OPERATION MANUAL

TZ Series

CONTENTS

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Brief Introduction of the Operation Manual

The design of the products delivered to you may vary from this Operation Manual as a result of retrofit by the manufacturer; therefore these operation instructions covered by this Operation Manual are not necessarily fit for a certain specific model.

① Take off the safety device and check plate, especially the saw blade cover and riving knife safety cover will endanger the operator and result in accident.

② All operators and relevant personnel of this brand panel saw must read carefully, understand and comply with this Operation Manual.

③ We recommend reading this Operation Manual carefully before using the machine. We will not be responsible for any damage and adverse effect due to not complying with this Operation Manual.

Qualification of operator

Before using the panel saw, the flowing points must be complied with: only the operator trained substantially and obtained the qualification can operate the panel saw.

Explanatory notes

This Operation Manual covers the important information about how to operate the panel saw safely, properly and economically, complying with this Operation Manual will be helpful to avoid danger, reduce repair cost and idle time and improve the reliability and service life of panel saw.

Rules for accident prevention

Use the existing regulations for accident prevention and environmental protection of the sate to supplement this Operation Manual. The place where this equipment is operated must be furnished with this Operation Manual, every new substitute of this equipment must read and comply with the requirements in this Operation Manual, for example:
Operation includes setting up, removing operating troubles, clearing off production waste, maintaining and clearing off the operated and auxiliary materials.

Important notes

The details of this Operation Manual shall be read.

Attention: some paring saw dust may be left when we conduct trial cut before delivery even with cleaning.

Precision Panel Saw	
Model:	
Power of main saw motor:	kw
Power of scoring saw motor:	kw
Main saw speed:	/min
Scoring saw speed:	/min
Main saw dia.:	∮ mm
Scoring saw dia.:	∮ mm
Net weight of machine:	kg
Date of Manufacture:	

1. Technical data

1.1 Machine mark

The name plate on the machine frame plays a role as the machine mark and offers important parameters of the machine.

Meanings of the name plate contents

Fig. 1.1 Name plate of equipment

Test symbol

This equipment is also furnished with the following certification marks meeting the requirements of CE so as to satisfy the basic safety and health-protection requirements in the appendix to the Operation Manual of 98/37/EGW as a substitute for 89/392/EWG.

1.2 Equipment data

Manufacturer

Equipment:

TZ Series

Table 1: All Saw Blades & Cut height

Saw blade dia. (mm)	250	300	315		
Saw blade height (mm)	0-55	0-80	0-87		
Saw blade height at 45°(mm)	0-38	0-56	0-60		

Technical parameters:

Main saw	Saw arbor dia. (mm)	30
	Angle of inclination of saw blade (°)	0-45
	Number of idling of main arbor (1/min)	4000-6000
Scoring saw	Saw blade dia. (mm)	120
	Saw arbor dia. (mm)	20
	Number of idling of main arbor (1/min)	8000
Check plate, vert. & hor. guiding rule, sliding table and fixed table	Fixed table (mm)	(3800/3700) (3200/3100)
	Length of sliding table (mm)	(3000/2900) (2800/2700)
	Cut length (mm)	(2500/2400) (2200/2100) (1600/1500) (1500/1400) (1300/1200)
	Longitudinal cut length (mm)	
	Cross cut width (mm)	
Suction	Dia. of connection socket below table (mm)	100
	Interface of safety cover (mm)	50
Environmental requirement	Operating temperature (℃)	10-40
	Max relative humidity (%)	90, no freezing
	Do not place the equipment in explosive or erosive environment.	
Weight	Machine weight: see name plate of equipment	
Electric equipment	Voltage (V)+5%-10%, see name plate of equipment	
	Current (A), see name plate of equipment	
	Frequency (HZ), see name plate of equipment	It shall save power according to the technical parameters of equipment.
	Motor power, see name plate of equipment	

1.3 Characteristic of noise level

The noise emission level rests with the sound intensity level EN3746 or EN11202 (calculated by the correcting factor K3 of A2 in the appendix of EN11204) based on the sum of operating conditions covered by ISO7904.

Table 5: Characteristic of noise level

Sound intensity level (dB)	Sound pressure emission level at working place (dB)	Tool
Idle LWA=85 Run LWA=90	Idle LPA=79.1 Run LPA=88.2	Circular saw blade 300×3.2×72 W2 n=4,030rpm

Permissible measurement error for specific emission level K=4dB (A)

These specific values are emission level values, so is not necessarily the safety working level. Because emission is related to the emission level, though the protective measures have been taken for the operator, the noise may not be necessarily lowered thoroughly. The factors in work place that affect noise emission also include the duration of being in the noisy environment, indoor features and other noise sources, such as the emission from nearby equipment and number of equipment, or other processing. Nevertheless, these parameters are still helpful for the operator to identify the noise condition in the environment where the equipment is.

1.4 Dust emission parameter

As per the appendix 4 of BG1739 Dust Emission Standard, the operating environment of woodworking panel saw belongs to the one with low dust.

Material

1.5 Operating as per specified requirements

MJ6132T Series panel saw has an operating guide device that is special for the cases as follows:

* Longitudinal cutting and cross cutting are running with at lease one horizontal bearing surface, max thickness of vertical cutting 85mm (it is only fit for the equipment without scoring saw, vertical cutting thickness of equipment with scoring saw is 80mm).
* It can also cut solid wood, density fire board, shaving board, cardboard, plastic board, organic glass plate and gypsum board, etc.

Tool

* For other materials to be cut, such as non-ferrous metal or synthetic material made of plastics, the relevant materials and saw blade used must be approved by the manufacturer.

Our manufacturer furnishes the FREUD circular saw blade made in Italy, with min diameter of 250mm, max diameter of 315mm and scoring saw blade 120mm.

Any use except the specified cases as above mentioned is not complied with the design requirement and for any damage as a result of which, our manufacturer will not be responsible and any risk of which is on the user's own account.

Saw blade HSS

* What deserves special attention is that it is prohibited to use high alloy & high speed steel saw blade (saw blade HSS) and wide- mouthed circular saw or wobble saw.

Installation site

* Likewise, the equipment is not suitable to be installed in the open or workshop with explosive danger, the operation complied with design requirements also include fitting the equipment with properly-sized suction & waste discharge system, complying with the operating procedure specified by the manufacturer, as well as abiding by the safety regulations covered by the Operation Manual as for the maintenance and repair requirements.
* TZ Series panel saw can only be operated, installed and maintained by the personnel being familiar with the equipment characteristics and understanding the danger. The responsibilities for operation and maintenance must be pinpointed. The machine must be repaired by our customer service dept.
* Abide by relevant regulations on accident prevention and generally-recognized safety regulations, as well as industrial health-protection stipulation.
* Our original spare part is the only replacement part for this machine; the manufacturer will not guarantee any damage as a result of non-original part and will not be responsible for any damage as a result of the user's own improvement to the equipment without authorization.

Spare parts

Machine operating position

The panel saw shall be operated in the following operating position with specified method:

* On the left of moving table in front of equipment viewed from feed direction (position of main operator).
* When the longitudinal cutting check plate is used, it is on the right of the sliding table on the cross cutting end of equipment
* Any person to remove the workpiece must stand on the right cross cutting end of equipment and after extension table and shall not stand in the passing area of moving table at any time.

Warning

2. Safety

2.1 Explanation of symbol and warning

Operation safety symbol

This symbol is often seen in all materials about safety of this Operation Manual. There is the danger of injury and to life at any time in the place where this symbol is. The materials about operation safety shall be passed to other operators. Besides the regulations on safety in this Operation Manual, other common stipulations on safety and accident prevention also shall be abided by.

This warning symbol appears in the place where special attention shall be paid to in this Operation Manual so as to ensure that the correct operating procedure stipulated in the Manual could be complied with and preventing danger or damage to the machine.

2.2 Safety precautions

All equipment tools, especially the woodworking machinery fed manually, all will cause a certain danger if not operated properly, therefore, it is required to comply with the safety precautions and other industrial safety stipulations and requirements summarized in this chapter for ever.

Regulations on accident prevention:

* Before operation, ensure the safety and operating facilities are installed properly without any damage.
* Before replacing saw blade, removing trouble and repairing, ensure the power supply has been switched off and it is necessary to lock the main power supply with lock for preventing accident.
* It is only allowed to use the saw blade and grooving saw blade supplied by the manufacturer.
* Wear close-fitting work clothes, and do not wear ring, bracelet or wrist watch.
* The work place shall be clean, skidproof and has good illumination.
* Do not cut overlarge or too small workpiece that exceeds the equipment characteristics.
* Stand out of the bounce area of saw blade side and workpiece when operating and do not stand in middle of saw blade.
* Remove the loose matters around saw blade before starting the machine.
* Cutting shall not be started until the saw blade up to full speed.
* Use safety cover forever!
* Except cross-cutting long and thin wood into pieces, the riving knife shall be used forever and the riving knife shall not be thicker than the cut width and thinner than the main saw blade.

When cross-cutting long and thin wood into pieces cutting, use the anti-bounce device, such as fix it in the sliding table groove with striker plate against moving. After cross-cutting long and thin wood into pieces,

remount the riving knife and safety cover immediately.

* When narrow wood is cut longitudinally, the planer shall be used.
* For the purpose of avoiding the cut wood from being brought upward and bounced out by the uprising tooth ring, an offsetting wedge may be used for instance.
* Do not cut round log with saw using standard feed auxiliary device or check plate.
* Fix the workpiece on the sliding table with striker plate when trimming.
* When using feed device, it at lease needs to use the longitudinal knife as the anti-bounce device.
* Worn and torn sliding table strip shall be replaced promptly.
* Do not use wobble saw or cutting device.
* Wear hearing protection when operating because the noise in work place is more than 85dB (A).
* The saw dust produced in cutting may affect the sight line and be also harmful to health, so the two dust collector openings of saw shall be connected with the suction system. When the suction force is not enough, no operation shall be done, and proper measures must be taken to ensure when the equipment is started, the suction system also is started.
* Only qualified electrician can operate the electrical equipment of the machine.
* Clean the equipment periodically, especially the saw bench, sliding table and check plate, which is an important safety factory, and before operation start, it must be ensured that the equipment cannot be started without cause.

2.3 Safety measures

Our panel saw is developed and manufactured according to the national standard and European CE Standard “Woodworking Machinery Safety, Circular Saw Part I, Circular Saw Machine with and without Sliding Table”, in the stage of design, we paid great attention to creating ideal operating conditions, covering safety of various machinery and electrical equipment to isolating noise and lowering dust emission.

The machine is equipped with necessary protective device so as to avoid the risks with respect to design that are difficult to remove in operation, including:

* The parallel safety cover on top is both available at 45° and 90° so as to cover the upper part of saw blade soundly and prevent any danger in cutting.
* There are two riving knives with diameter between 250mm and 315mm so as to avoid the workpiece from bouncing back when cutting is jammed.
* The longitudinal cutting check plate has an adjustable check plate that can be drawn back so as to long workpiece from being blocked

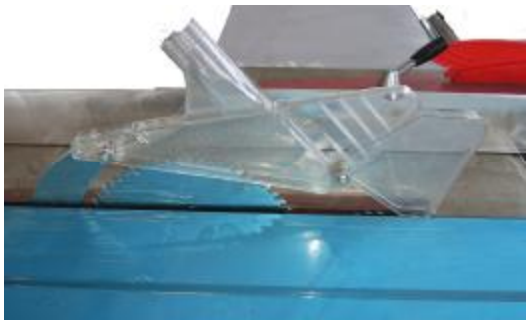
between the check plate and uprising tooth ring, or may be replaced with a low guide check plate so that there could be appropriate space to lower the upper safety cover to the workpiece position when cutting narrow and flat workpiece.

* Interlock the doors on machine body electrically so as to replace belt, when the door open, do not start the machine, when the machine operating, switch off the motor as soon as the plate guard opens.
* No matter how many is the saw blade diameter and speed, once the machine is switched off, the automatic brake will stop the saw blade within 10 seconds (equipment of electromagnetic brake with CE standard).
* With respect to optimizing environment, the machine has reasonable layout, the machine can be operated easily on both side of sliding table, the operating panel can be adjusted to the position of sight line, and all emergency-stop buttons on the operation panel can switch off all motors promptly and safely.

2.3.1 Mounting safety cover on riving knife

For the purpose of keeping the saw blade on the saw bench, we recommended separated adjustable protective device.

2.3.1.1 Mounting safety cover



Longitudinal cutting knife for hidden cut

2.3.1.2 Mounting safety cover

When the 45° saw is operating, if the equipment has one narrow safety cover and one special safety cover for 45°, the special safety cover for 45° shall be mounted.

If only one safety cover available both at 90° and 45° is furnished, there is no necessity to change.

Note: do not replace the safety cover when the saw blade is running.

Big safety cover

2.3.1.3 Screwing off safety cover

Only in special cases, the safety cover may be screwed off with special care. Such as large-size workpiece. Afterwards, screw the safety cover back to the original position and lock it forcibly.

Screw the safety cover according to the following procedure:

* Cut off power supply and ensure not to switch on it again.
* Loosen the locking bar, then screw off the safety cover.

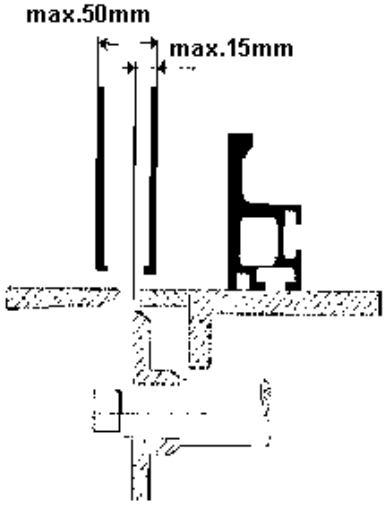
Position of safety cover in normal operation

Removing safety cover

Attention: Screw the safety cover back to the original position after completion and fix it reliably.

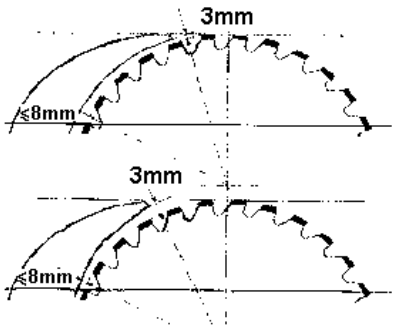
2.3.1.4 Cross-direction setting between safety cover and saw blade

The safety holder is fixed on the extension arm so as to make the max distance between outer edge of safety cover and center edge of saw arbor be 15mm. This distance has been set in the factory and marked with red arrow on the upper part of extension arm.



2.3.3 Setting of riving knife

With respect to safety, the accurate setting of riving knife plays a very important role. The distance between riving knife and toothed ring in cut height area shall be more than 8mm, and the distance in most common use is about 5mm and that of the lower part is 3mm.



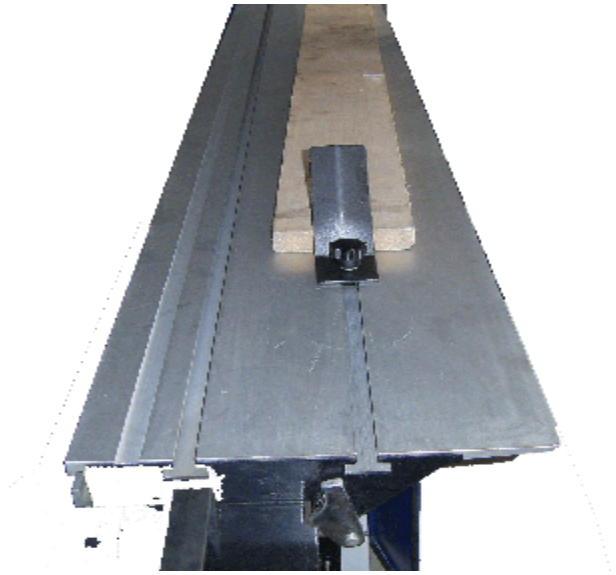
When setting riving knife, the power supply must be cut off, for setting riving knife, move the upper bracket to terminal position of unlocking device, fold the orange check plate downwards, subsequently, loosen the set screws on the holder of riving knife with special spanner, then move it in the fixed groove to adjust its height, remove the whole riving knife holder along the track to adjust the distance between riving knife and saw blade, and observe the scale on the riving knife at the same time, then tighten up the set screws and shut to the guard.

2.3.3 Extension of table

The worktable attached to the table may prevent workpiece from inclining backward in cutting and improve the safety. The attached worktable is a necessary part of a standard machine.

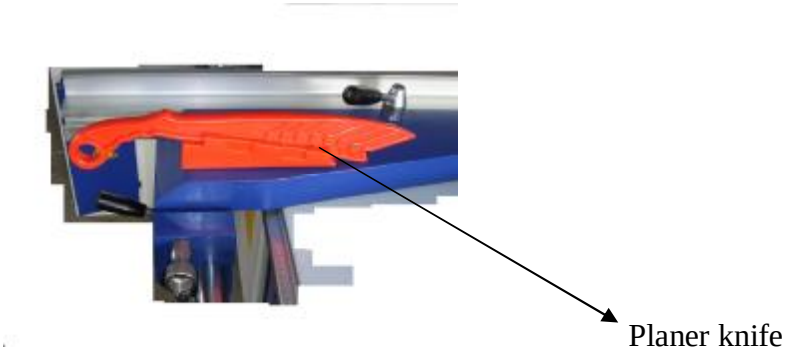
2.3.4 Striker plate

The striker plate is use for trimming of thickness and to fix the workpiece on the sliding table.



2.3.5 Planer

When the wood less than 120mm to be cut, the planer shall be used to prevent hand from approaching to the saw blade.



2.3.6 Planer handle

When cutting narrow workpiece, lean the workpiece against the check plate with planer that may be self-made by the operator.

2.3.7 Anti-bounce device

Do not use the cross check plate and parallel check plate because the saw blade may be jammed when wood cutting as a result of anti-bounce device.

2.4 Risks still exist

Although the operation is made according to the requirements and complying with safety system, the machine is made for special purposes and has limitation, so there are still the following risks:

* Touch the main saw blade and grooving saw blade in cutting area.
* When the sliding table go forward or all go back, touch the saw blade below sliding table.
* Wood or partial part of wood bounce.
* The hard alloy welded saw blade teeth are thrown off.
* Breakage and saw blade is thrown out.
* Crushed matters on the manual or motor-driven sliding table.
* Crushed matters between the slant movement of motor-driven saw blade and riving knife check plate or workpiece.
* When the electrical part area is disconnected, the case with power on is met.
* Hearing is damaged in long time operation as a result of not wearing hearing protection.
* Harmful dust is sucked because no waste is discharge in operation.

When setting the operation and maintaining panel saw, pay close attention to prevention against these risks that still exist causing injury.

2.5 Safety operation of panel saw

2.5.1 Cross-push shelf/cross-cutting check plate

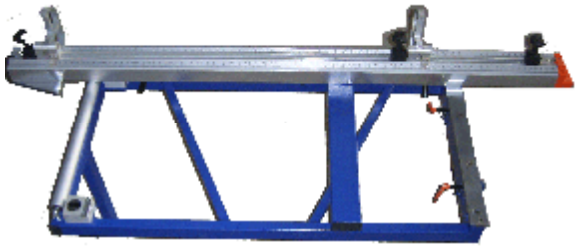
Size and beveling

The cross-push shelf is put on the back-up key on one end of radial arm whose position can be adjusted according to the material size. The cross-cutting check plate may be placed on two positions of the cross-push shelf.

Application: when cutting wood

The operator only needs to prop the wood against the check plate and push it to the saw cutting direction.

Position 1

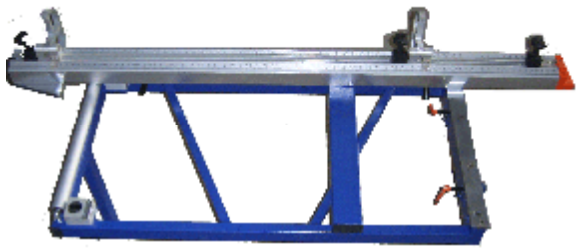


Cutting direction

Position 2

Application: cutting the solid wood and board with width less than 600mm.

The operator only needs to prop the wood against the check plate and push it to the saw cutting direction.



Cutting direction

Replacing cross-cutting check plate

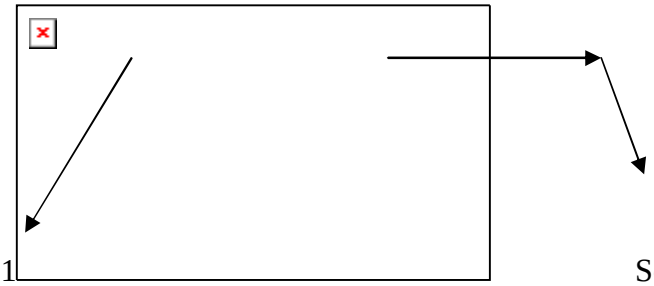
* Unscrew the set screws
* Put the cross-cutting check plate on a new position and make sure the set screws are put into hole site properly.
* Uplift the locking bar and push it outwards.
* Insert the set screws into arbor slot.
* Tighten up the set screws.

2.5.2 Cross-cutting/angle check plate

Description of functions

* Cross-cutting and beveling check plate may turn by 49° (with angle marked on the scaleplate). Use the scaleplate to compensate for length when increasing the angle.
* The fixed position added is 90°.
* C-material may move and lock to support operation.

Control



Set screw 1 Set screw2

Replacing cross-cutting check plate

* Unscrew the set screws
* Push the set screw 1 to left out of arbor slot,
* Move the cross-cutting check plate to the second position
* Insert the set screw 1 into the arbor slot,
* Tighten up the set screws.

Setting angle

Unscrew the set screws, adjust eh angle check plate to the required angle and then slight tighten the screws.

Attention

When use adjusting ruler to adjust the size, it must make sure each locking clamp spring clip the extension part of check plate.

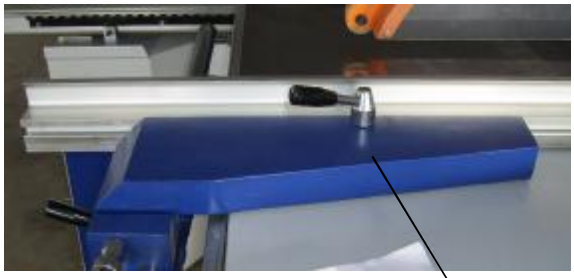
Setting

2.5.2 Longitudinal-cutting check plate

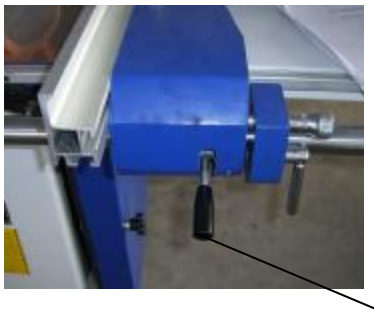
When cutting board, the longitudinal-cutting check plate may be pushed forward to the required size, fixed with the cam lever at lower part and adjusted with inching control. The set size may be read from the scaleplate and may be displayed by the display unit, if any. Screw off the screws according to the saw blade thickness and the size of scaleplate may be set, when the cut width is less than 120mm, it may feed with planer and set the check plate level. The longitudinal-cutting check plate may be adjusted in cutting direction and section. Fix it with the cam lever at upper part on the required position.

Cross-cutting

When cutting short wood, use the plane of check plate until the space for wood becomes very large, move in the check plate on the saw blade until not touch the safety cover, especially when the saw blade inclines, such attention shall be further paid.



Extension locked



Clamp handle

General

2.5.3 Actual operation

TZ series panel saw is commonly-used equipment and can used for various saw cutting as long as being installed properly.

Saw blade

First of all, the saw machine can only be used in good condition. The riving knife shall be mounted correctly and the safety cover shall be lowered to cover the wood. The water discharge by suction at upper part is also very important.

Suggestion

It must set the rotary speed well, do not push the workpiece forward just after start, and the cutting can be started only when the saw blade is up to full speed.

Position of hand

Put five fingers together and on the wood with enough safety distance away from the saw blade. For the purpose of guaranteeing safety operation, please refer to the description of specific procedure as follows:

Trimming

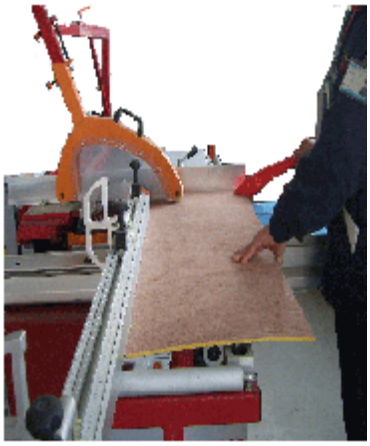
Tool: longitudinal-cutting saw blade

Procedure: Mount the holding pad on the moving table, make the hollow surface of wood down blow and press on the underneath of included angle and hold down the wood with hand to push it forward. There shall be safety distance between two hands and saw blade.

Longitudinally cutting narrow wood

(wood width is less than 120mm)

Procedure: set the longitudinal-cutting check plate at the cut width and lower the safety cover according to the height of wood. Push the wood and the sliding table forward and the wood is along with the check plate, use planer around saw blade, push the wood cut out beyond the longitudinal-cutting knife. When cutting short wood, use the planer.



Cutting strip

Procedure: mount the longitudinal-cutting aluminum guiding rule on the low guide face, put the wood on the moving table, and press it to the side of longitudinal-cutting guiding rule with hand. Push the moving table and push the wood strip cut out beyond the saw blade with planer.

Cross-cutting wide wood

Procedure: put and prop the wood on and against the longitudinal-cutting guiding rule. Prop it against the rule closely and push it forward with left hand, put it up to depart from the saw blade or move it from the saw teeth running on the wood before drawing it back after cutting.

Hidden cut

Procedure: when undercutting, select proper cutting sequence so that the wood blocks cut out can be left at the other side of saw blade and check plate, lower the safety cover to the wood and make the operation guiding accurate. Prop and press workpiece against the side of guiding rule with left hand.

Slotting

Procedure: close the opening on table with table strip matching with the slot, set the saw blade at the depth of slot and fence the rear part with longitudinal-cutting knife. When pushing the wood forward, press the workpiece on the table, otherwise, it may jump inward, resulting in danger.

Propping against the longitudinal-cutting guiding rule

Prop the board against the cross-cutting guiding rule of the cross-cutting sliding table, set size on the longitudinal-cutting scaleplate, tighten up the set screws in front of saw blade, draw the moving table back and guide the workpiece with sliding table, after drawing the check plate back, the wood will not be blocked between the saw blade and check plate.

Cross-cutting short and narrow wood

Procedure: mount the offsetting wedge so that the matter cut out cannot touch the upward-rotating saw blade. It can only use the cross-cutting check plate to feed wood. It cannot use hand to remove the matter cut out around the saw blade.

Cutting large-size board

The size in this procedure may be set on both longitudinal-cutting check plate and cross-cutting check plate, if a large-size board is to be cut into many equal pieces, it may as well be cut into parallel wood blocks on the longitudinal-cutting guiding rule and then cut into the set size. However, when workpiece width is more than the cut width of the machine, it is necessary to set size on the cross-cutting guiding rule.

3. Transportation

When use crane or forklift to transport, it only needs to uplift the equipment just a little.

3.1 Packing

The form of packing depends on the transportation method and distance, if no requirement under contract, the packing shall be executed according to the relevant regulations on machine tool export packing of the state, and attention shall be paid to the marks on outside of packing.

3.2 Extent of sub-packing

The extent of sub-packing of panel saw depends on the transportation condition and supply options, this saw machine is divided into two parts to be delivered, which shall be transported with special care to avoid losses as a result of over violent force or careless handling.

3.3 Storage in intermediate link

The machine must be stored in the place with protection and against dust and moisture, the exposed and non-treated parts on the surface shall be applied with antirust agent whose effectiveness may last about 1 year, if more than 1 year, apply the protective agent again.

4. Assembly

4.1 Installation of panel saw

The panel saw shall be on hardened and flat floor than is enough to bear the weight of machine without necessity of special foundation. There shall be enough space on the installation site, as shown in figure, so as to install the equipment and operate large-size wood. There shall be a certain safety distance between other parts and other machines indoor to prevent hurting other personnel.

4.2 Installation of sliding table

Put the sliding table on the position of machine body, align the three set screws with the screw holes and tighten them up.

Mount the rear stop plate, check if it is up to the requirement and adjust it otherwise. Before start-up, check each link.

4.3 Electrical connection

Only qualified electrician can install the electrical equipment, including connection with power supply. Before electrical installation, the power supply must be cut off.

Only when the main power supply is cut off, each contact may be closed or opened.

The distribution box of panel saw is mounted on the rear side of machine body and has output line. There is a terminal box on the side and it only needs to connect according to the mark.

Terminal box

After finishing connection of power cord, start the machine just a little to check the running direction of main saw motor, if it is necessary to correct, just change the direction of two cord ends, and write the running direction down on the saw blade cover with arrow.

4.4 (For circuit diagram, please refer to the annex 1-6)

4.5 Connection of suction system (self-prepared by customer)

According to the appendix 4 of BG1739, the operating environment of panel saw is a low-dust environment with the precondition that the following system is furnished.

* 50mm hose and three-way pipe are mounted on the dust hood on top of saw blade as attachment.
* Below the worktable, a dust chamber with 114mm diameter is mounted on dust collector opening with 120mm diameter.

If in the operating environment of TZ series is equipped the following dust exhaust system, then this environment is recognized as a low-dust operating environment. In this way, the connection between machine and suction system is correct and the air speed at the interface is at least 20m/s.
However, the hose, three-way pipe and dust collector carrier are not included in the scope of supply for standard machine!
Moreover, the suction system and machine must be started at the same time and the contact switch without potential difference is used for which.

5. Installation of Machine

In final assembly, the basic settings have been done in the factory. But adjusting the basic settings of machine is necessary because of disassembly, transportation and assembly on site.

When adjustment, make the sliding table slide smoothly from one end to the other and can be made slide with a little force from stationary state.
Check the moving table, put a rule on the moving table, move the moving table to the middle position and move the moving table backward and forward, the aluminum worktable shall be a litter lower about 1/10mm.
Setting the moving table, unscrew the lock screws on the four stud bolts, adjust the worktable, tighten up the set screws, then put the rule on the fixed table to be parallel with the moving table, if the surface is sunken, adjust the pressure screw for compensation.

Inspection:
Adjust the saw blade to max cutting position, use it to cut out a small piece (it may as well be MDF board) along cross-cutting guiding rule, judge if the setting of moving table is correct through the sound difference between saw teeth cutting and not cutting, when the uprising saw teeth passing through, there is only a little swing, but saw teeth have noise in cutting.

Setting: loosen the mounting pieces on both ends of moving table and in the middle, unscrew the lock nuts of stop screws for adjusting properly and then lock them, afterward, adjust the moving table and tighten up each set screw.

Parallel check plate cutting

Inspection:

Adjust the saw blade to the max cutting position to cut a piece of 300×450mm sample, if the setting of moving table is correct can be judged from the sound of uprising saw teeth.

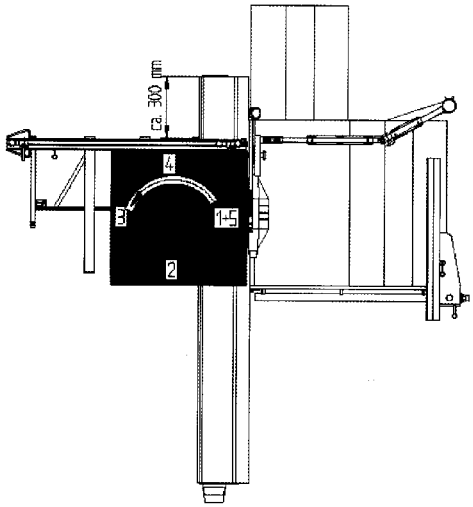
Angle cutting

Contrastive inspection:

Move the parallel shield 0.5mm near the saw blade, push forward the length cutting blade and the wood to cut 50-80mm backwards. Take it out, and then cut in 20mm along the normal direction. There is no difference can be seen between the two cuttings, but it can be felt by touching. Adjust and screw off the fixed screw, adjust and set the screw and set the easy kerf, and then tighten up the fixed screw, when using grooving saw, the two saw blades shall be aligned with each other and with the same thickness.

Inspect the square angle cutting with adjusting the moving table (see operation manual) and radial arm, and it can be changed if necessary.

Use high quality saw blade, and we provide a set of Freud of 300 mm×30×72 made in Italy, skewed tooth type, 4,600rpm speed, for 1,000×1,000mm flakeboard or density board, the min. thickness of 19mm and 5 times of cut (as Fig. 1), and put the last cut side on the cross-cutting guiding rule for reuse (anticlockwise turn over the board). In the fifth cut, cut off a strip with about 10mm width, and measure the thickness of its both sides with the vernier caliper. Difference between the two thickness is divided by 4 is the square angle error of cut length per meter.



Adjustment of angel cutting in factory:

The frame is fixed on the position as shown in drawing (300mm from the edge of moving table) and the other position (about 1300mm from the edge of moving table), the square angle inspection and adjustment are made on the above two position. The adjustment shall not be more than the max allowable error 0.2mm.

Inspection:
Erect the two boards (with width about 70mm) in front of the cross-cutting guiding ruler, and cut at this position, and then make the cut planes abut, if it is set correctly, the cut planes shall run parallel with each other, that is to say there is no clearance can be seen between the two cut planes.
Readjust the equipment!

6. Adjustment of Machine
To raise or lower the saw blade: it just needs to adjust the Up/Down handwheel on the right side of the machine body.
To reduce or enlarge the angle: adjust the angle handwheel in the front of machine, and turn right is to enlarge angle, while turn left is to reduce.

Height control handle

Height adjustment

Angle adjustment

Angle control handle

Angle control handwheel has a 0-45º display attached to the push button plate for displaying the current angle value.

Digital display panel

6.1 Adjustment of saw blade

It shall comply with the following requirements by all means:

* Don’t mount the cracked or damaged saw blade, only can mount the saw blade of 250mm-300mm.
* Make a check, the rotary speed of saw blade shall not be too high, and the maximum rotary speed is marked on the saw blade.
* Pay attention to choosing proper saw blade, open the clamp nut, and clockwise mount the main saw blade on arbor, put the saw clamp on, then tighten up the clamp nut, for scoring saw, mount anticlockwise the saw blade, tighten up the nut at last.

Mount the main saw blade Mount the scoring saw blade

Cut off the power supply, adjust the saw blade to the top height with the obliquity of 0°, press down the emergency button to move the upper moving table towards the cutting direction until the forefront, and then lift the orange damper, afterward clockwise screw off the saw arbor nuts with special spanner.

6.2 Replacement of saw blade

Prior to mount the new saw blade, remove the sawdust on flange firstly. Mount the saw blade and front flange on saw arbor. Anticlockwise tighten up the saw arbor nuts with special spanner; afterward check if the thickness and space of the riving knife are matching with the saw blade.

Close the safety cover, and take a simple trial run to see if the saw blade operates correctly, lower the safety cover of upper saw blade to the designated position for checking if the saw blade is protected completely.

Important suggestion

After saw blade is replaced, check if the riving knife is mounted correctly by all means.

6.3 List of saw blade options

Main saw blade

Before leaving the factory, our panel saw is furnished with a set of Freud saw blade made in Italy, which is recommended to use thereafter. The saw blade selection of panel saw is very important for only the qualified saw blade can realize perfect cutting effect.

Material	Cutting speed (m/s)	Saw blade cut diameter	Saw blade cut diameter	Saw blade cut diameter
		∮ 250	∮ 300	∮ 315
Soft wood longitudinal cutting	60-80	24W	26W	28W
Soft wood cross cutting	60-80	40W	46W	48W
Hard wood longitudinal cutting	60-80	24W	26W	28W
Hard wood cross cutting	60-80	40W	46W	48W
Laminated plywood	50-70	40W	46W	48W
Plywood	60-80	48W	58W	60W
Clad plate	50-80	40W	46W	48W
Shaving board	60-80	48W	58W	60W
Faced shaving board	60-80	60TF	70TF	72TF
Compound floor board	50-70	60TF	70TF	72TF
Hard fiber board	60-80	60W	60W	60W
Gypsum board	40-60	48W	58W	60W

Scoring saw blade

The scoring saw blade accompanying our panel saw is of single-piece stepped teeth with dia. of ∮120mm×24 teeth×∮22mm. The factory can also use double groove saw blade in using, both are applicable.

Riving knife

Sizes of the supplied riving knives are all complying with the saw blade dia. range listed in table, and the corresponding specifications are marked clearly on the surface of riving knives, thickness of the riving knife shall comply with the standard requirement, the carbonized knife is more proper, and riving knives of other kinds are also OK.

6.4 Setting of main saw blade speed

Our panel saw is of two speeds, i.e. the rotary speeds of main shaft are 4,000 and 6,000, which can be reached by moving the V-belt.

Shut down the driving, cut off all the power supplies, unscrew the V-belt tension screws on the lift board, and raise it to the left, then the belt position can be adjusted, please refer to the following pictures for operation.

Change speed

Explanatory drawing of belt replacement

6.5 Lock of moving table

The moving table is locked manually at the backend against moving casually so as to prop the wood to cut against the cross-cutting guiding rule, and it may be unlocked with the handle at the backend of the moving table.

6.6 Main switch

Start

Before closing the main power supply switch, the emergency stop switch must be in open condition. Then turn the emergency stop switch to left, and close the white switch of main saw, hereby the main saw is started. The scoring saw can be started only 5s after main saw starting.

Stop

The black button below the white button is the stop switch of main saw. Press down this button, the main saw will be stopped and the scoring saw will be stopped accordingly.

Emergency switch

The machine can be stopped by the emergency stop switch, but this switch only can be used in case of emergency.

Picture of button panel

6.7 Reaction of motor to overload

Reaction of motor to overload means the motor is over loaded, prior to restart, causes shall be found out and trouble shall be removed by all means, there is a thermal rounding protective device to protect the motor, if overheat, the motor will be stopped automatically. Attention shall be paid in this situation that the motor of the machine with a scoring saw attached will be stopped automatically even if the scoring saw motor is not overheated. Only after the thermal relay cooling down, can the motor be started again, and the thermal relay needs about 10min to cool down.

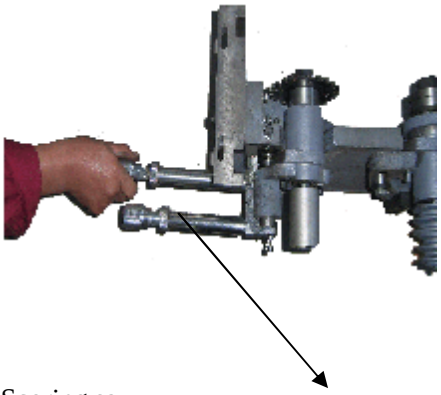
Electrical cabinet shall be measured by the electrician every year.

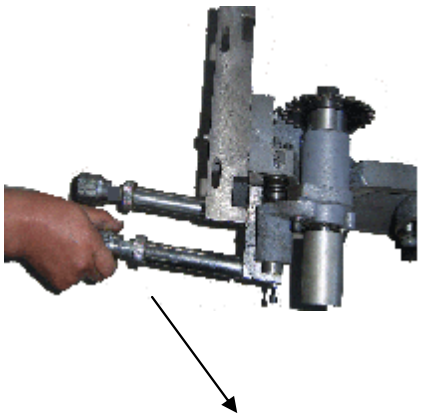
6.8 Scoring saw

Development of TZ series scoring saw is for the breakthrough in panel cutting that is to make the cutting of both panel surfaces slippery and smooth. Scoring saw first cuts 1-2mm below the panel, and then the main saw blade cuts it. Scoring saw blade and main saw blade must be aligned with each other and with the same width.

This machine is furnished with stepped single-score saw blade, which can be adjusted up and down or left and right by the regulating handle, cut of the scoring saw blade is 1/10mm wider than the main saw blade, that is to say 5/100mm of each side.

Cut height and left & right adjustments are all completed by the manual adjusting handle and handwheel.





Scoring saw adjustment picture

Adjust up & down

Adjust left/right

6.9 Replacement of scoring saw blade

* When stopping the machine, adjust the scoring saw blade to the highest position, move the moving table to the cutting direction to expose all scoring saw blades, lock up the moving table, open the safety cap, and clockwise screw off the fixing nuts with special spanner. Take out the front flange and dismount the scoring saw blade.
* Remove the stickers in the two flanges before mounting the new saw blade. Mount the saw blade and the front flange on the saw arbor, and then clockwise tighten up the nut.
* When using the scoring saw set with stepless cut width, it shall strictly comply with the following items, and disobeying the requirements of operation manual will endanger the production, the lose caused by which is not in the claim range:
  - Max. rotary speed of the saw blade is 8,000rpm, and allowable cut width is 2.8-3.2mm.
  - Open and pack the adjusting devices with special care against injury.
  - The adjusting devices can only be stored in the original packing!
  - All connecting parts shall be mounted properly by all means.
  - If the connecting component fittings being lost or damaged, the original fittings shall be used for replacement.

6.9.1 Setting of scoring saw blade width

* Use spacer to set the width of double saw blade to make it 0.1mm wider than the main saw blade.
* At first, align the scoring saw with the main saw at one side of the machine, and carry on a trial cutting.
* Align them in left and right by means of increasing or decreasing spacer.

6.9.2 Setting of the single grooving saw blade

Use the handle of scoring saw on right side of panel saw to adjust, one is for adjusting up and down and another is for left and right, turn the handle left and right until aligning to a satisfactory height with the main saw blade.

7. Maintenance

7.1 Trouble shooting

In trouble shooting process, there is potential danger, please operate complying with the following descriptions:

Trouble	Cause	Solution
Machine can't be started	Main switch is not started up;	Close the main switch knife "I";
	Interruption occurs in electric circuit or some phase;	Wait for recovery of the electric circuit, or find out and remove the cause for power failure. (e.g.: fuse is blown out)
	Protection for over load trips, however, thermal relay is still not cold that can't reset;	Solve the over load problem of machine, and wait for the thermal relay cooling down;
	Ends of the moving table exceed the middle part of saw blade that results in saw cut length is not enough.	Pull the moving table back to the front end of the saw blade middle part again.
	Emergency switch is pressed down;	Turn emergency switch to right to original position;
	Saw blade front plate guard or machine back door is not closed;	Close the door, and cover the plate guard;
	Fuse for controlling the current circuit is blown out.	Open the electrical cabinet (prior to which close the main switch), and find out which fuse is damaged among F1, F2 & F3. Find out the cause and remove the trouble. Then, replace the burned fuse. Pay attention to that the fuse with same load can only be used;
Machine stops automatically.	Power supply interruption occurs in one or more phases, e.g. because the fuse is blown out.	Remove the cause for power failure in phase, and re-start the machine.
	Saw blade is too blunt or saw cutting speed is too fast that results in over load protection trips;	Replace the saw blade or reduce the saw cutting speed; wait for the thermal relay cooling down, then re-start the machine;
	Fuse for controlling current circuit is blown out;	Open the electrical cabinet (prior to which close the main switch), and find out which fuse is damaged among F1, F2 & F3. Find out the cause and remove the trouble. Then, replace the blown fuse. Pay attention to that the fuse with the same load can only be used;
Motor is running, but the workpiece does not run.	Saw blade becomes blunt; Riving knife blade does not match with the saw blade	Mount the new saw blade; Replace with proper riving knife blade, and the thickness of which shall be a little narrower than that of the main saw blade;

Trouble	Cause	Solution
Width of the workpiece cut by saw is not corresponding with the width regulated on the parallel check plate	Scale of saw cut width shifts	Re-regulate the ruler. Cut a workpiece on parallel check plate with saw, and measure out the saw cut width, and then adjust the scale of aluminum ruler to this measurement;
Width of the workpiece cut by saw is not corresponding with the width regulated on the cross-cutting check plate	Scale of saw cut width ruler shifts	Adjust the ruler again. Cut a piece of workpiece on cross-cutting check plate with saw, and measure out the saw cut width, then adjust the scale of aluminum ruler to this measurement;
Operation of oscillating arm is unstable.	Telescopic arm or guide pulley is dirty	Wash the telescopic arm and guide pulley;
The moving table wonders.	Improper installation of lower guide pulley	Adjust the lower guide pulley of moving table
Ends of the moving table is higher than the worktable	Improper installation of lower guide pulley	Adjust the lower guide pulley of moving table
Saw blade is scorched on the moving table surface	Adjustment to the free saw cutting of moving table is insufficient; adjustment to the free saw cutting of parallel check plate is too large;	Adjust the free saw cutting; Adjust the parallel check plate;
Saw blade is scorched on the parallel check plate surface	Adjustment to the free saw cutting of parallel check plate is insufficient.	Adjust the free saw cutting;
Both sides of the saw blade are scorched.	Adjustment to the free saw cutting is insufficient; Workpiece is locked; Operation mistake;	Adjust the free saw cutting; Replace with a little thicker riving knife blade; Push the workpiece forward along left or right. Use the moving table for saw cutting, and don't prop against the parallel check plate.
Workpiece is cut by saw later and has the mark of being scorched.	Saw blade is too blunt; Charging speed is too slow; Too many saw teeth on the saw blade; Mistake in free saw cutting;	Replace the saw blade; Be quicker in feeding; Replace the saw blade; Adjust the free saw cutting
Broken stubble (with grooving saw)	Grooving saw is not aligned with the main saw; Grooving saw blade is too narrow;	Readjust the centerline; Adjust the width of saw blade;
Workpiece upwarping in saw cutting process.	Grooving saw blade is too blunt; Saw cut height is insufficient;	Replace the saw blade; Adjust the saw cut height;
E01	Up to the ES-Min1 limit	
E02	Up to the ES-Min2 limit	
E03	Up to the ES Max limit	
	Trouble occurs to the brake: phase loosing	Check the F15/F16 fuse
	Trouble occurs to the brake: exceed brake time	
E06		

8. Service

Prior to any maintenance for the machine, the power supply shall be cut off to guarantee the safety. Periodic cleaning can prolong the service life, and also is the precondition of perfect cutting effect. Thus the sliding table shall be cleaned at least twice a week according to the service condition. It is advisable to clean it once a day.

Clean the main parts, including fixed table, sliding table, guide shaft of sliding table, casting iron piece of the rip fence, machine inside, and machine surroundings.

Use the dust collector to remove the paring and saw dust attached to the machine, when removing the resin residue, it is advisable to use the cleaning agent that can dissolve the resin, after treatment of parts is finished, it is necessary to use the cloth with oil to wipe them for preventing rust.

8.1 Saw arbor lubrication

Bearings of the main saw arbor and grooving saw are closed and have been lubricated for whole lifetime, so there is no need to add lubricant.

8.2 Other parts shall be lubricated at least twice a week as the case may be.

9. Description of Service Spare Parts for Customers

We have the stock of main spare parts and wearing parts, which is a very important precondition for keeping board-cutting efficiency and production capacity.

When ordering the fittings, please refer to the detailed list. And for more details, please refer to the explanatory notes in drawings in the specification.

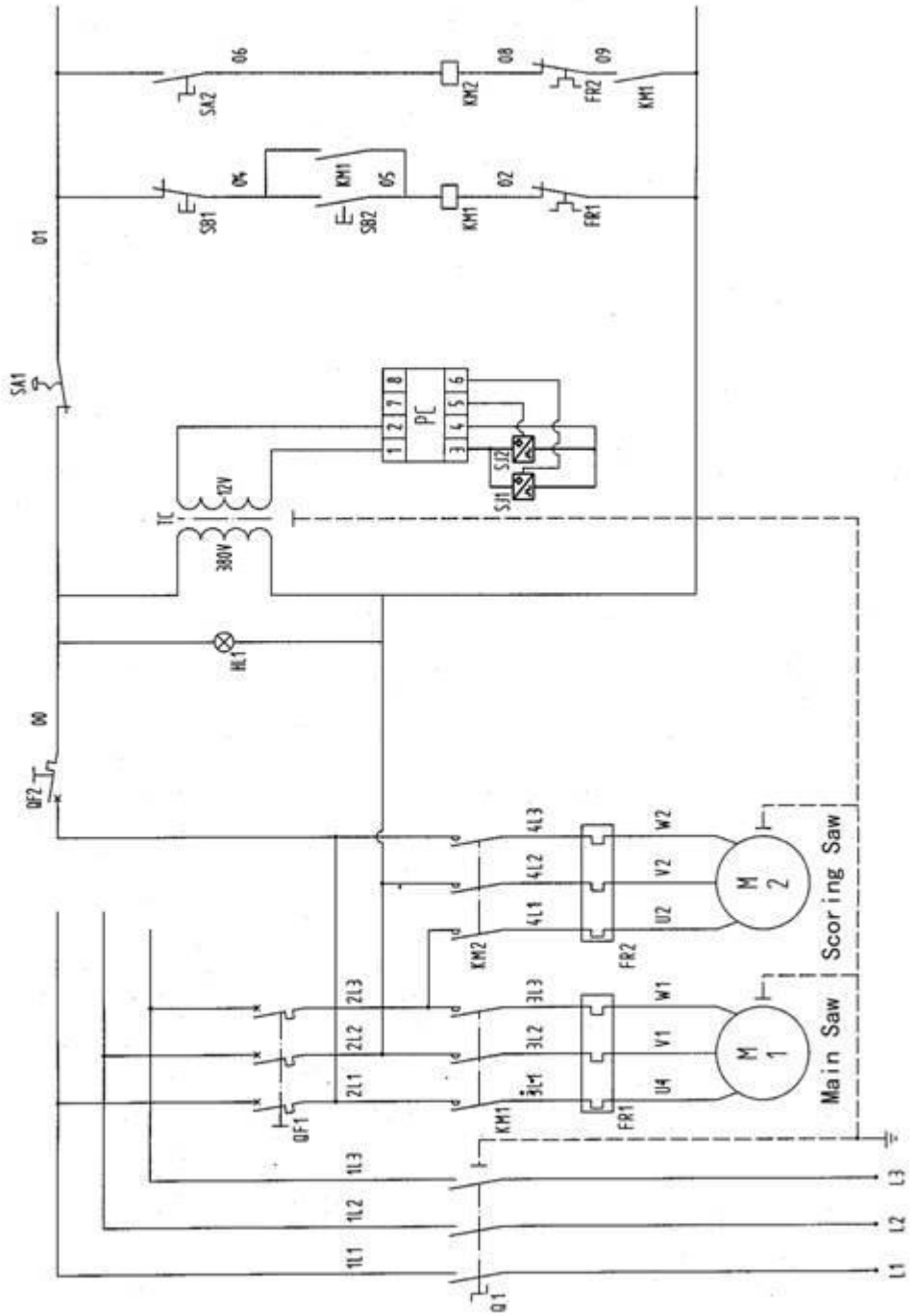
We are only responsible for guaranteeing the original parts provided by our factory.

Our company definitely represents that we are not know the original fittings and accessories not supplied our company to be mounted or used will affect the efficiency of the panel saw, and will bring harmful factors to safety production. And our company is not responsible for any lose or result from using the unoriginal fittings and accessories.

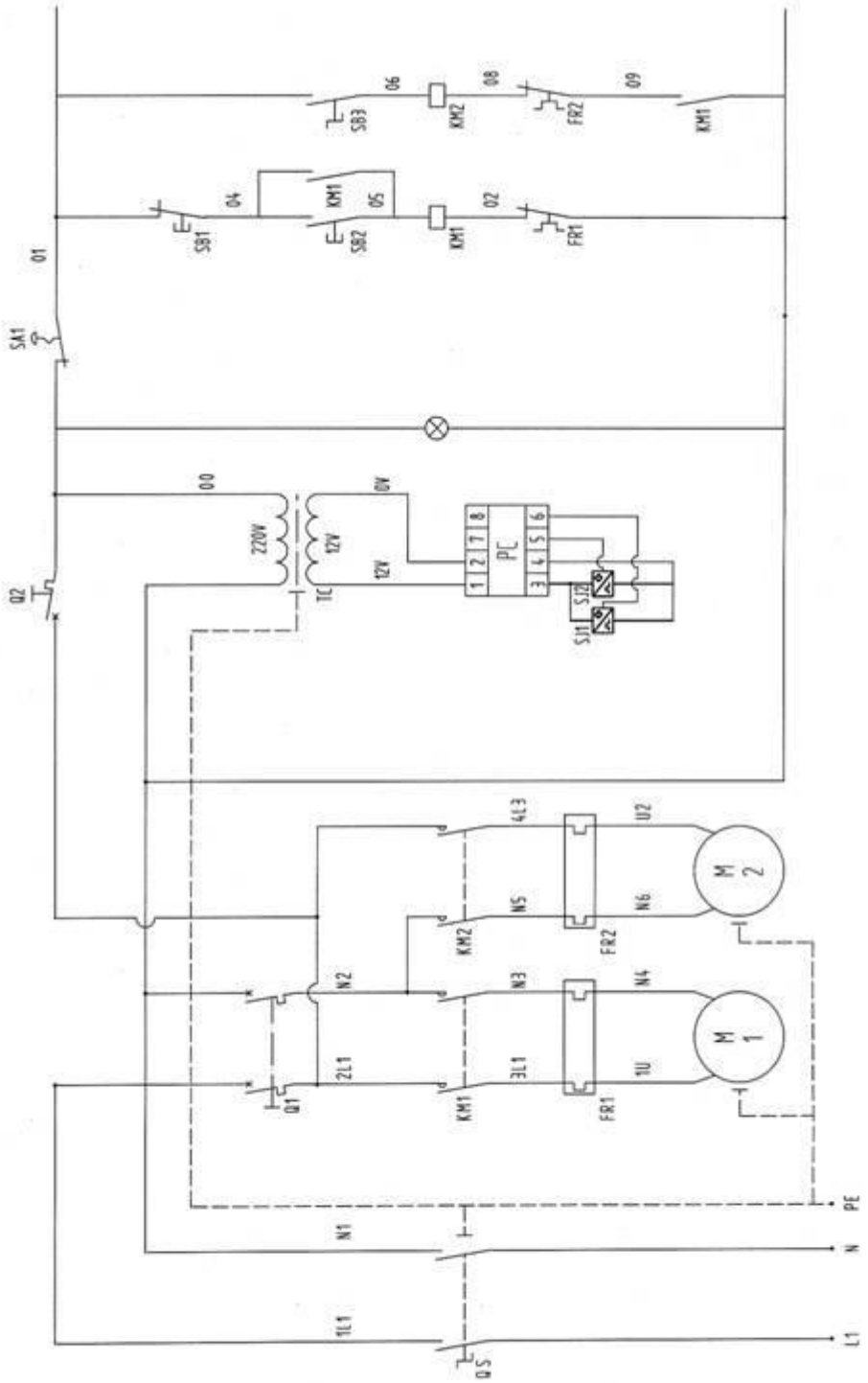
Attention: there are available materials of the specification for specialized production and delivery of the fittings supplied by us that are up to the updating technological requirement and legal rules all.

When ordering the fittings, please make the model of machine and names of detailed fittings clear, and if do not know the name, please mark clearly the no. of drawing.

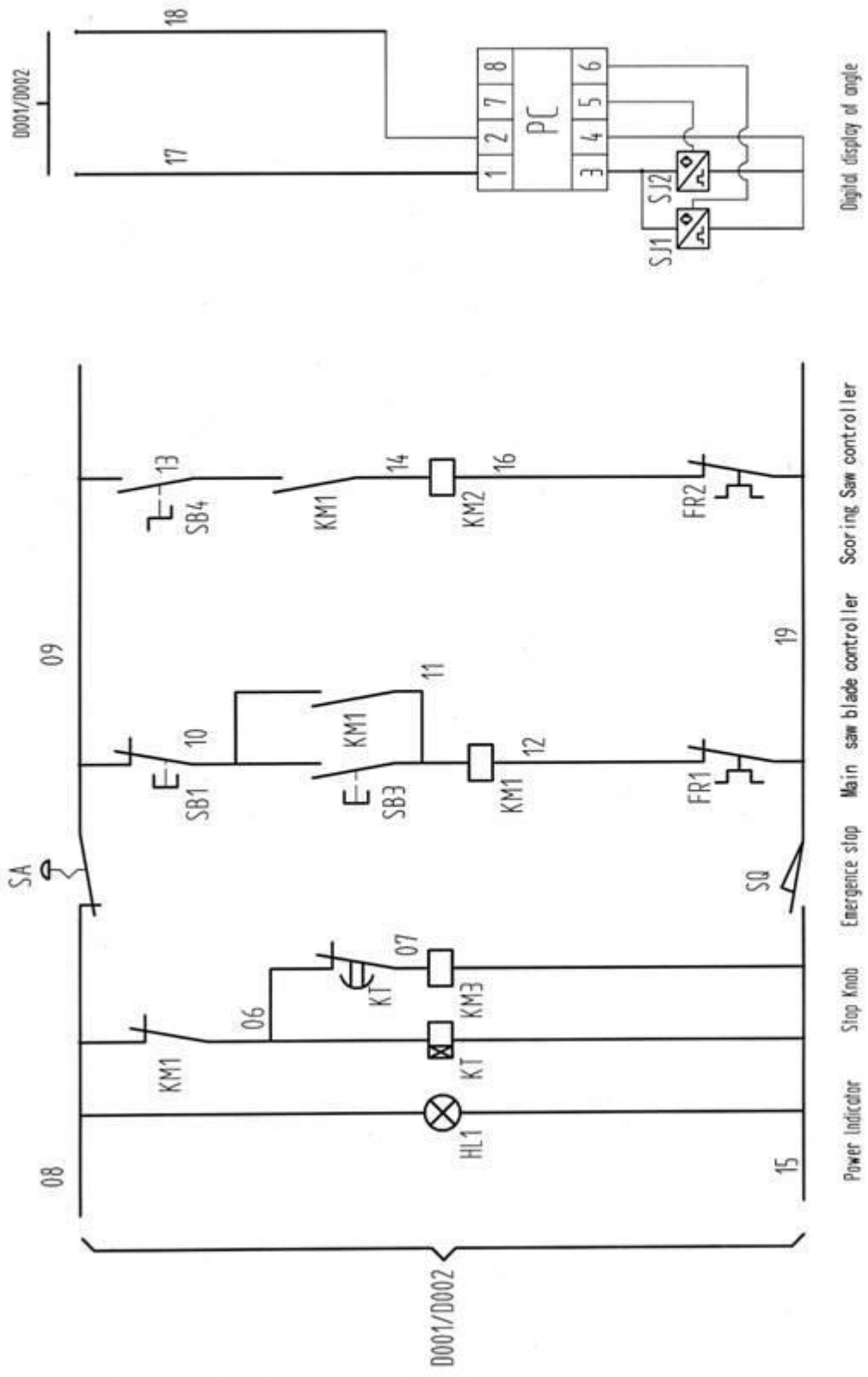
Annex 1 (this circuit diagram is suitable for three-phase circuit diagram of non-electromagnetic brake)



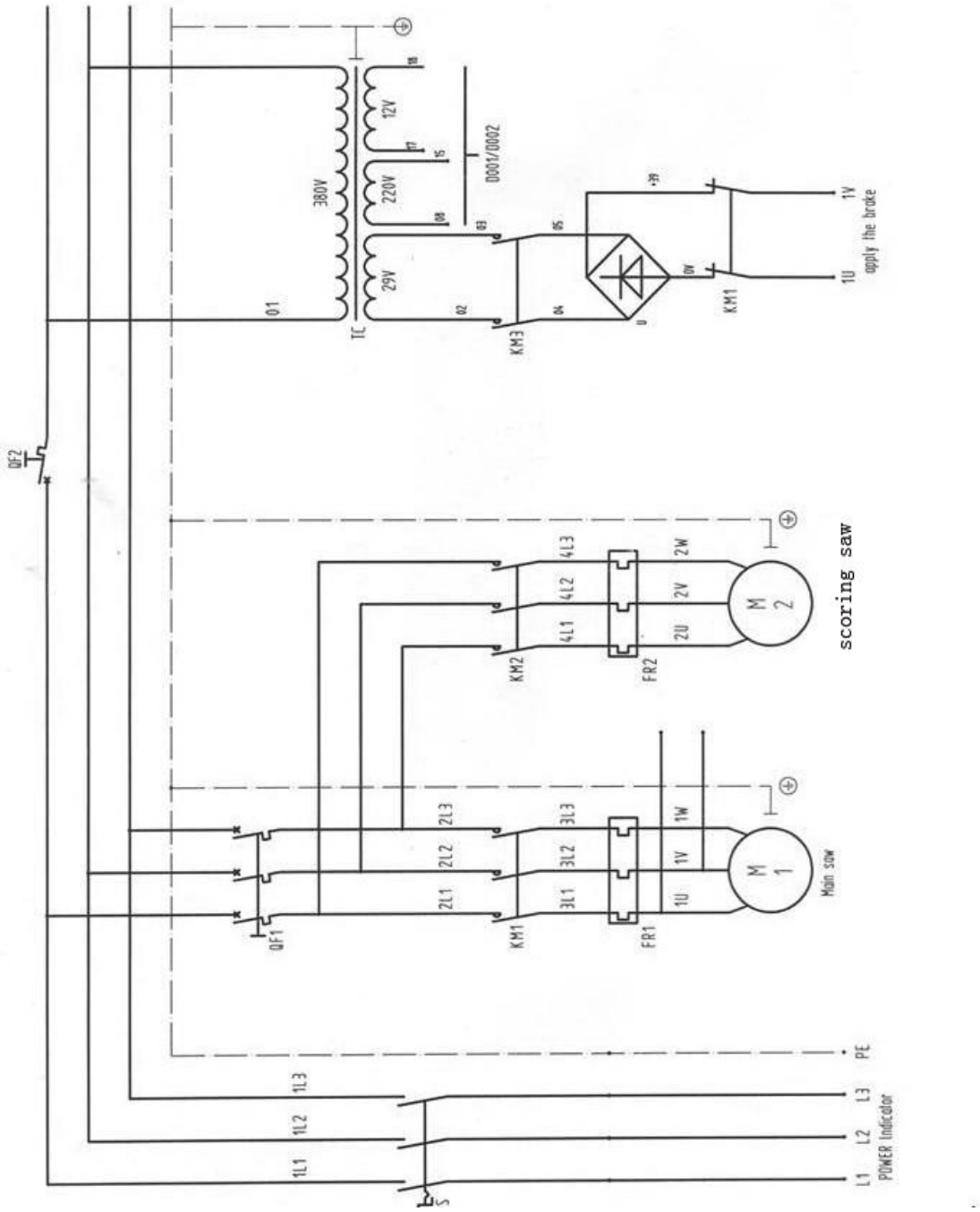
Annex 2 (this circuit diagram is suitable for single-phase circuit diagram of non-electromagnetic brake)



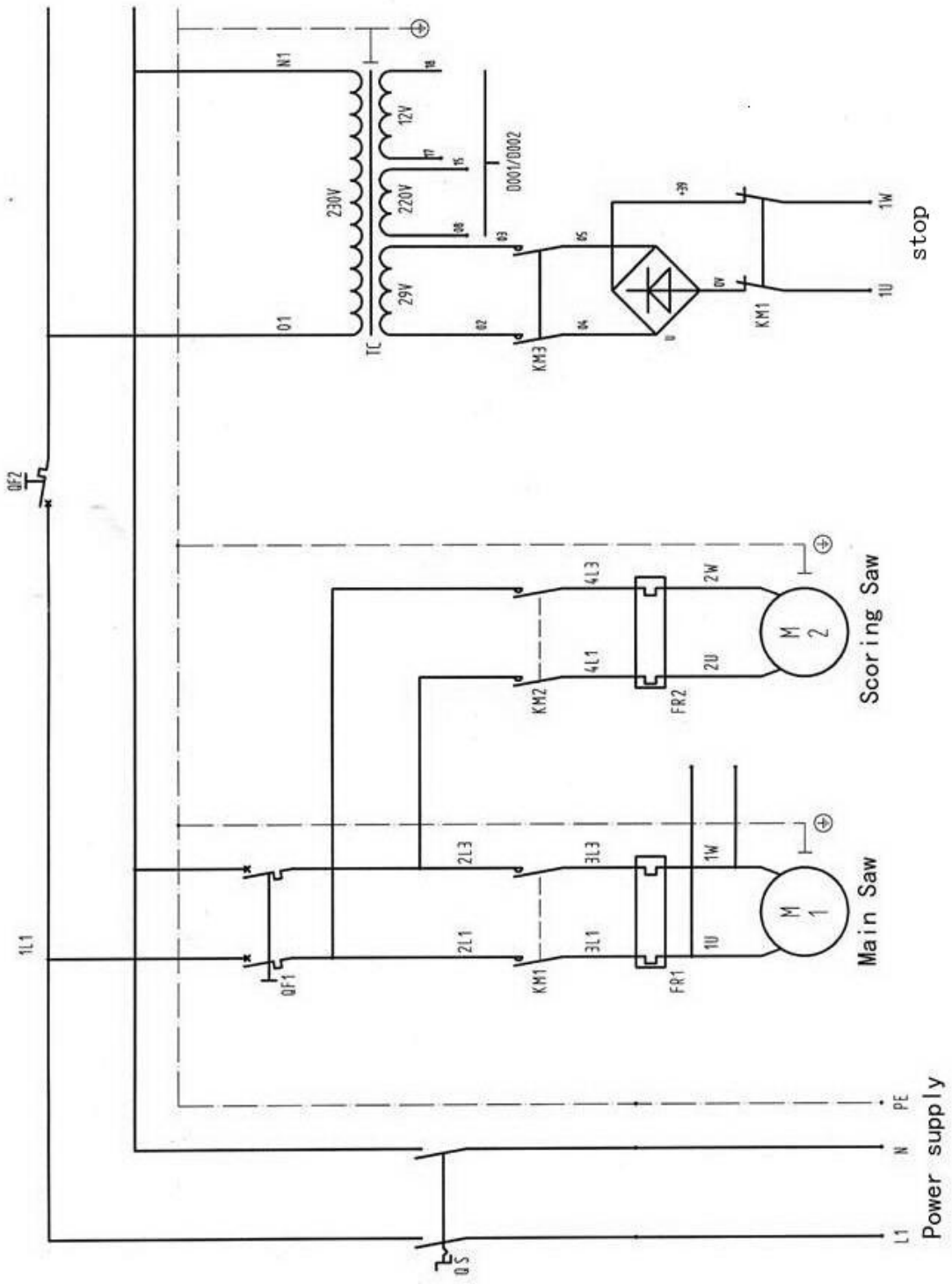
Annex 3 (this circuit diagram is suitable for electromagnetic brake)



Annex 4 (this circuit diagram is suitable for three-phase motor with electromagnetic brake)



Annex 5 (this circuit diagram is suitable for single-phase motor with electromagnetic brake)

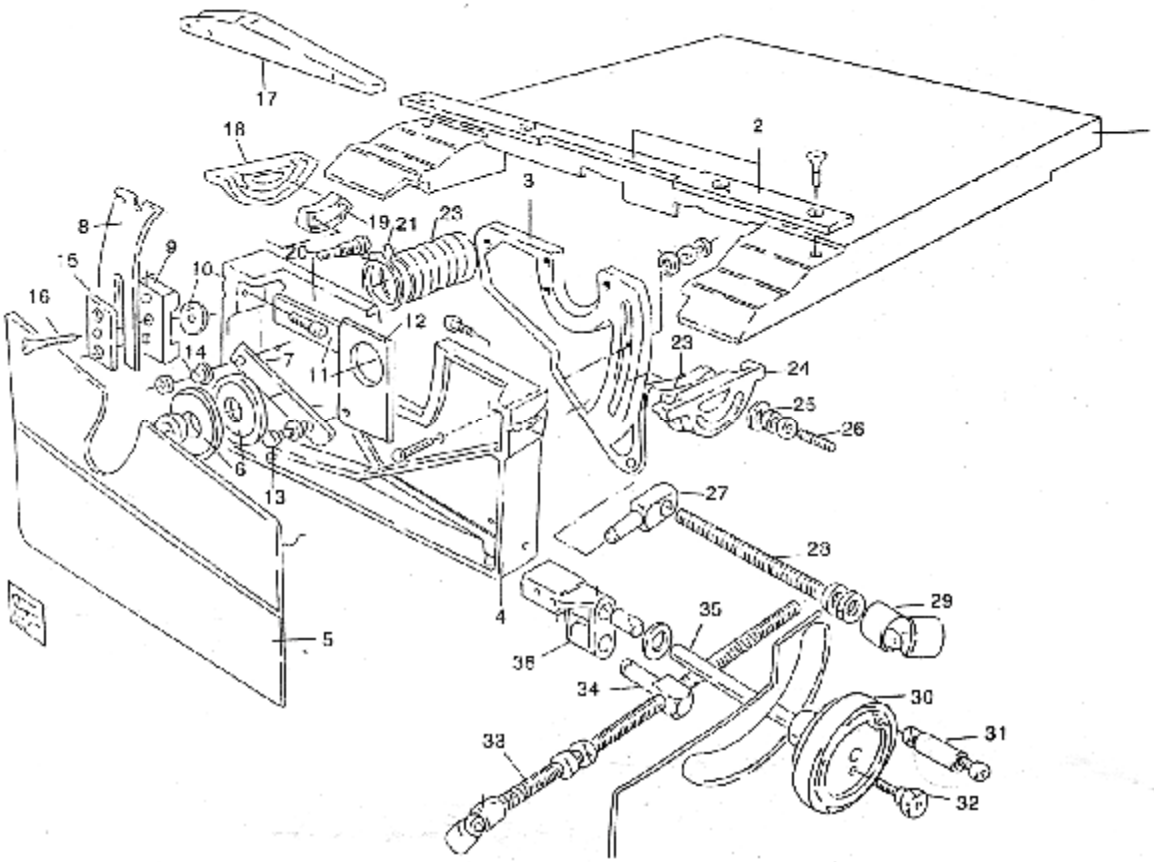


Spare Parts Manual

TZ Series

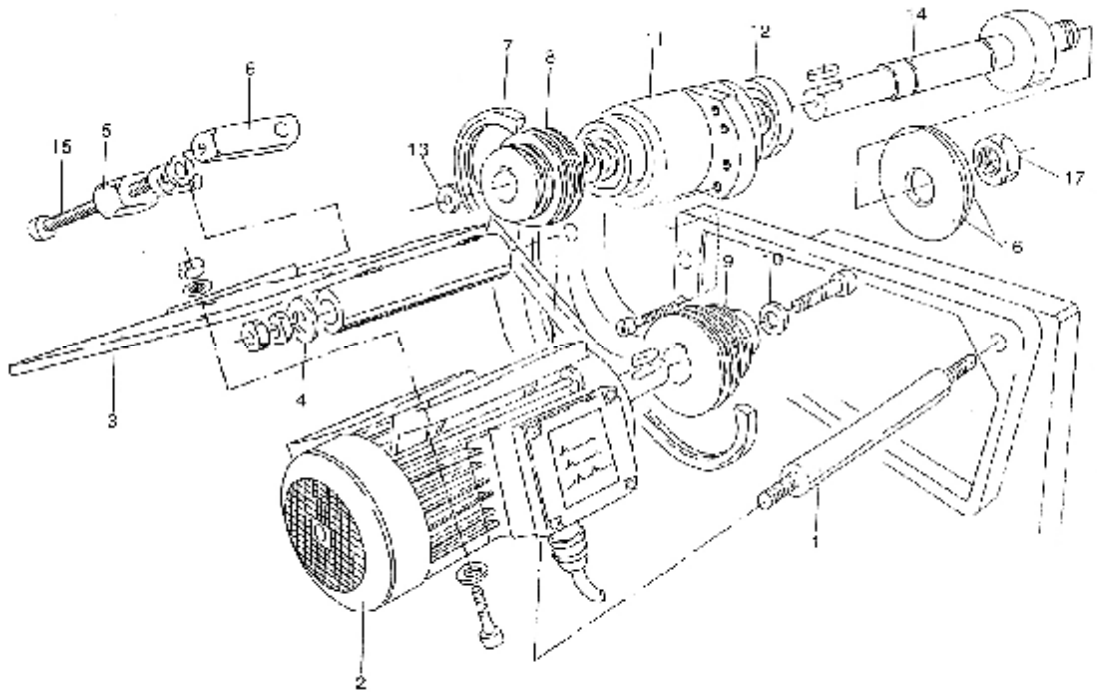
Chapter

1、Fixed table and supporting & adjustment mechanism



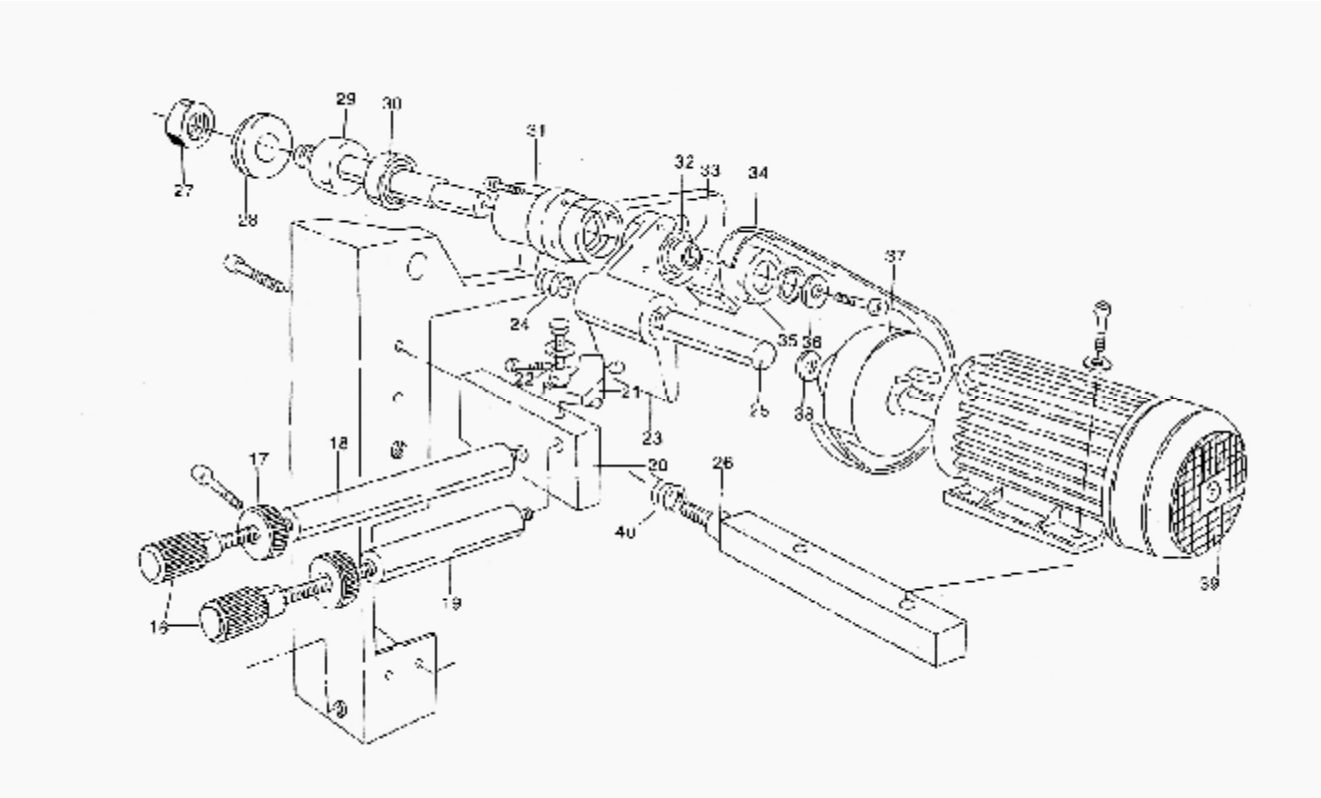
1、 fixed table
2、 protection board
3、 lift board
4、 connection board
5、 the cover of anti-dust
6、 saw nipping plate
7、 pulling board
8、 longitudinal cutting knife
9、 fixed board
10、 nut
11、 connection board
12、 following action board
13、 bolt
14、 cushion
15、 plywood
16、 bolt
17、 protection hood
18、 circumgyrating base
19、 guide track
20、 bolt
21、 pipe block
22、 dust collection pope
23、 guide track
24、 circumgyrating base
25、 cushion
26、 bolt
27、 lift nut
28、 lift screw
29、 gimbal
30、 handwheel
31、 handle
32、 bolt
33、 angle bolt
34、 angle nut
35、 lift adjusting spindle
36、 adjusting base

2、Main saw



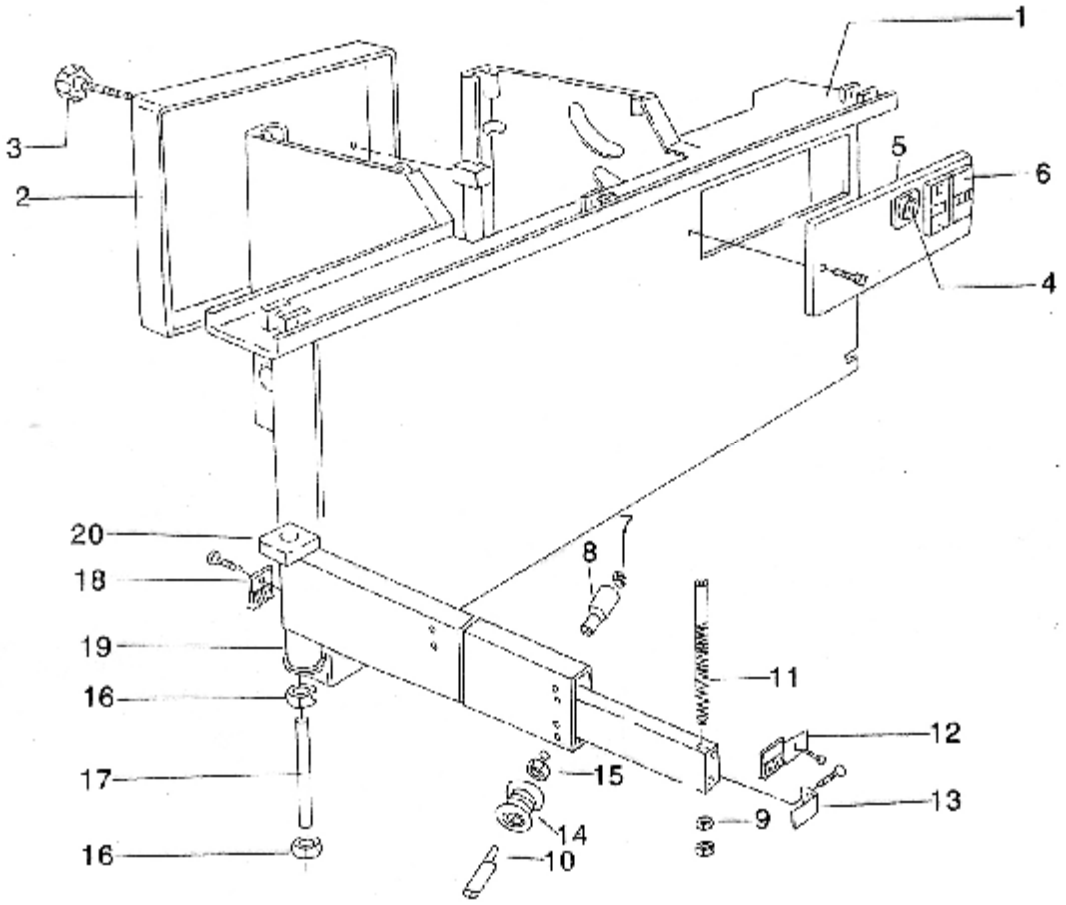
1、	motor base spindle	10、	pressure cushion
2、	motor	11、	main spindle sheath
3、	motor base	12、	bearing
4、	cushion	13、	pressure cushion
5、	connection board	14、	main spindle
6、	adjusting sheath	15、	adjusting screw
7、	triangular belt	16、	saw nip plate
8、	main spindle wheel	17、	nut
9、	motor wheel		

3、Auxiliary saw



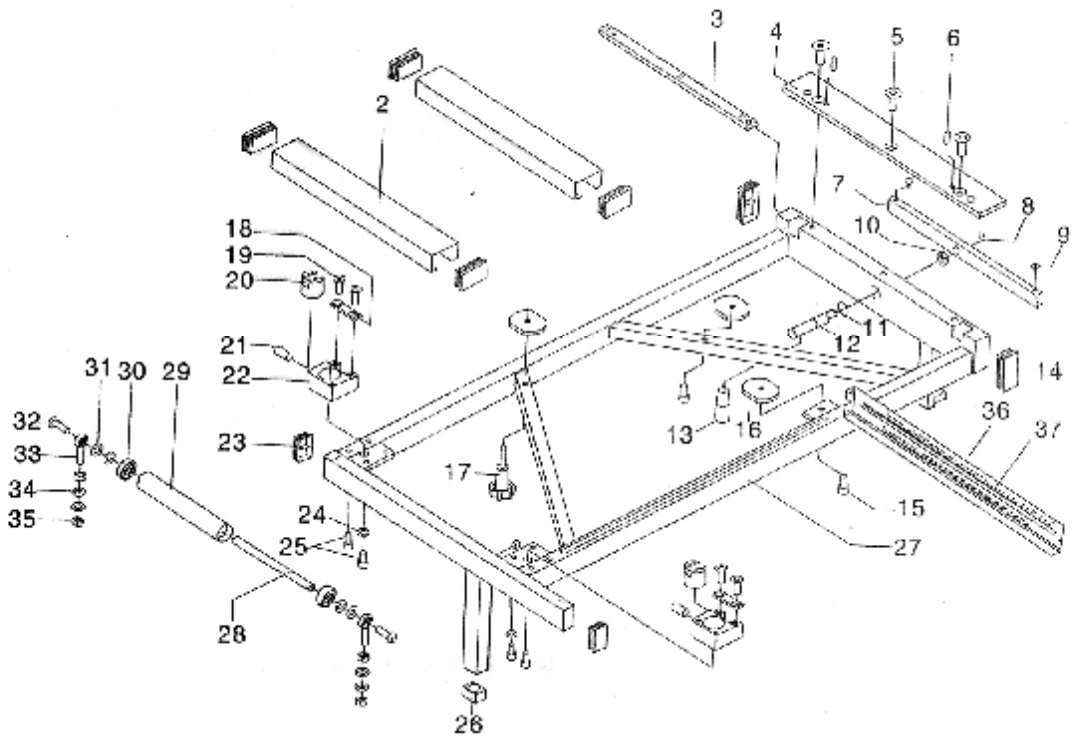
16、inching handle
17、lock nut
18、fixed sheath
20、fixed base
21、feeding block
22、bolt
23、scorning saw turning base
24、spring
25、oriented spindle
26、motor base
27、nut
28、pressure cushion
29、scoring saw spindle
30、bearing
31、scoring saw sheath
32、bearing
33、sheath
34、driving belt
35、scoring saw wheel
36、pressure cushion
37、motor wheel
38、pressure cushion
39、motor
40、torsion spring

4、Machine body & turning arm



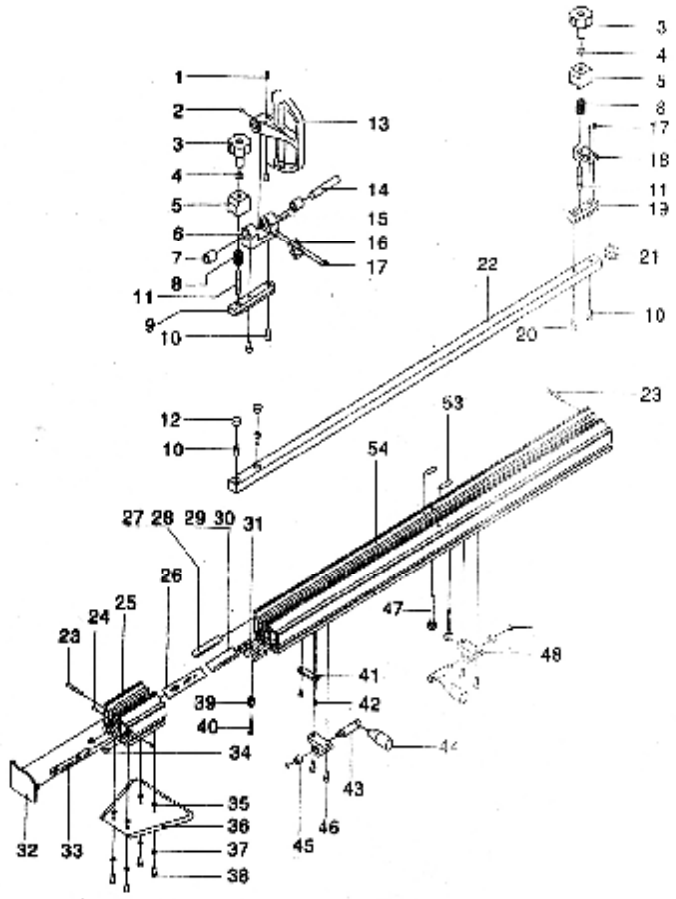
1、	machine body	11、	adjusting spindle
2、	door cover	12、	hair brush
3、	bolt	13、	stop head
4、	urgent stop switch	14、	roll wheel
5、	board base	15、	bearing
6、	operation button	16、	bearing
7、	nut	17、	spindle of turning arm
8、	sheath	18、	hair brush
9、	nut	19、	the pipe of turning arm
10、	eccentric spindle	20、	lug

5、Bracket



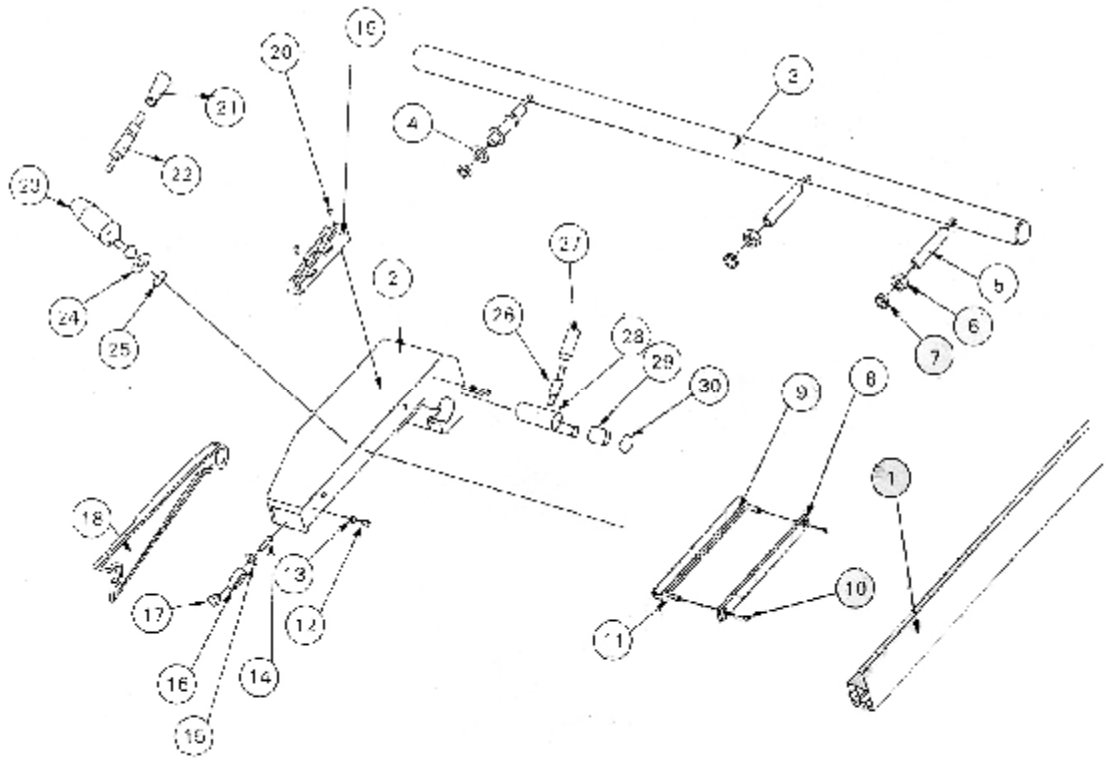
1、 Plug
2、 Holding plate
3、 Reinforcing plate
4、 V-groove
5、 Screw
6、 Stabilizer nail
7、 Lock block
8、 Clip
9、 Screw
10、 Pad
11、 Pad
12、 Eccentric shaft
13、 Handle
14、 Plug
15、 Screw
16、 Platen
17、 Revolving shaft handle
18、 Pad board
19、 Screw
20、 Adjustment axle
21、 Limit shaft
22、 Seat board
23、 Cap
24、 Pad
25、 Stud
26、 Ejector block
27、 Bracket
28、 Shaft
29、 Carriage roller
30、 Bearing
31、 Nut
32、 Cap
33、 Support
34、 Pad
35、 Nut
36、 Angle scale seat
37、 Angle scale

6、Crosscut guide plate



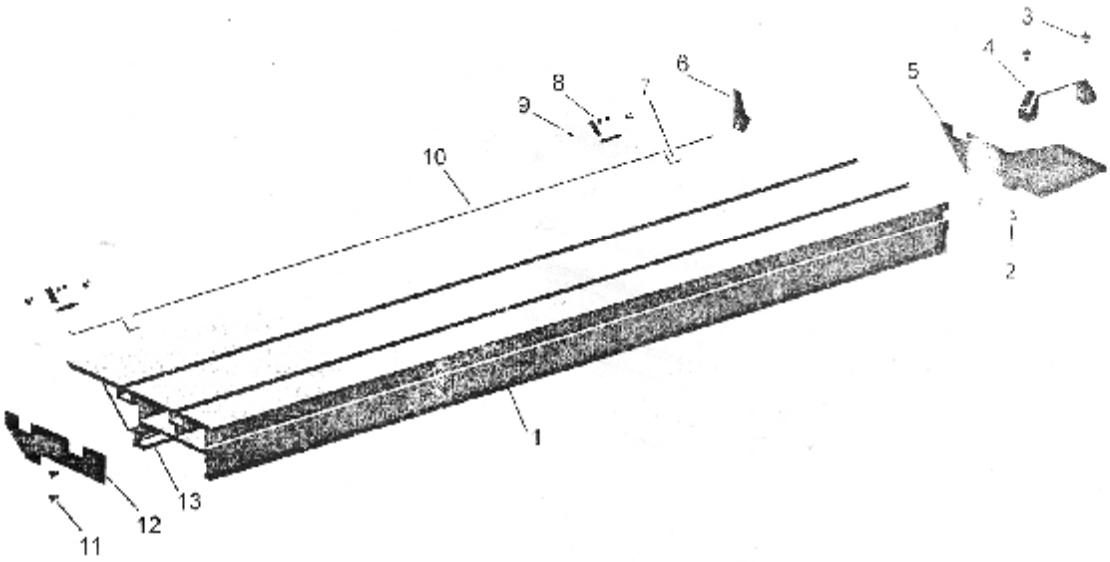
1. Adjustment bole
2. Fixing bolt
3. Locking handle
4. Pad
5. Handle seat
6. Baffle seat
7. Copper sleeve
8. Spring
9. Fixing block
10. Screw bolt
11. Shaft
12. Plug
13. Stop board
14. Shaft
15. Screw
16. Magnifier
17. Screw
18. Magnifier
19. Fixing block
20. Screw bolt
21. Plug
22. Draw rod
23. Stabilizer nail
24. Screw
25. Extension ruler
29. Ruler
30. Ruler
31. Fixing block
32. Plug
33. Fixing block
34. Nut
35. Pad
36. Holding plate
37. Pad
38. Screw
39. Sleeve
40. Screw
41. Board
42. Screw
43. Eccentric shaft
44. Handle
45. Sleeve
46. Screw
47. Hand screw
48. Lug
49. Lip

7、Straight-cut guide plate



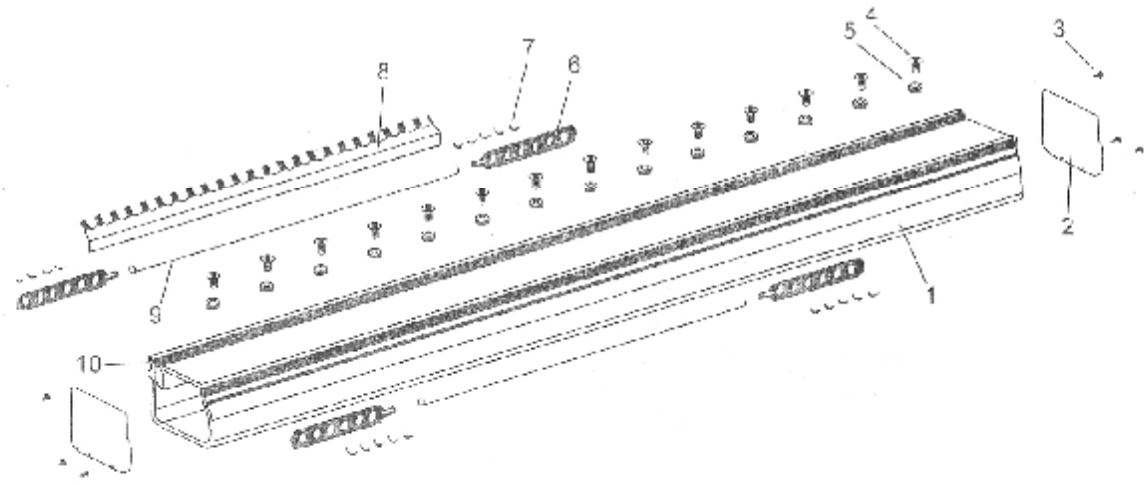
1、	Straight-cut guide plate	16、	Idler wheel
2、	Cam seat (guide plate seat)	17、	Spacing sleeve
3、	Cam axle (guide shaft axle)	18、	Push handle
4、	Pad	19、	Push handle seat
5、	Supporting bolt	20、	Screw
6、	Screw cap	21、	Handle
7、	Screw cap	22、	Handle shaft
8、	Lock plate	23、	Eccentric shaft
9、	Board	24、	Pad
10、	Screw	25、	Clip
11、	Shaft	26、	Handle shaft
12、	Screw	27、	Handle
13、	Eccentric sleeve	28、	Eccentric shaft
14、	Small shaft	29、	Sleeve
15、	Pad	30、	Clip

8、Sliding table



1. Sliding table
2. Screw
3. Screw
4. Handle
5. Handle terminal plate
6. Locking handle
7. Locating plate
8. Fixing block
9. Screw
10. Connecting strip
11. Screw
12. Terminal plate
13. Track metal strip

9、Sliding track seat



1、 track seat
2、 cap
3、 screw
4、 adjustment screw bolt
5、 nut
6、 keeping bracket
7、 steel ball
8、 lock plate
9、 connecting strip
10、 track metal strip

Tool List of Kit

No.	Name	Quantity
1	Large spanner (double-ended)	1 piece
2	Open end spanner (14-17)	1 piece
3	Hexagon ring spanner	1 set
4	Philips screwdriver (150)	1 piece
5	Slotted screwdriver (150)	1 piece
6	Holding pad (or upper pad)	1 piece
7	Planer block	1 piece
8	Operation Manual	1 copy

Packed by: Checked by:

Packing List of TZ Series Precision Panel Saw

Serial No. of Machine:

Quantity of cases (2 wooden cases)

1. Case of machine body and its accessories

2. Moving table and its accessories

3. Operation Manual

4. Acceptance certificate

5. Drawings of fittings

Packed by: Checked by:

Acceptance Certificate

Performance and Quality Inspection

Model:

Serial no. of production date:

Inspected by ：

Inspecting date:

Signed by:

Production manager：

Inspecting date:

Signed by:

Remarks: