). The wood guide (3), connected to the fence, replaces the template when calibrating with a bearing. The operator is obliged to use this guide (3) which is delivered with the fence. It is thus advisable to adjust the wood pusher height (4) using the wood as a guide and to put it as far to the front as possible.



Tenoning guard (fig. 19)

For safety reasons, the speed of the spindle arbor is restricted to 3000 RPM when tenoning.

For tenoning, a special guard is mounted on the table.

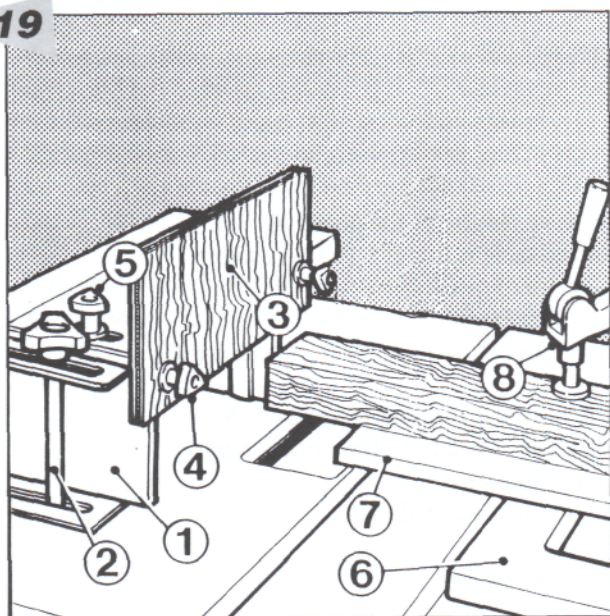
This guard allows tools up to 250 mm diameter and is mounted in the same fixing holes as used for the spindle fence (2).

The front cover plate (3) is adjustable in height with 2 knobs (4) and has to be set as low as possible to assure maximum coverage of the tool for maximum safety.

The 2 knobs (5) assure the horizontal movement and protection of the tool. The tenoning plate (7) is fixed onto the cross cut table with bolts and wingnuts, and has to be set as close as possible to the tool. The woodclamp (8) assures the clamping of the workpiece and has to be set as close as possible to the tool.

When tools up to 220 or 250 mm diameter are used, the speed of the spindle arbor has to be 3000 RPM.

19



Warning :

1. Always make sure there is no tool left in the mortising chuck before starting up the planer-thicknesser.
2. Check very carefully whether the planer knives are well positioned and fastened.

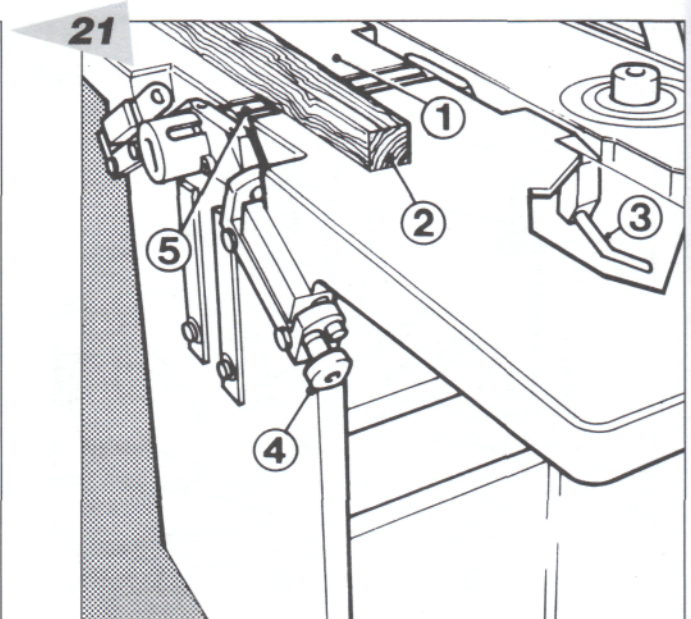
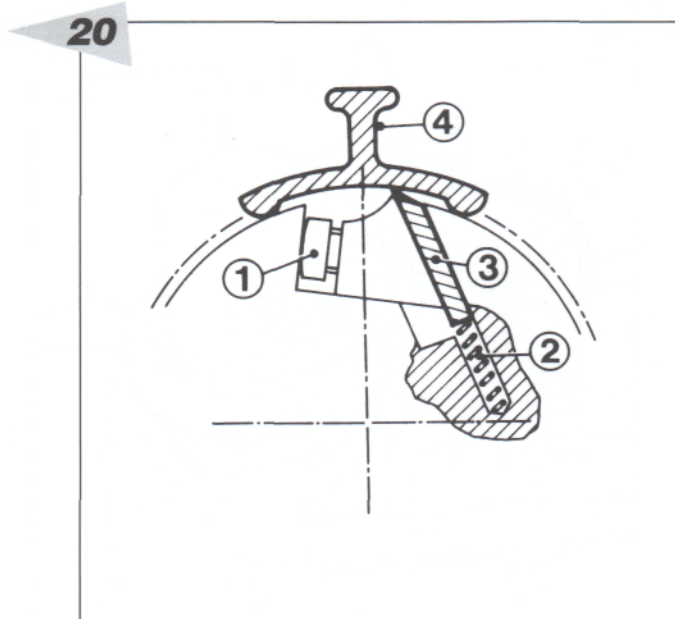
If this is not the case, they will come off when the machine is started, and this could lead to serious injuries for the operator and damage to the machine.

Changing and setting of the planer knives (fig.20)

1. Unlock the bolts (1) in the jib strip and remove the planer knives. Be careful : even used knives still cut !
2. Remove the 3 jib strips and clean the grooves inside the planer arbor. Take care of the little springs (2) underneath the knives, and see to it that they do not stay blocked inside their seats in the arbor.
3. Never use planer knives which have less than 20 mm height.
4. Put the cleaned planer knife (3) into the groove with the little adjustment gauge, but first tighten the two extreme bolts (1) using this gauge as a hand cover. Then tighten the remaining bolts.
5. Before starting up the machine, ensure that all bolts are well tightened.

Adjustment of the planer tables (fig. 21)

1. The outfeed planer table (1) has to be set at exactly the same height as the planer knives.
2. A simple way of checking the correct height of this outfeed table is to put a 100 % straight piece of wood (2) onto the outfeed table, just above the planer knives. Ensure that the infeed table is set lower than the radius of the planer knives.
3. Now turn the planer arbor by hand and see if the planer knife touches the piece of wood or if there is any gap between wood and table.
4. The outfeed table has to be raised or lowered accordingly. To do this, unlock the table locking handle (3) on the outfeed table and turn the adjustment knob until the wood touches the planer knife (5) or the gap between wood and table is eliminated. Always check the correct setting when the locking handle (3) is secured. Lock the outfeed table with the nut on the adjustment (4).
5. Now the infeed table has to be set according to the depth of cut wanted.
6. Always ensure the planer tables are well locked.



Planer fence (fig. 22, 23)

1. The planer fence can be adjusted according to the width of the workpiece : unlock handle (1) and slide the fence to the front or back.
2. After unlocking the clamping handles (2,3) the fence can be set at 45° and 90°. The 90° positive stop (5) and the 45° positive stop (6) have to be adjusted before starting to work.

Planer protection (fig. 24)

1. Planer protection bridge
2. Planer protection body
3. Protection bridge lock
4. Adjustment knob
5. Tilt locking handle

The planer protection is composed of an aluminum protection bridge which can be adjusted in height parallel to the planer arbor and tables. For surface planing the bridge (1) has to be lowered so that the workpiece can be slid under the protection bridge (1). Set the height with the adjustment knob (4), the workpiece is guided along the planer fence. First check the workpiece for straightness and always put the workpiece with the concave side down.

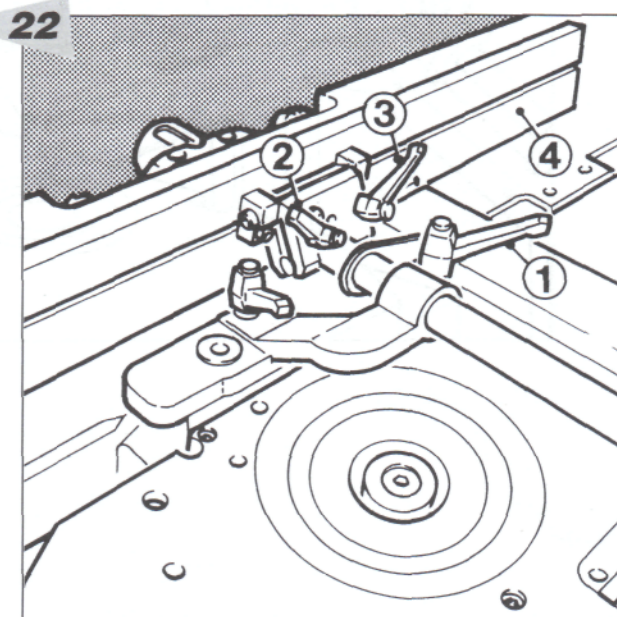
Then set the chip thickness by adjusting the infeed table.

For planing the narrow side of a workpiece the protection bridge (1) has to be lowered to the table and has to be set according to the workpiece width.

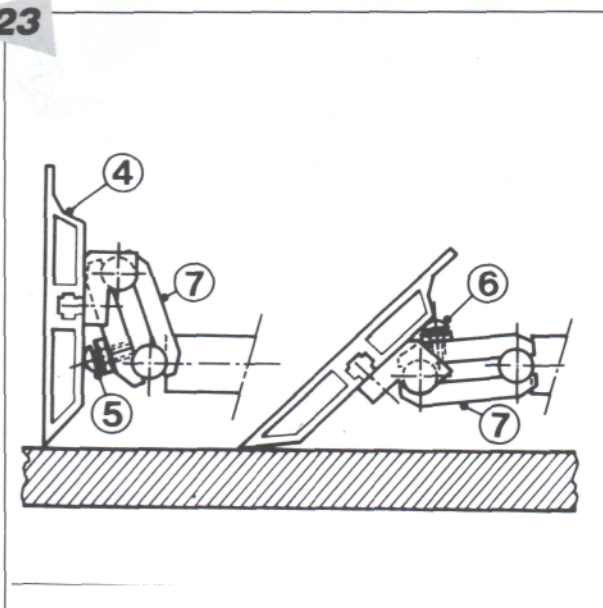
Set the protection bridge with a minimal opening to the workpiece to ensure maximum cover and safety.

To clear the planer protection from the tables, unlock the handle (5) and swing the complete protection to the back.

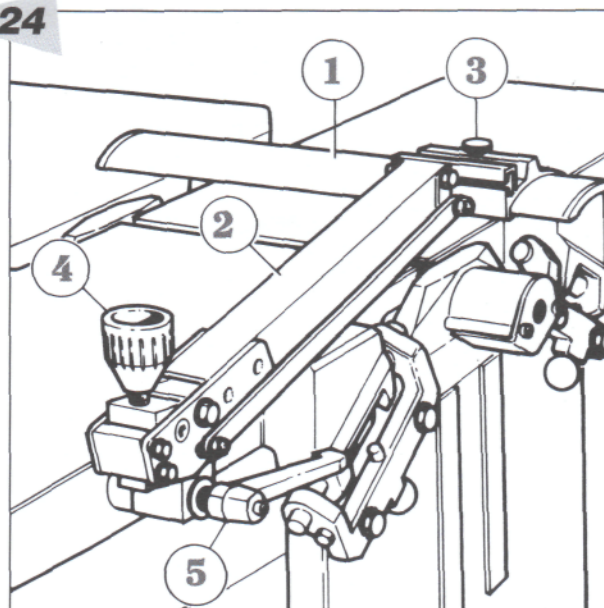
This protection has to be set back in place for every operation on the planer. Never work without it !!!



23



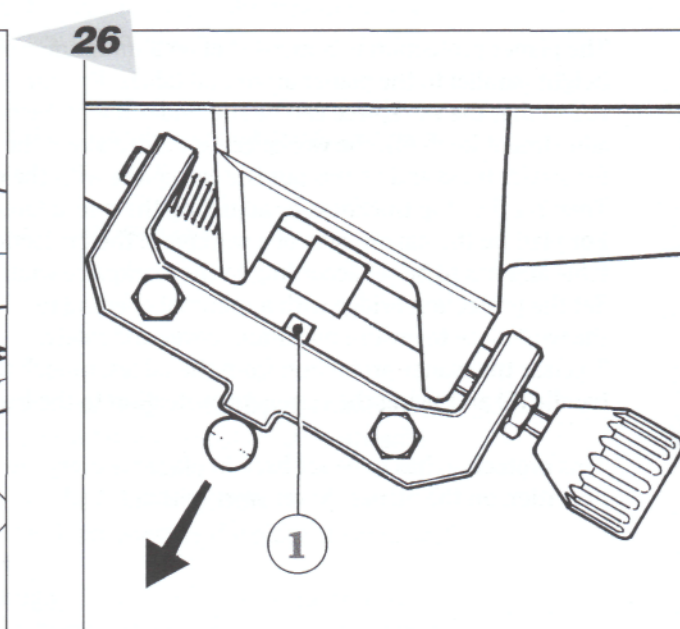
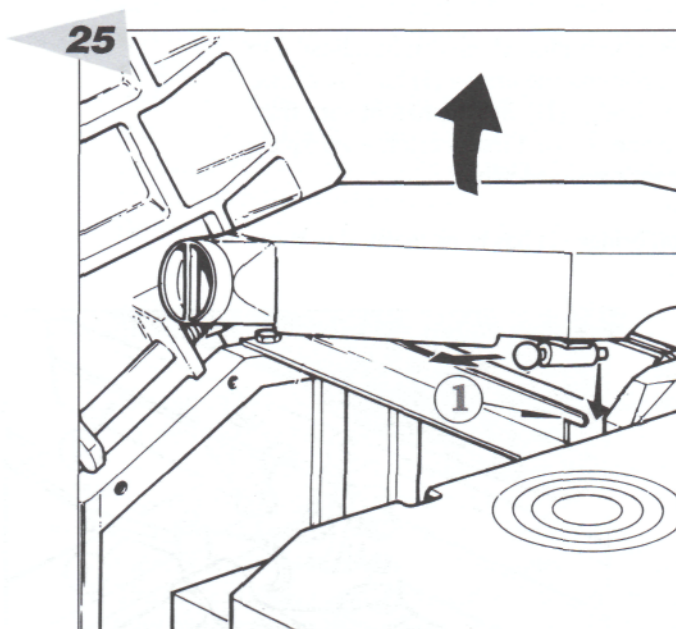
24



Planer table lock (fig. 25, 26)

The planer tables are automatically locked when they are opened for the thicknessing operation. To close the tables : pull the locking pin (1) down in order to release it from its locking plate, which is mounted onto the planer table hinge axle. The dust chute has to be flipped over in order to cover the planer arbor when thicknessing.

This dust chute has to be pushed down in order to lock it in position. To unlock the dust chute : pull the locking pin backwards in order to release it from the locking support (fig.25,1).

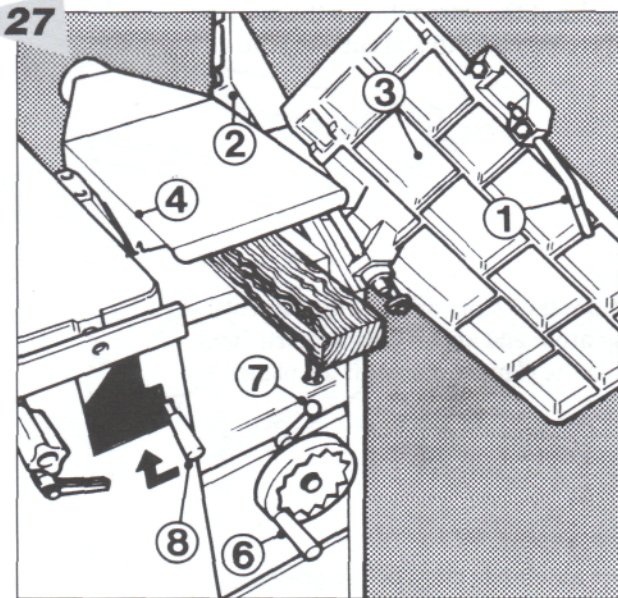


Thicknesser adjustment (fig. 27)

1. The rise and fall of the thicknesser table can be adjusted with the handwheel (6). One turn of this handwheel equals 4 mm.
2. After height setting the thicknesser table has to be locked with the lever (7).
3. When, after intensive use of the locking lever (7), it is no longer possible to lock it, take off the nut which holds the lever and remove the lever.
Then turn the lever 1/6 turn to the left and put it back on again. Put the nut back on and tighten it again.
4. The table height cutting depth setting has to be adjusted in such a way that there is always 1 mm minimum clearance between the top of the wood and the connection bar between the two bearing houses.
5. Always ensure that the anti-kickback protection fingers are kept clean and hang down freely in position under their own weight.
6. The feeding mechanism can be engaged by unlocking the lever (8) and pulling it up. The feed-through speed is 7 m/min.
7. In case of overloading of the feeding mechanism the feed rollers must be disengaged immediately by pushing down lever (8).
Most likely the cutting depth setting is too big. Lower the table 1/2 a turn with the handwheel and start all over again.

IMPORTANT

A smooth table surface is essential for good operation of the thicknesser. Therefore the table should be cleaned and rubbed in with normal cheap white paraffin wax regularly.
A roller support should be used when long workpieces have to be machined.



Mortiser

Warning :

1. Always make sure both the mortiser chuck and the planer arbor safety guards are in place before starting work.
2. Only use left hand drill bits and, whenever possible, short drills.
3. Make sure the drill bit is fastened correctly.
4. Make sure the workpiece is firmly secured onto the table with the woodclamp
5. An adjustable workpiece support can be fitted onto the mortising table.

Putting the mortiser unit onto the frame (fig. 29)

1. Clean both mounting surfaces (1.2)
2. Slide the unit onto the two bolts (3).
3. Make sure the table is mounted horizontally before tightening the two bolts (3).

Height adjustment (fig. 28)

1. After locking the height with the locking lever (4), the height adjustment is made with the handwheel (3). One turn of this handwheel equals 4 mm in height.
2. The mortiser is equipped with 2 levers (5+6). These enable the table to move in 2 directions.
3. Lever (5) is for longitudinal stroke, lever (6) is for transversal stroke.
4. Lever (6) can be removed when machining large pieces. The workpiece itself is then used as a lever.
5. The unit has an adjustable depth stop (7) and two length stops (8) to facilitate repetition hole boring.
6. In case deep holes have to be drilled, it is recommended to drill in steps (each time 10 mm). You will obtain far better results than when drilling the full depth in one step.
7. When mortising, it is recommended to drill first two holes at the extremities of the mortise; then drill the necessary holes next to one another at the correct depth and cut away the remaining material.

Planer protection during mortising (fig. 30)

Warning :

Always put the planer protection bridge (1) in position above the planer arbor. This prevents accidental contact of the operator's hands with the planer arbor and knives during mortising. Alternatively, slide the planer fence fully forward (covering the planer arbor with the planer fence rear protection).

Fixing the mortising chuck to the spindle (fig. 30)

Always ensure that both the spindle and chuck threads are absolutely clean before assembly.

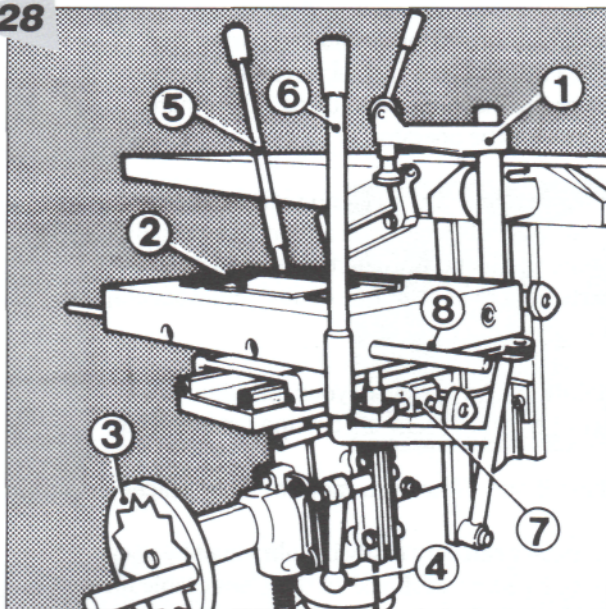
Warning : the mortiser chuck has a left hand thread !

Put the chuck onto the spindle arbor upto the end and check if the V- groove (2) in the spindle matches with the 2 holes in the chuck (if not, the spindle thread will be damaged !).

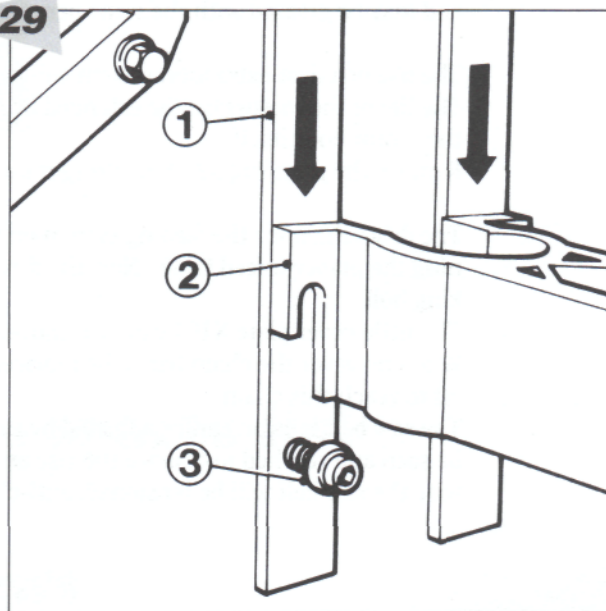
Introduce the 2 Allen screws (1) and tighten them well.

These press screws are needed to prevent the chuck from loosening.

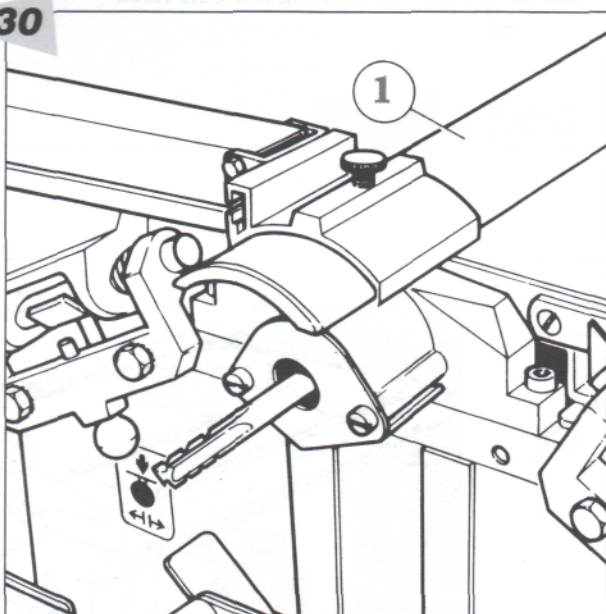
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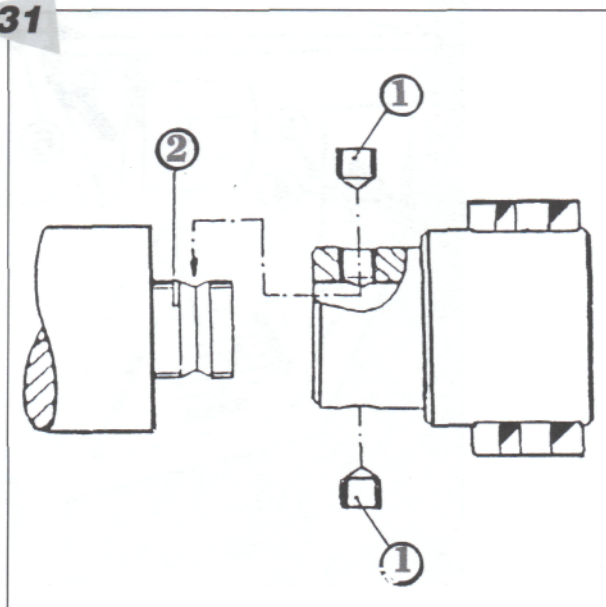
29



30



31



Maintenance (fig. 32, 33)

Warning : Always disconnect the machine from its power supply before starting any maintenance work !!

The interior and exterior parts of the machine must be cleaned at regular intervals to avoid accumulation of dust and woodchips.

Any deposits of resin on the cross cut table sliding bars or on any other moving part of the machine must be removed with a piece of cloth and a little solvent (petrol, kerosene or other product). Never smoke or have any naked flame near the machine when using inflammable products, this to prevent risk of fire and serious burns for the operator.

All bearings are double sealed and lubricated for life, therefore they need no maintenance. All columns, e.g. spindle, thicknesser, mortiser need to be lubricated once a month, especially when the machine is used in a very humid environment. The best product to use is a simple penetrating oil in a spray can. All other moving parts have to be kept free of dust and woodchips and may be greased with the same penetrating oil.

The use of a dust extraction system will most certainly extend the life of your machine.

The life of the motors can be extended by blowing out saw dust from the cooling fan and from the motor body itself.

Remove the plate (fig.32,1) by lifting it up and taking it out. Now the 3 motors can be reached.

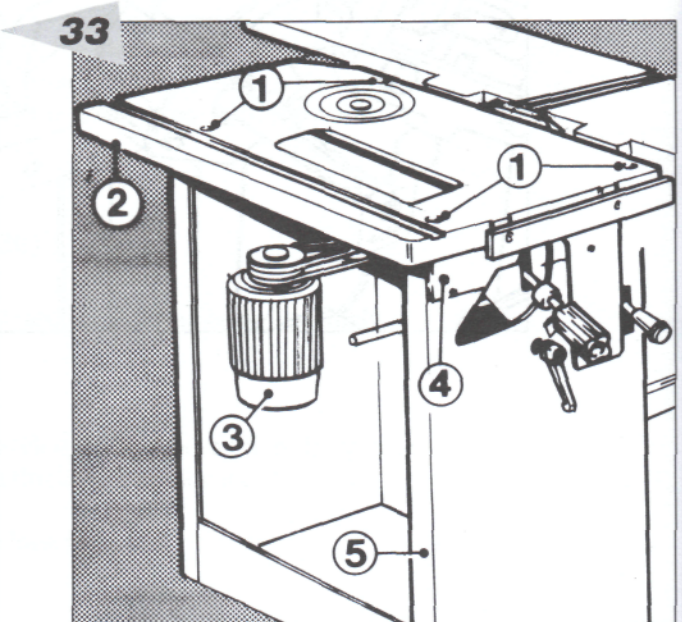
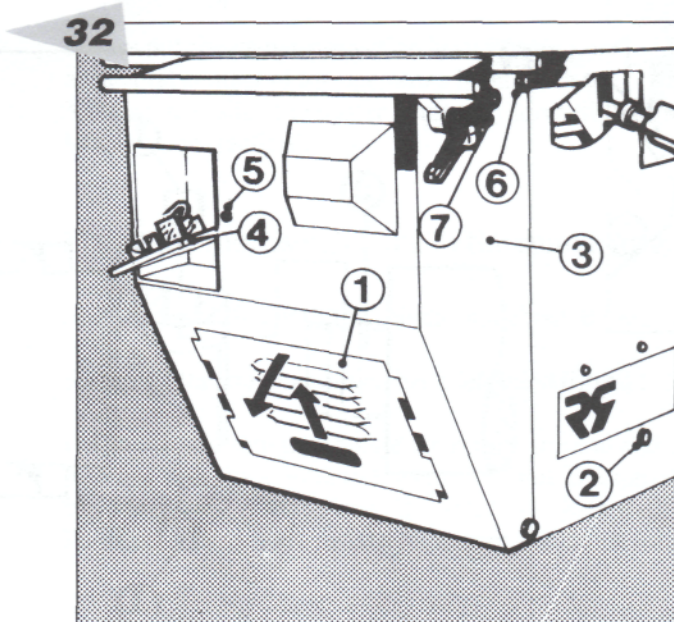
The drive chain for the feeding system on the thicknesser can very easily be lubricated by opening the planer infeed table. Now the drive chain can be seen right next to the planer table locking bolt.

The little cover plate X164 can be removed by removing the table locking bolt.

When however the chain has to be replaced, then the complete saw spindle table has to be taken off to reach this chain.

The saw belt tension can be adjusted by tilting the saw blade to 45°; then the tensioner bolt can be seen and reached just above the rise and fall handle for the saw. By turning this bolt clockwise the saw belt will be tensioned, anti-clockwise loosened.

(fig. 32, 33)





Problems

Electrical components spares list

Exploded views



Problems

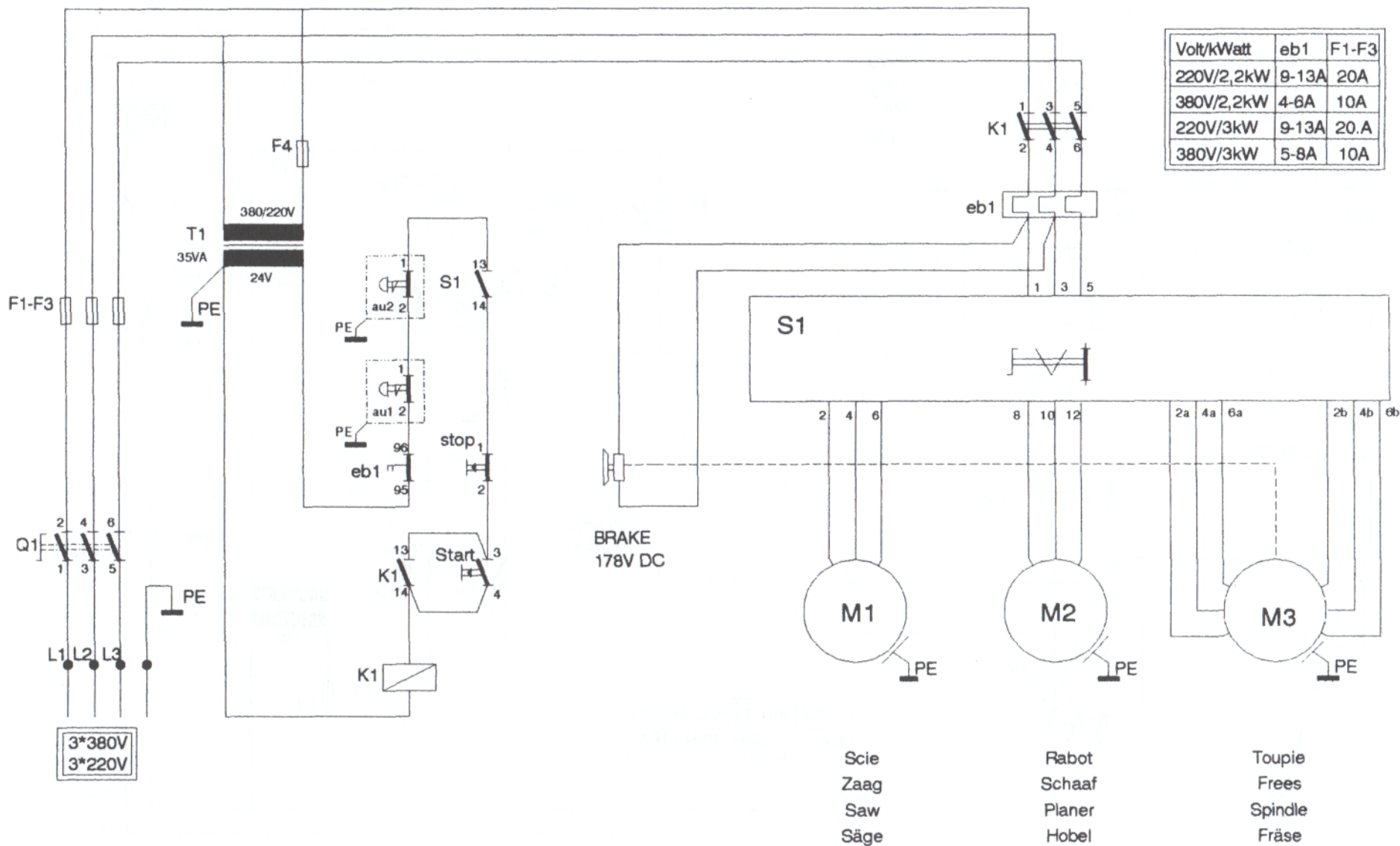
Troubleshooting : causes and solutions

1. The machine does not start when the start switch is activated :
 - main switch off
 - power supply failure
 - emergency stop button activated
 - main fuse blown
 - overload activated due to motor overload
 - fault in the electrical system or machine connection
 - planer tables opened and dust chute thickneser not in position
2. Reduction of speed when working :
 - belt tension not correct
 - motor overload due to incorrect feed speed
 - blunt tools
3. Vibration of the tools mounted on the spindles :
 - the tool is unbalanced : replace or have the balancing done by specialised personal and equipment
4. Thermal overload does not re-arm automatically after shut-off and cooling down period:
 - overload is not set for automatic reset, or the overload is faulty

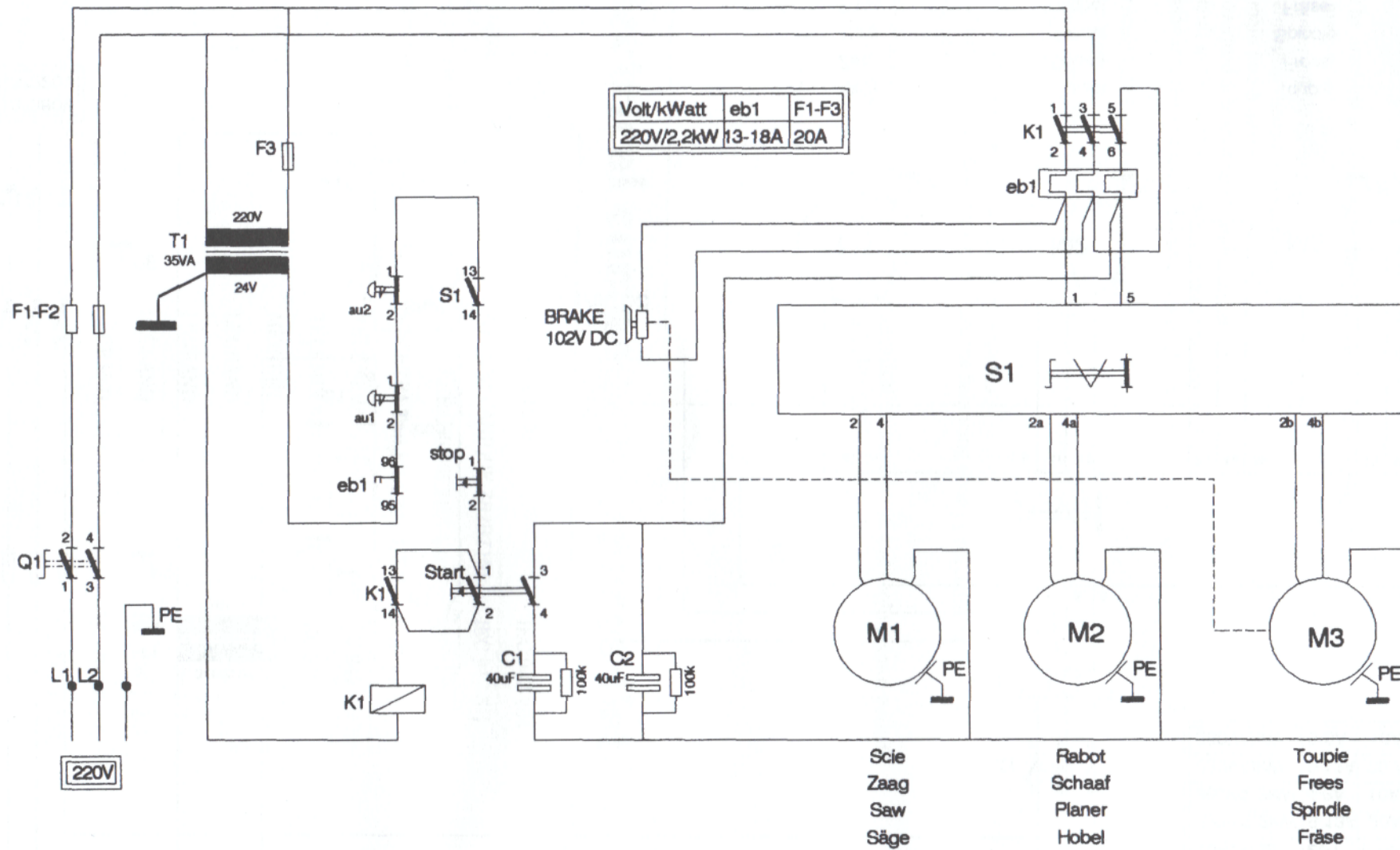


Electrical components spares list

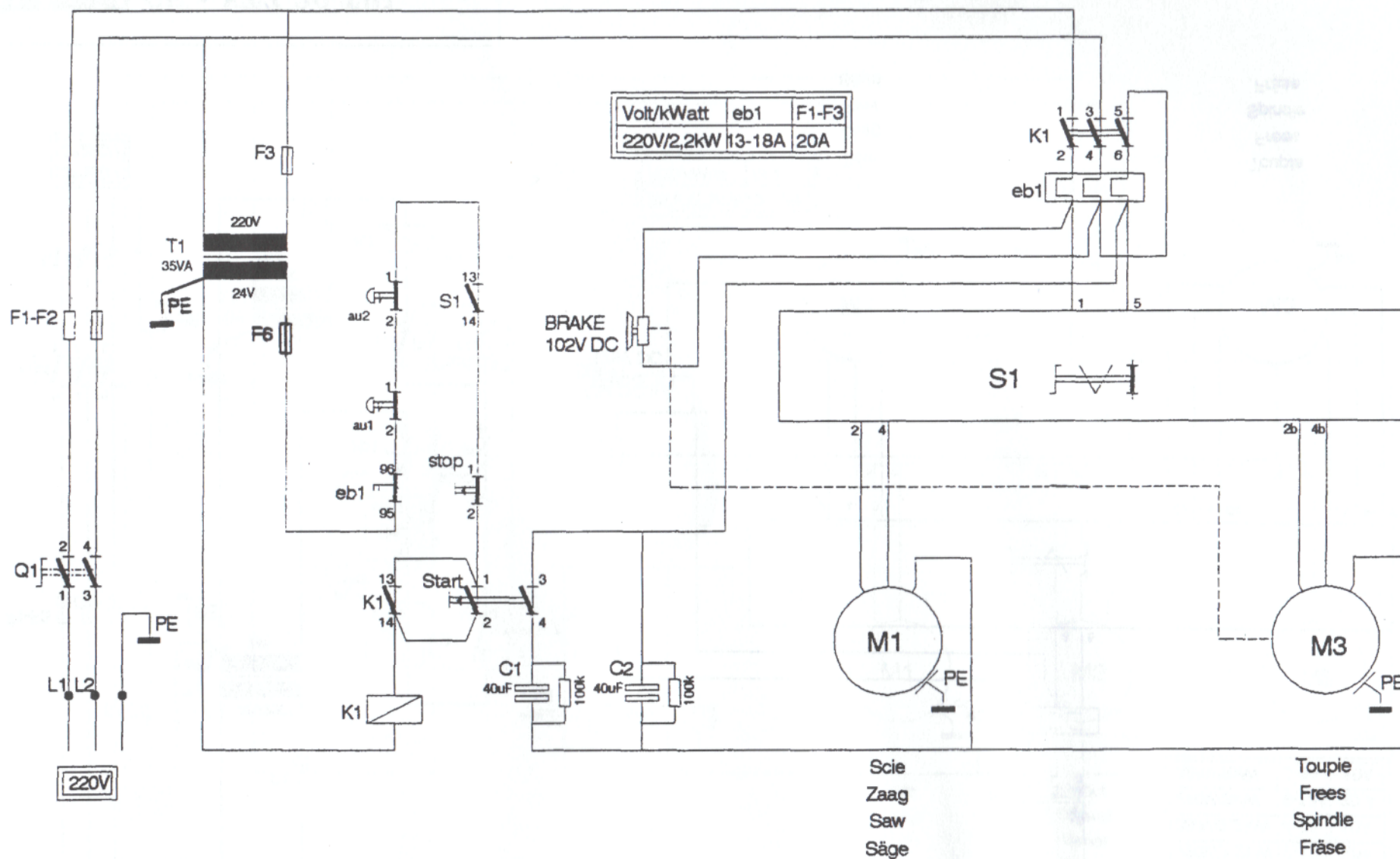
Main switch	SALZER T220	IEC 947-204
Start button	TELEMECANIQUE ZB2BZ101	IEC 947-5-1
Emergency switch	TELEMECANIQUE ZB2BZ102	IEC 947-5-1
Selection switch	ELEKTRA TAILFINGEN B150b	VDE 0660
Relais	TELEMECANIQUE LC1D0910B5	IEC 947
Overload	TELEMECANIQUE LR2D1310	IEC 947
Neon light 24V	MEINERT	IEC 337-1
Fuse holder	LEGRAND	IEC 269-1-2-3
Fuse 16A	LEGRAND	IEC 269-1-2-4
Fuse 2A	LEGRAND	IEC 269-1-2-5
Fuse 1A	LEGRAND	IEC 269-1-2-5
Transformator 220/380/24V	EREA	IEC 742 ta 40/E
Spindle motor	PRECISA 2,2KW 2V-380V	EN 60.204
Planer motor	PRECISA 2,2KW 220/380V	EN 60.204
Saw motor	PRECISA 2,2KW 220/380V	EN 60.204

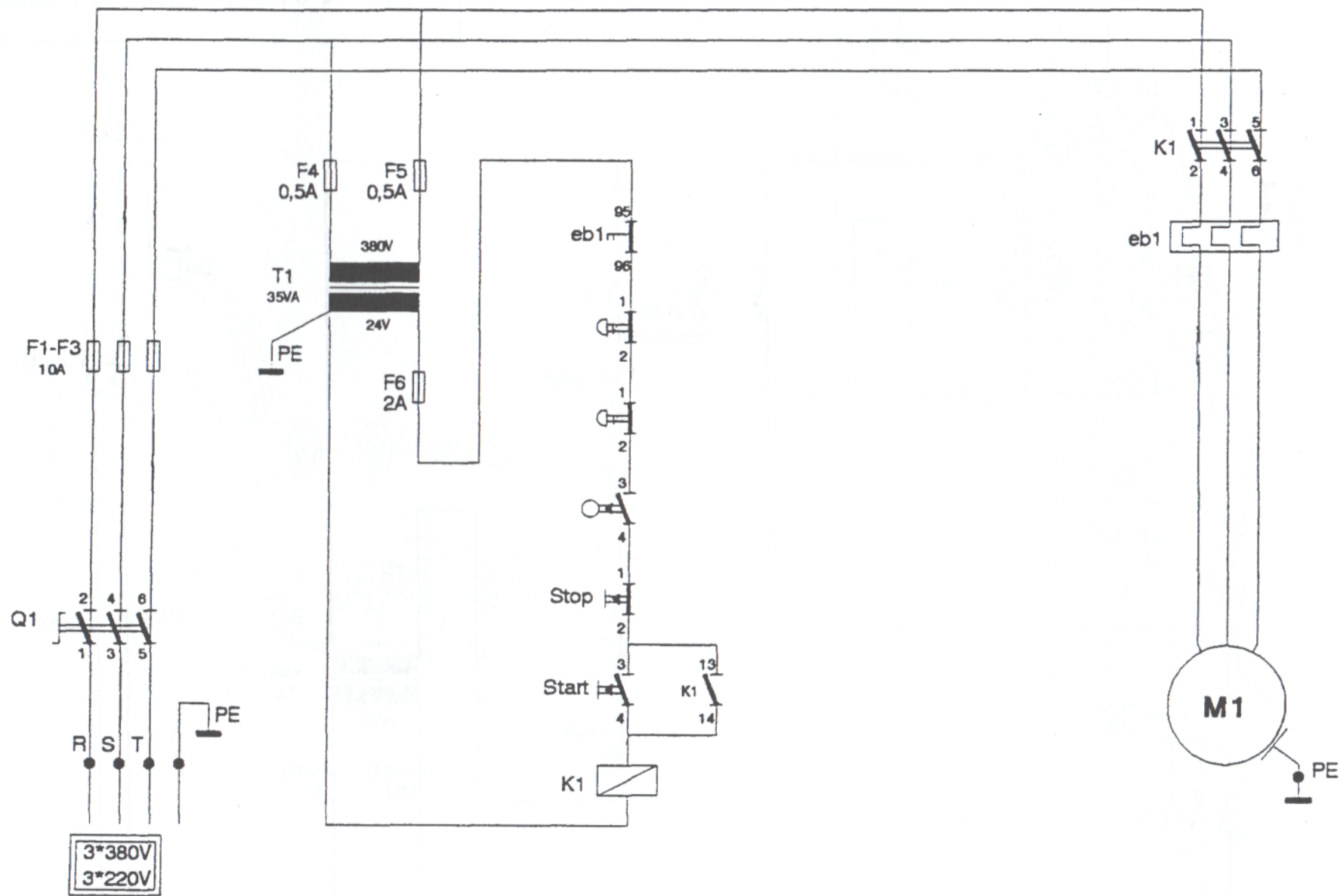


Robland CE • X260 - X 310 TRI

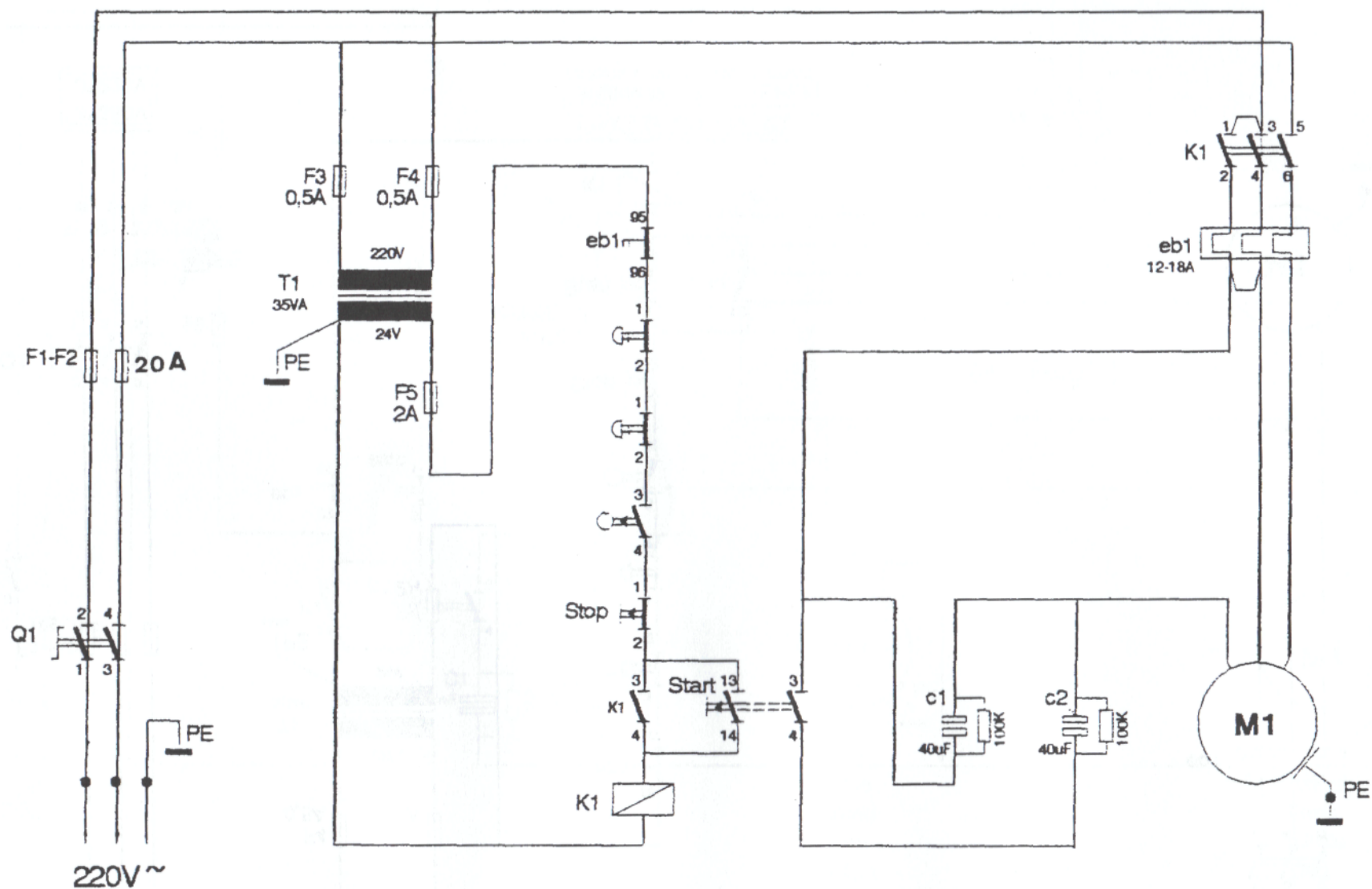


Robland CE • X260 - X 310 MONO

**Robland** CE • XTZ-30 MONO



Robland CE • XSD-B-310 TRI

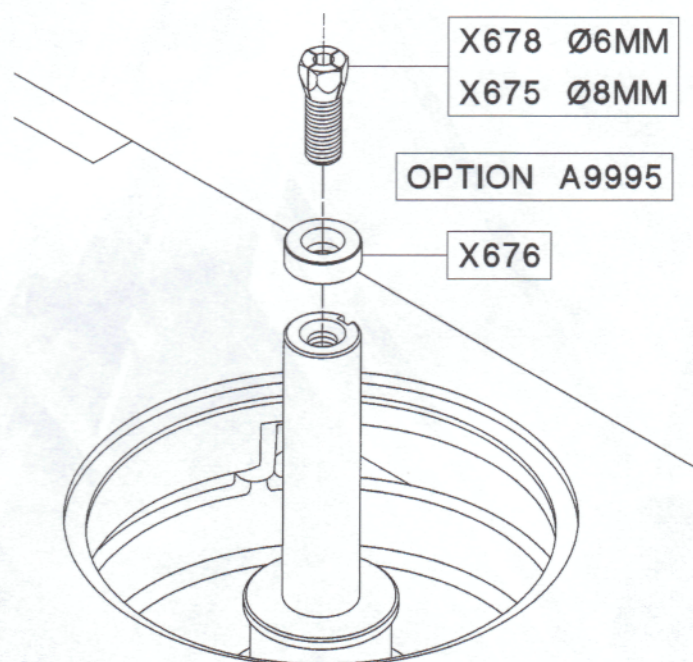
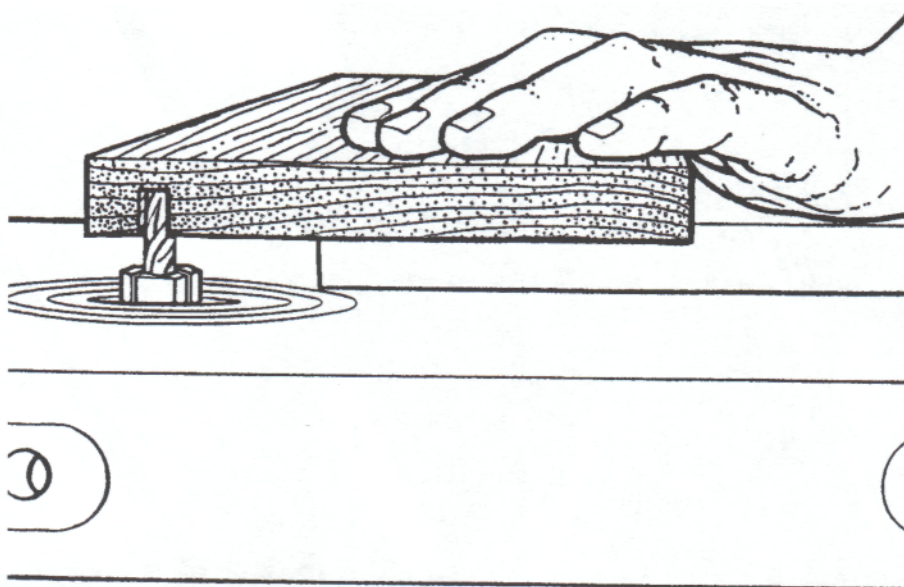


Robland CE • XSD-B-310 MONO



Option A 9995: Router Collet

Ask your ROBLAND dealer.

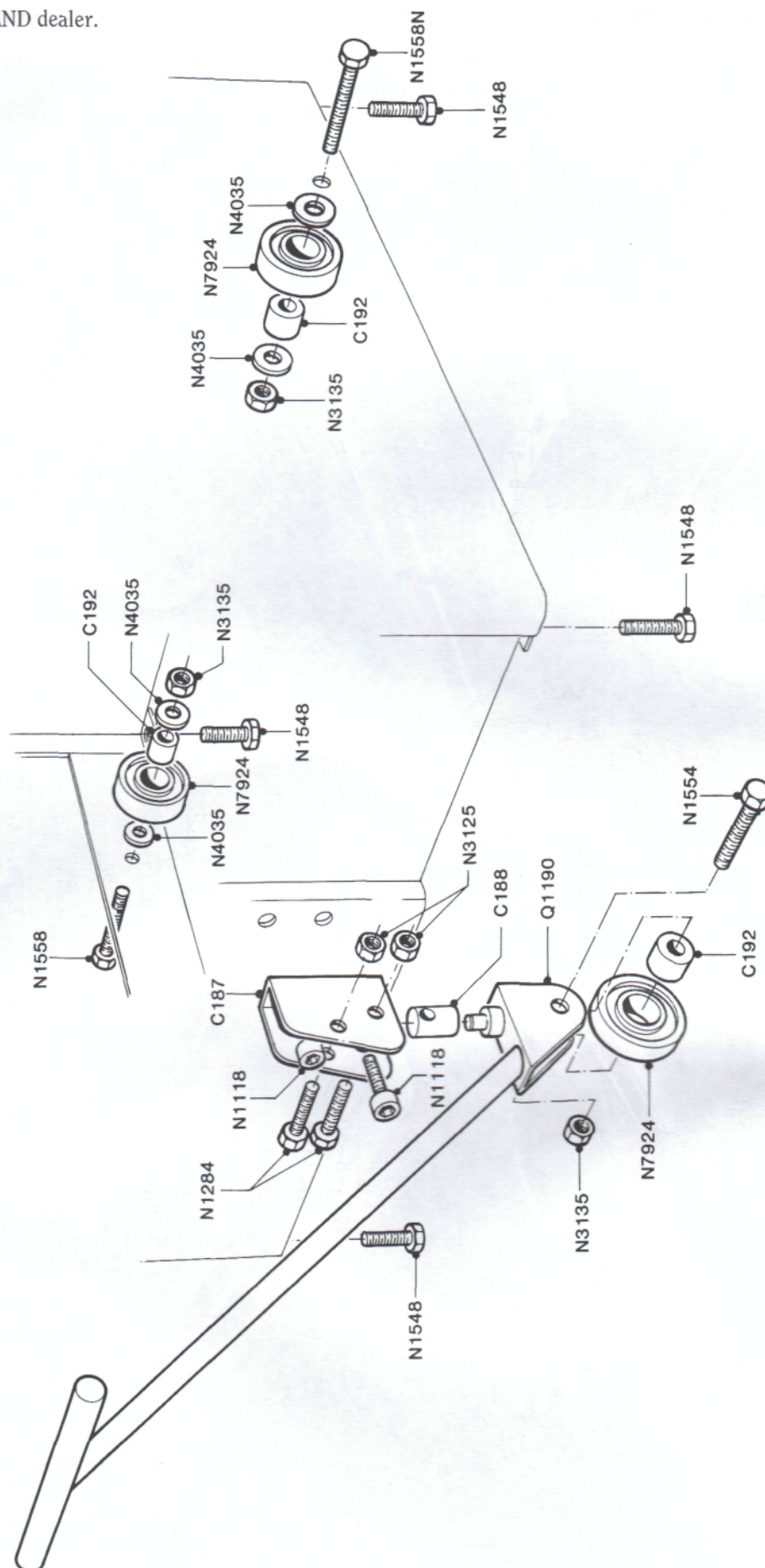


This diagram illustrates the exploded view of a mechanical assembly, likely a lighting fixture or a similar device. The components are labeled with part numbers and codes, organized into several groups:

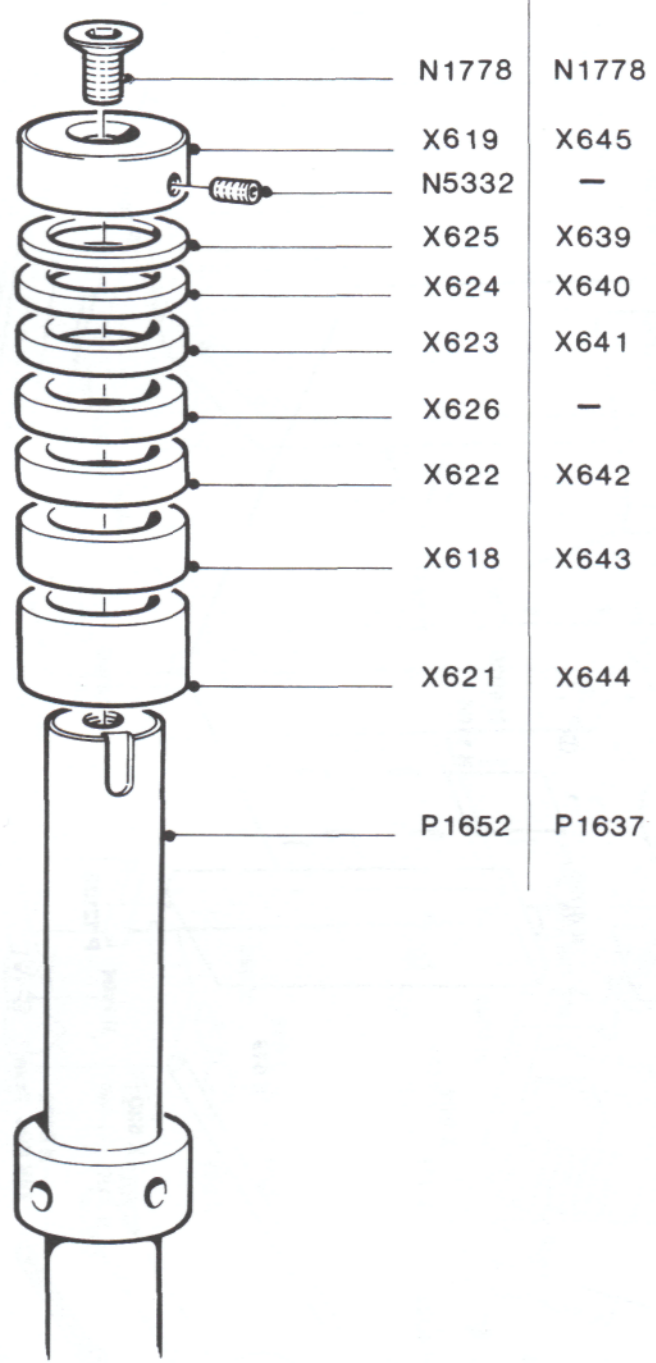
- Top Left Group:** N912-6-16, N125-6, N985-8, E1226, NAR-8, E1224, E1227, AE1223, E1225, E1226, N912-8-45, Z 494, N7991-10-45, X3724.
- Bottom Left Group:** NAR-8, N125-8, X3732, X3733, Z 494, P3728, X3735, X3726, N125-8, NAR-8.
- Central Group:** NAR-10, N9021-10, X3727, N125-8, NAR-8, N933-8-50, N934-8, N2093-8, X242, N2093-8, N933-8-20, X2280, Z413, NAP-10-30, X2277, NAP-10-30.
- Right Group:** N7991-8-30, X3731, X3730, X3729, X3734, N7984-8-12, X3720, X3725, X2273, X2279, X2275, X2272, X2271, X2274, P13722, N915-10-16, X3721.

The diagram shows the spatial relationship between these parts, with dashed lines indicating the assembly path. The components include various structural elements, fasteners, and electrical components.

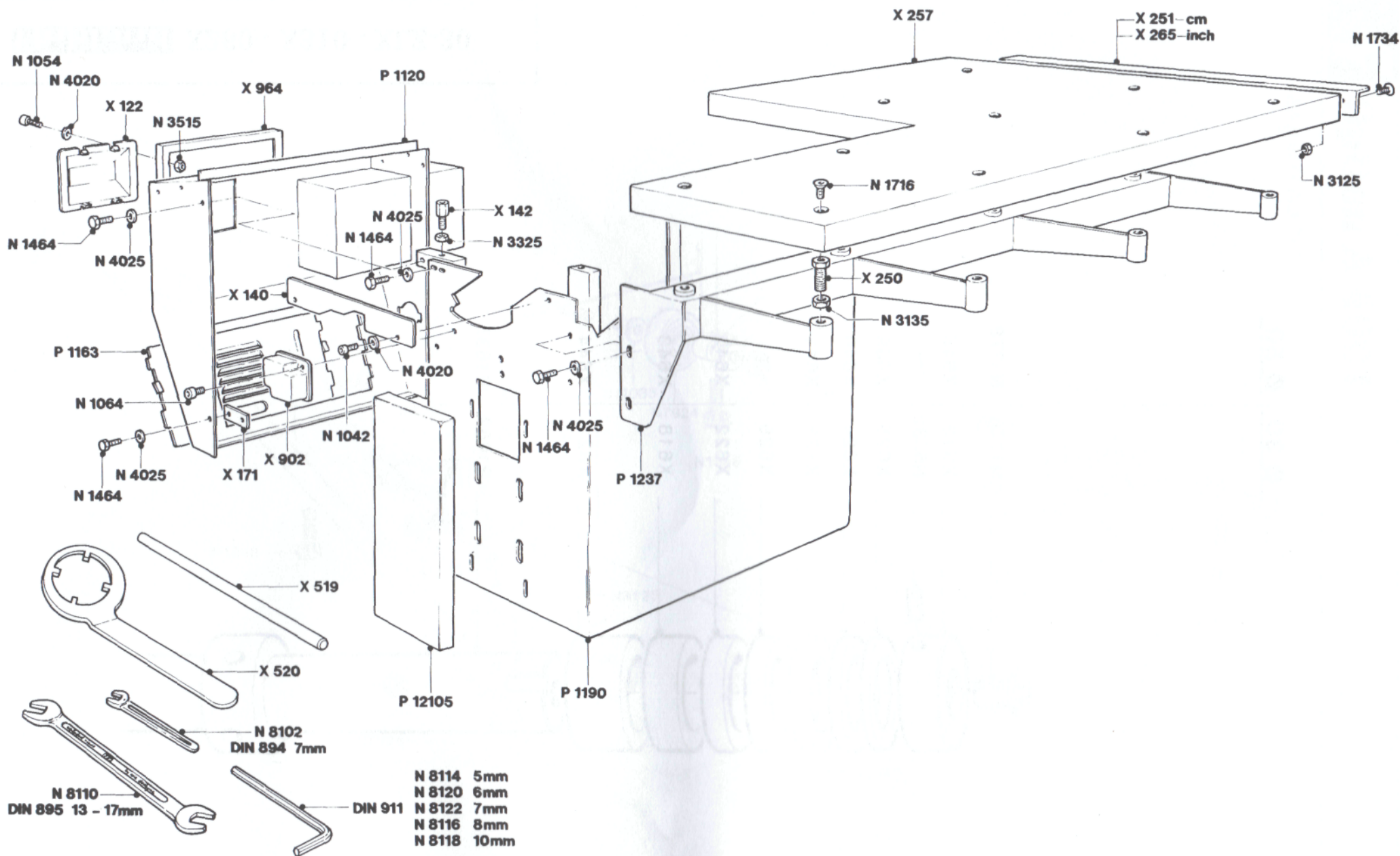
Ask your ROBLAND dealer.



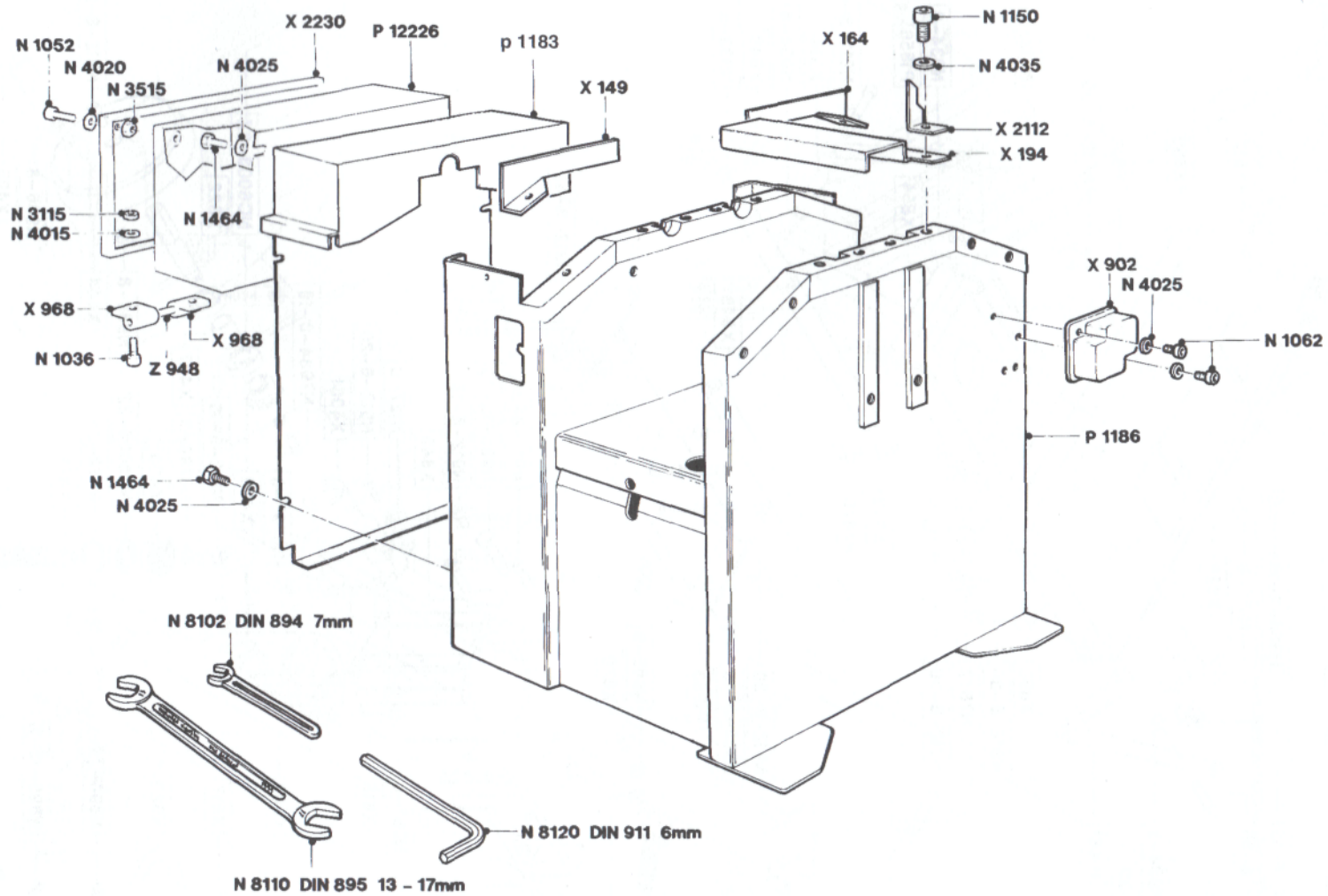
\varnothing 30	\varnothing 50
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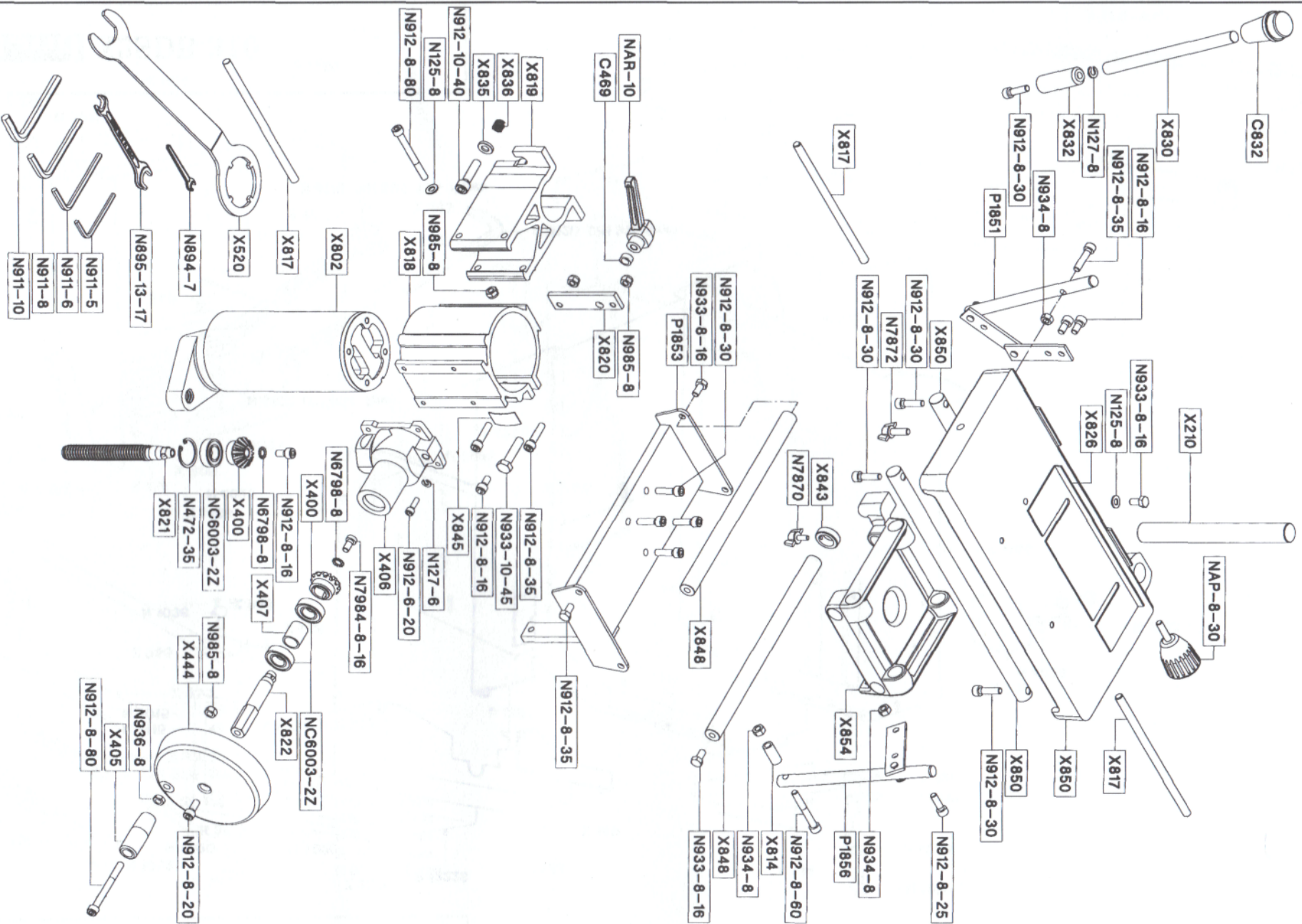
Robland X260 - X310 - XLZ-30



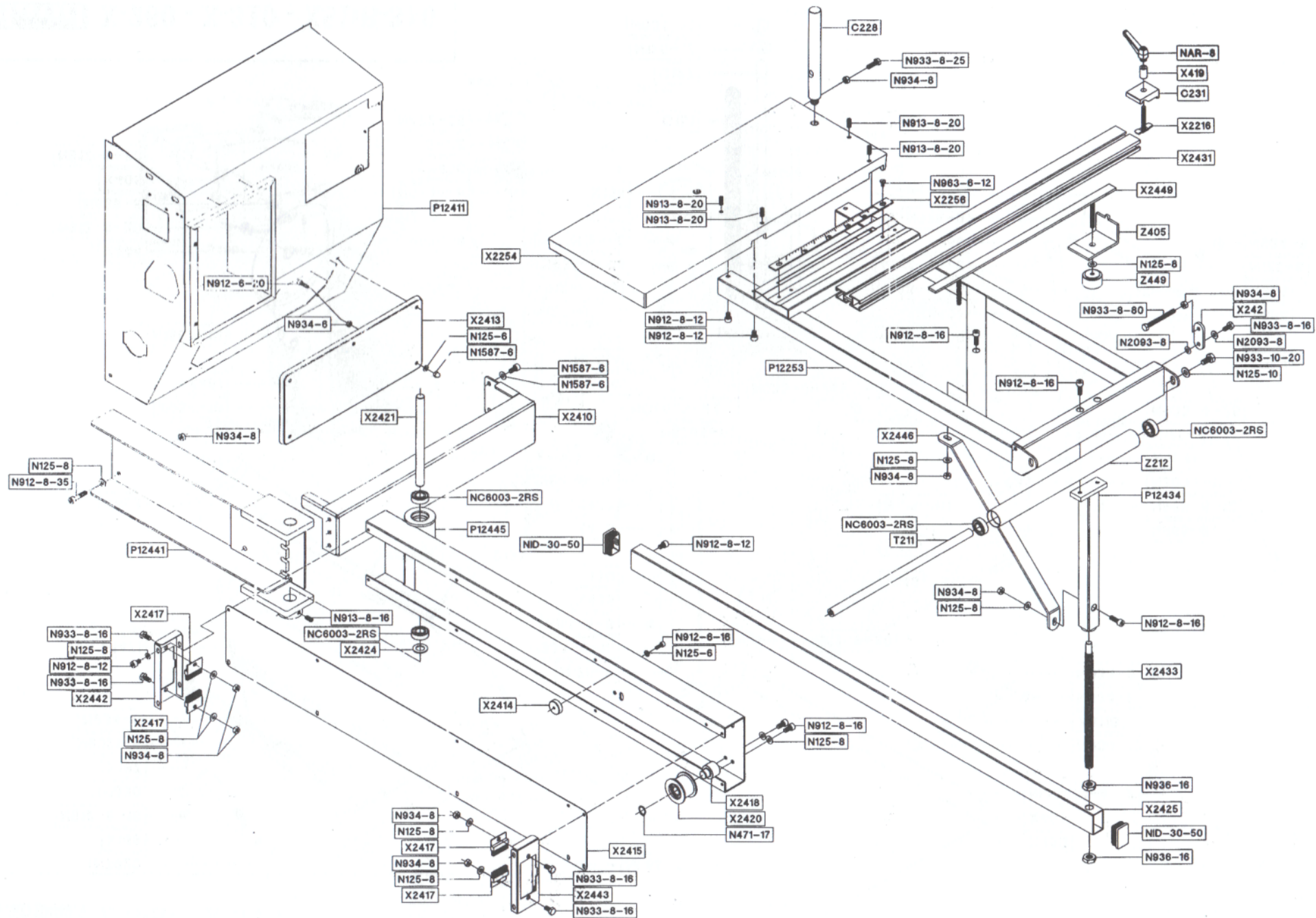
Robland XTZ-30



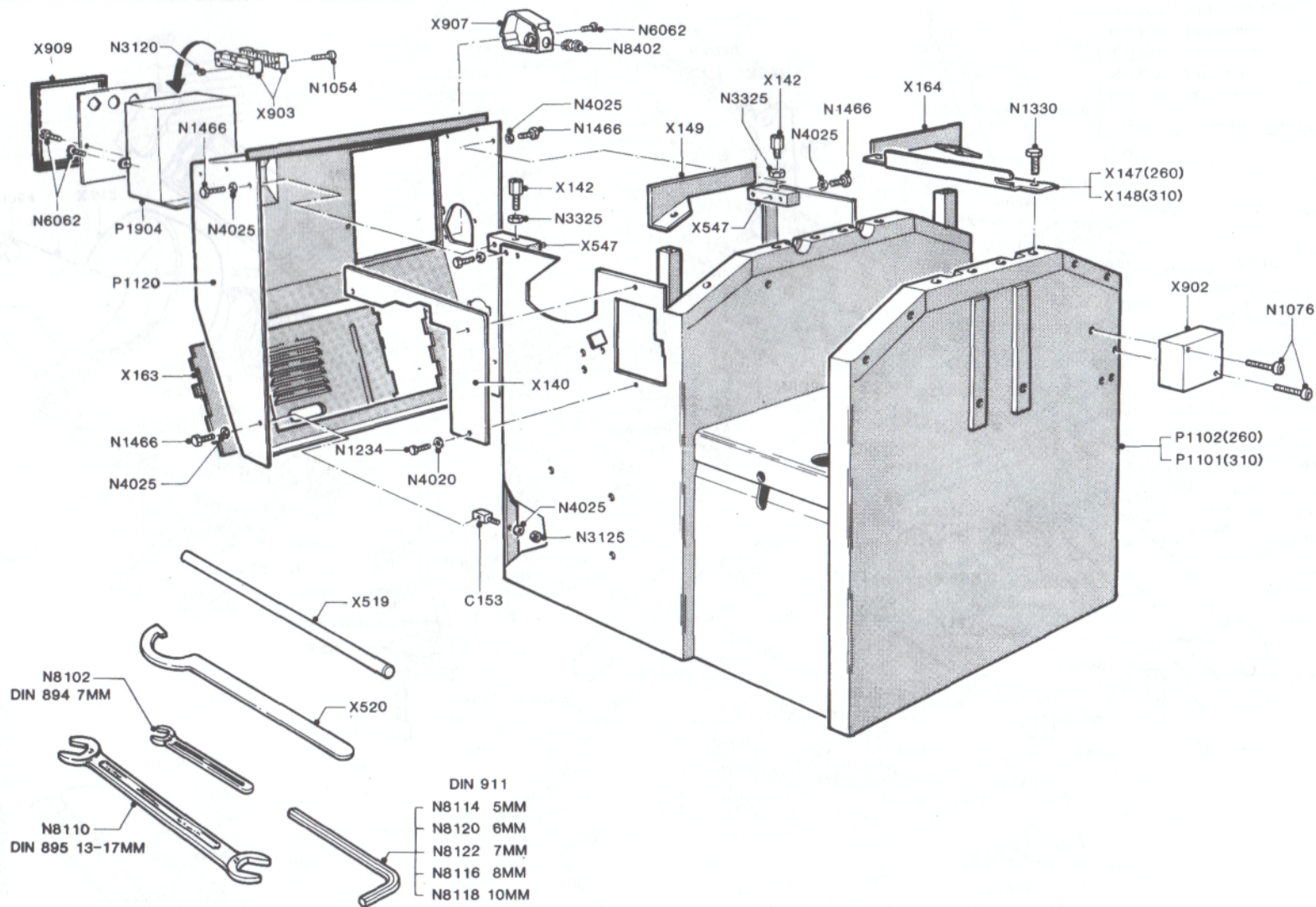
Robland X2SDB-310



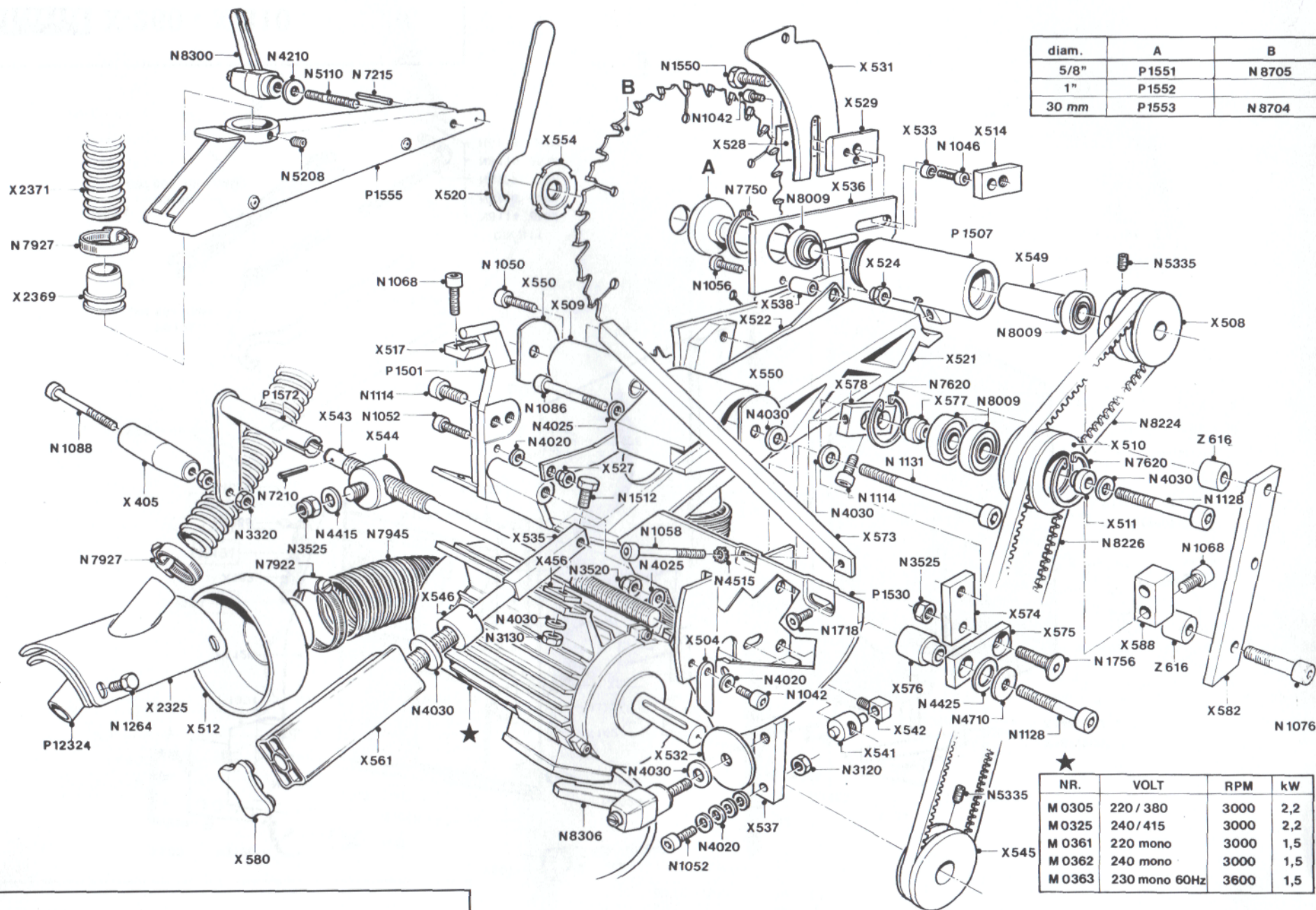
Robland X-260 - X-310 - XSDB-310



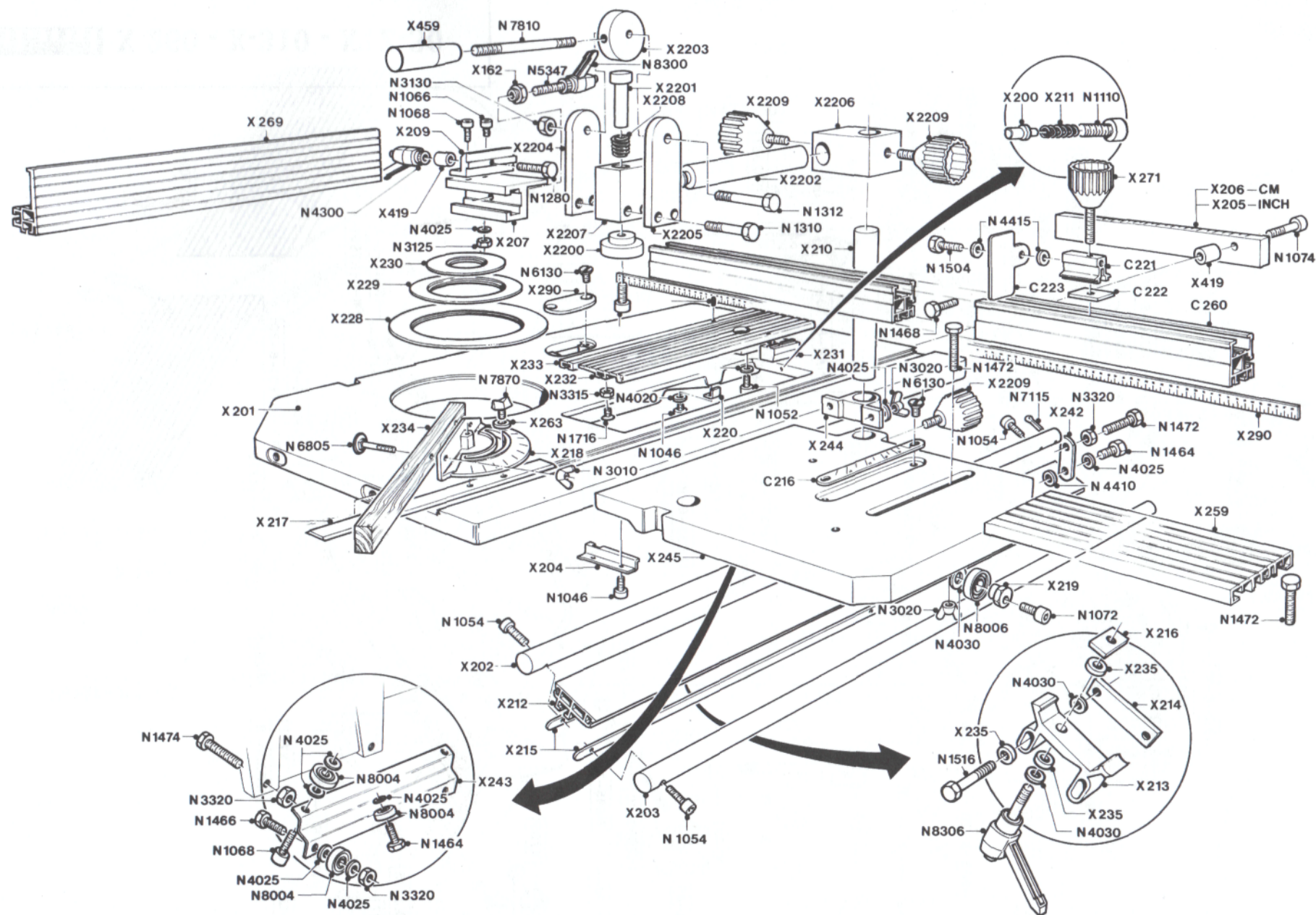
Robland



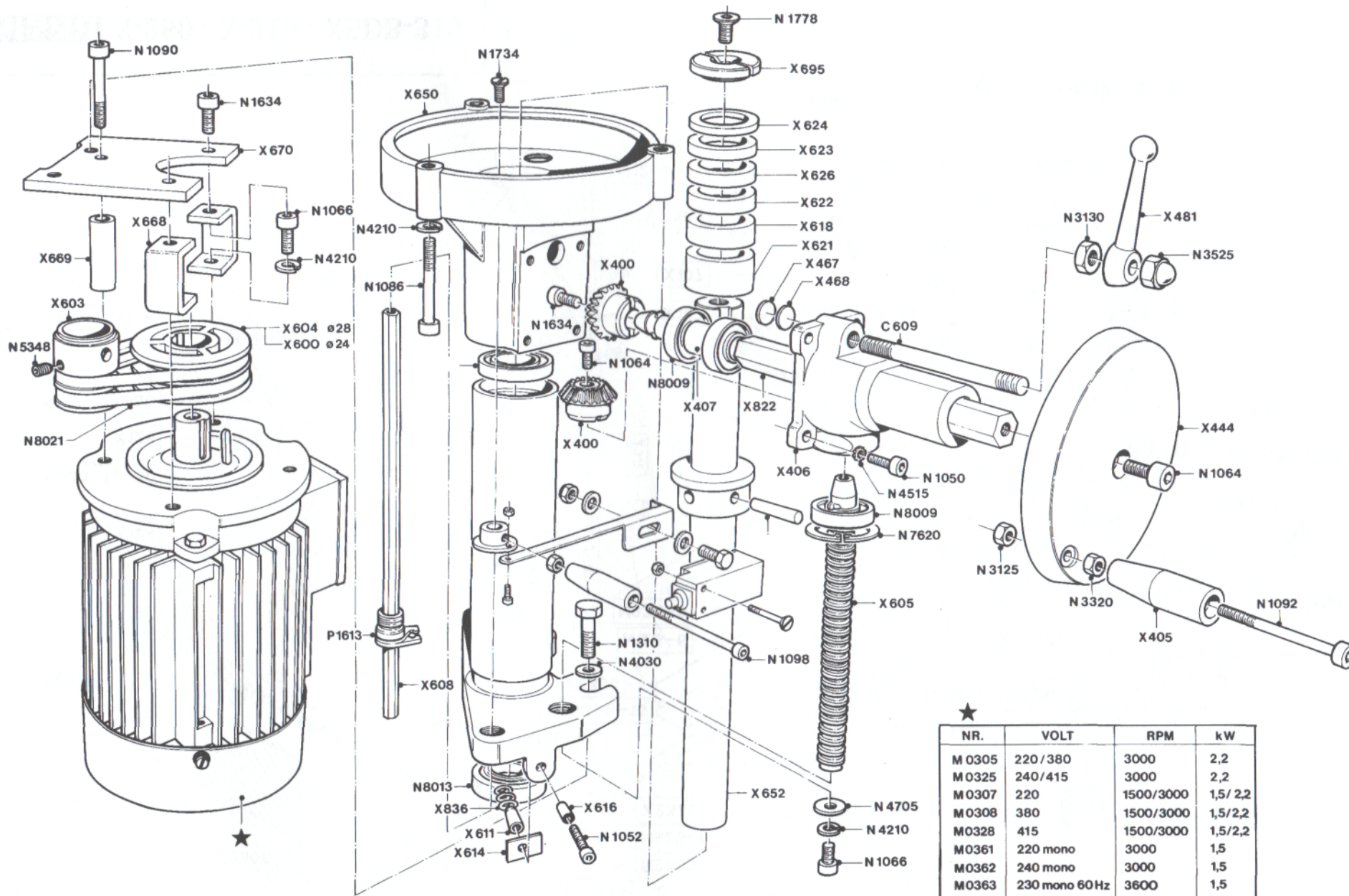
Robland X-260 - X-310



Robland X-260 - X-310 - XTZ--30

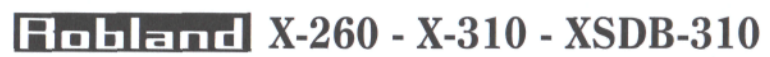


Robland X-260 - X-310 - XTZ-30

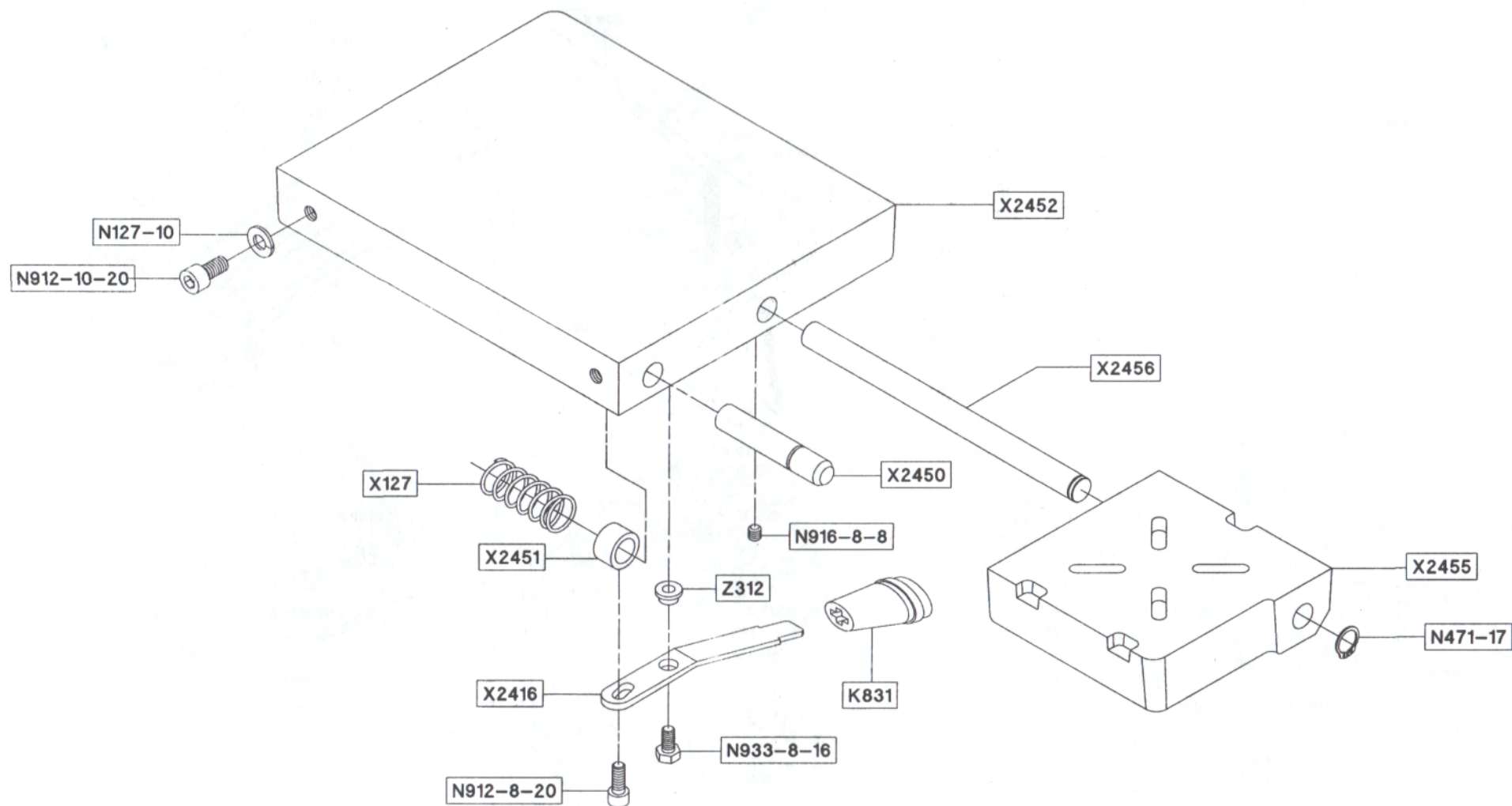


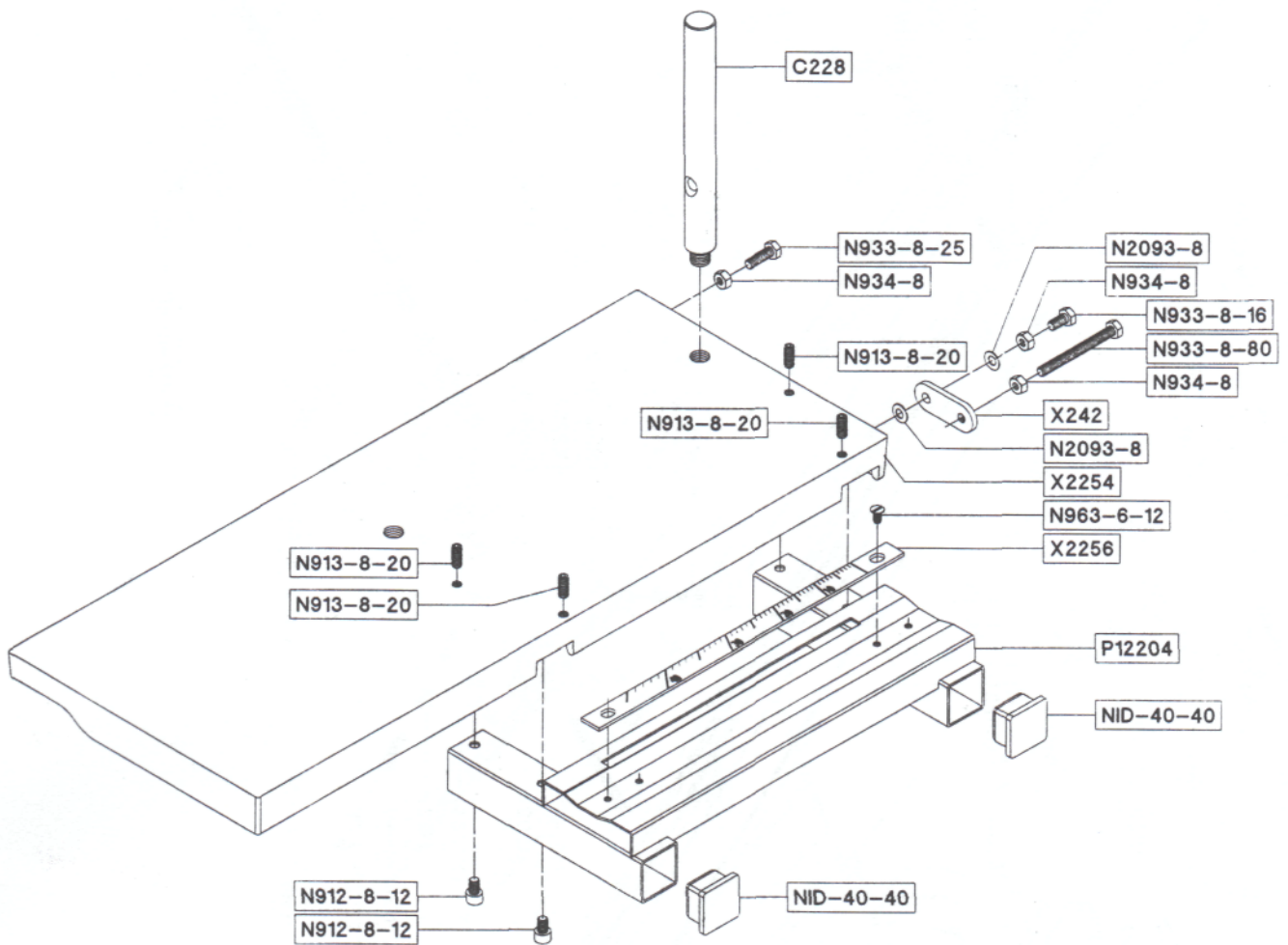
NR.	VOLT	RPM	kW
M 0305	220 / 380	3000	2,2
M 0325	240 / 415	3000	2,2
M 0307	220	1500/3000	1,5/ 2,2
M 0308	380	1500/3000	1,5/2,2
M 0328	415	1500/3000	1,5/2,2
M 0361	220 mono	3000	1,5
M 0362	240 mono	3000	1,5
M 0363	230 mono 60 Hz	3600	1,5

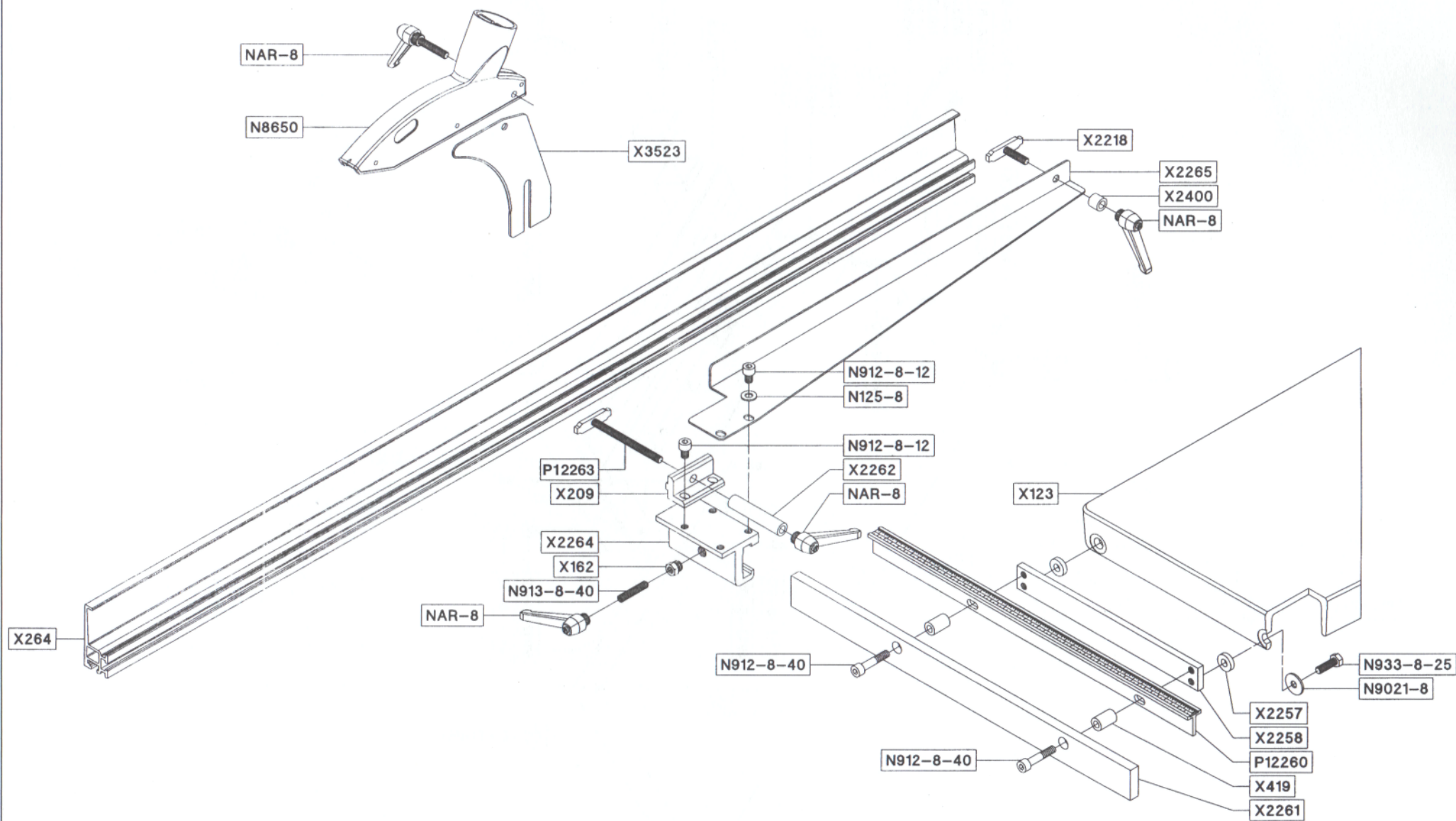
Robland X-260 - X-310 - XTZ-30

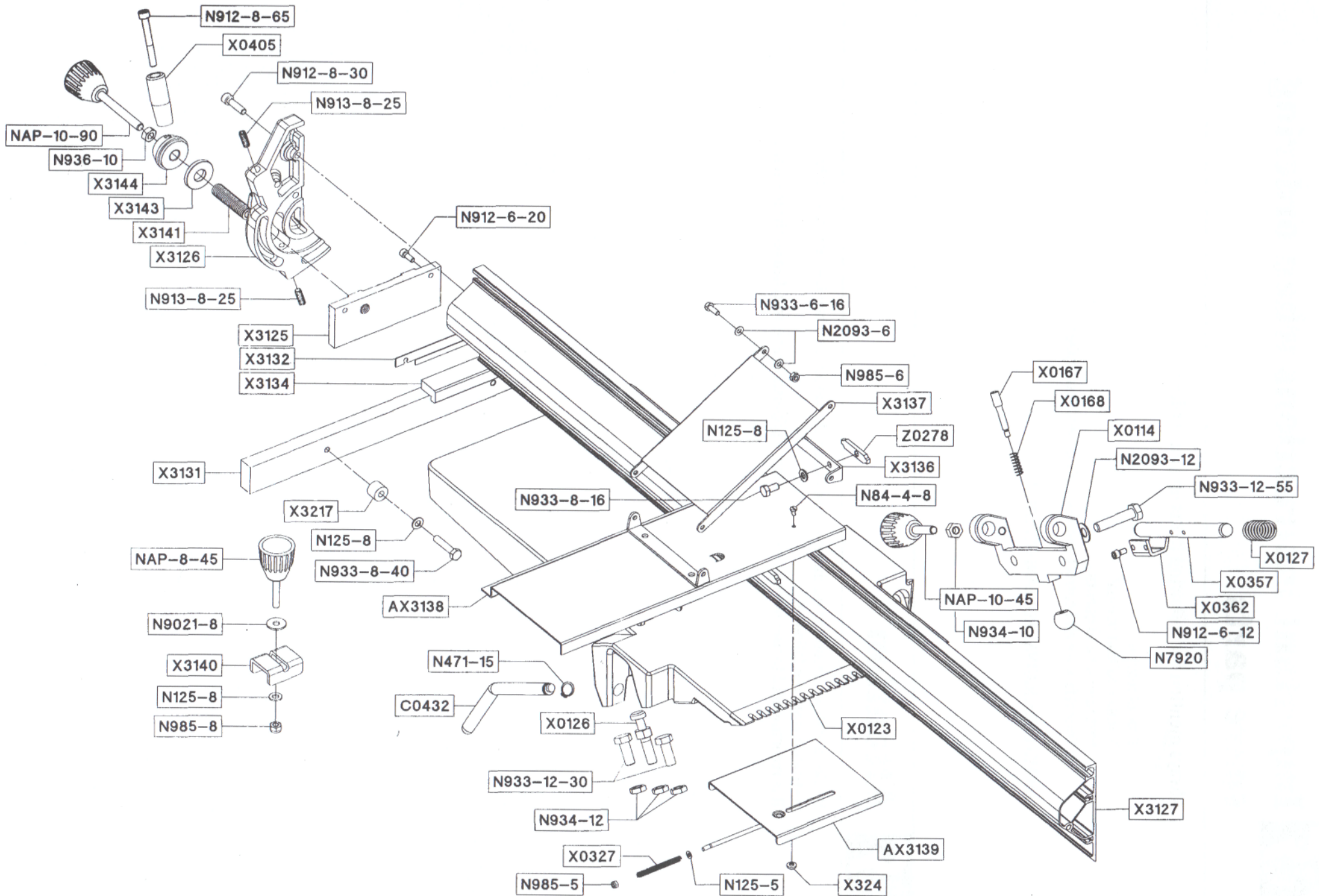


1317-1200-17-380-Y-310-X200-310











Important instructions when ordering spare parts

Always mention the following items on your order :

- Type of machine
- Number edition manual
- Part number and quantity
- Your reference and correct address + phone and faxnumber

ALWAYS USE ORIGINAL ROBLAND PARTS !!!



Attention

Working with woodworking machines can be extremely dangerous when the required safety instructions are not followed.

It is recommended to use systematically the safety equipment that is installed on the machine.