



HARE & FORBES

MACHINERYHOUSE

Established 1930

Distributors of New & Used Workshop Equipment

W639 SP-250

SPINDLE MOULDER

MODEL: SP-250

PLANT SAFETY PROGRAMME

NEW MACHINERY HAZARD IDENTIFICATION, ASSESSMENT & CONTROL

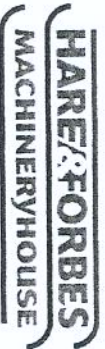
Stock Code: W639

Description: Spindle Moulder Model: SP-250 Brand: HAFCO

Developed in Co-operation Between A.W.I.S.A and Australia Chamber of Manufactures
This program is based upon the Australian Worksafe Standard for Plant(NOHSC:1010-1994)

Item No.	Hazard Identification	Hazard Assessment	Risk Control Strategies <small>(Recommended for Purchase / Buyer / User)</small>
A	ENTANGLEMENT	HIGH	Eliminate, avoid loose clothing / Long hair etc.
B	CRUSHING	LOW	Secure & support workpiece on table.
C	CUTTING, STABBING, PUNCTURING	MEDIUM	Isolate power to machine prior to any checks or maintenance being carried out. Do not adjust or clean machine until the machine has fully stopped. Keep well clear of rotating tool and ensure tool has maximum practical guards. Care must be taken when changing blades.
D	SHEARING	MEDIUM	Make sure all guards are secured shut when machine is on.
F	STRIKING	MEDIUM	Ensure tooling is secure in spindle. Wear safety glasses. Stand clear of moving parts on machine. Remove all loose objects around moving parts. Ensure correct spindle direction.
H	ELECTRICAL	MEDIUM	All electrical enclosures should only be opened with a tool that is not to be kept with the machine.
O	OTHER HAZARDS, NOISE, DUST.	LOW	Wear hearing protection as required. Must be connected to dust extraction.

Plant Safety Program to be read in conjunction with manufactures instructions



ABN 96 000 286 957

"THE JUNCTION" 2 WINDSOR ROAD, NORTHMEAD NSW 2152
Phone (02) 9890 9111 Fax (02) 9890 3888

Authorised and signed by: _____
Safety officer: _____

Manager: _____

Date: Mar-02

GENERAL SAFETY RULES FOR POWER TOOLS

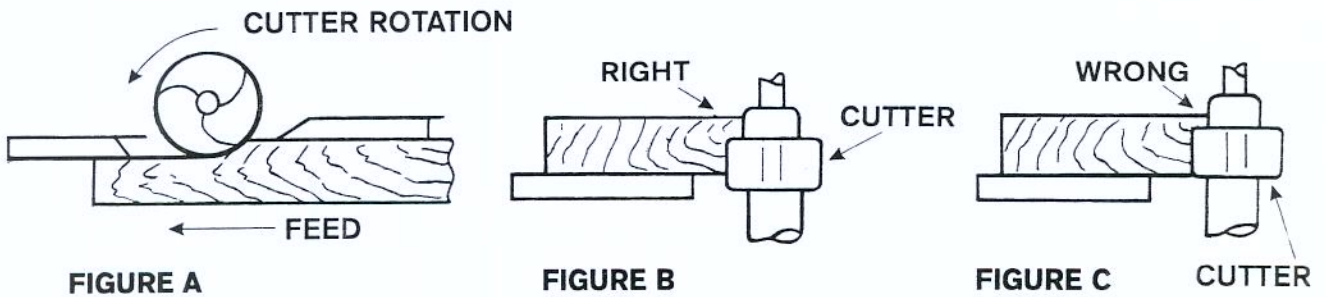
1. **KNOW YOUR TOOL** Read carefully and thoroughly and understand owner's operating manual and labels affixed to the tool. Learn its application and limitations as well as its specific potential hazards peculiar to this tool.
2. **KEEP GUARDS IN PLACE** In working order, and in proper adjustment and alignment.
3. **GROUND THE TOOL** The tool is equipped with a 3 wire lead, it should always be plugged into a 3-hole electrical receptacle. Never connect the third (*green/yellow* or *green*) wire to a live terminal.
4. **REMOVE ADJUSTING KEYS AND WRENCHES** Check to see that keys and adjusting wrenches are removed from tools before turning them on.
5. **KEEP WORK AREA CLEAN** Cluttered areas and benches invite accidents. Floor must not be slippery due to wet or sawdust.
6. **AVOID DANGEROUS ENVIRONMENT** Do not use power tools in damp or wet locations or expose them to rain. Keep work area well lighted. Provide adequate surrounding work space.
7. **KEEP CHILDREN AWAY** All visitors should be kept a safe distance from work area.
8. **MAKE WORKSHOP CHILD-PROOF** With padlocks, master switches, or by removing starter keys.
9. **USE PROPER SPEED** This tool will do the job better and safer when operated at the proper speed.
10. **USE RIGHT TOOL** Do not force tools or attachment to do a job for which it was not designed.
11. **WEAR PROPER APPAREL** Do not wear loose clothing, gloves, neckties or jewelry (rings, wristwatches) to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Roll long sleeves above the elbow.
12. **USE SAFETY GOGGLES(HEAD PROTECTION)** Wear safety goggles at all times. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses. Also, use face or dust mask if cutting operation is dusty, and ear protectors (plugs or muffs) during extended periods or operation.
13. **SECURE WORK PROPERLY** Use clamps or vise to hold work, when practical. It is safer than using your hands and it frees both hands to operate tool.
14. **DO NOT OVERREACH** Keep proper footing and balance at all times.

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15. **MAINTAIN TOOLS WITH CARE** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
 16. **DISCONNECT TOOLS** Before servicing, when changing accessories or attachments, disconnect from electricity.
 17. **USE RECOMMENDED ACCESSORIES** Consult the owner's manual for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazards.
 18. **AVOID ACCIDENTAL STARTING** Make sure switch is in "OFF" position before plug in.
 19. **NEVER STAND ON TOOL** Serious injury could occur if the tool tips over. Do not store materials such that it is necessary to stand on the tool to reach them.
 20. **CHECK DAMAGED PARTS** Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding or moving parts, breakage of parts mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
 21. **NEVER LEAVE MACHINE RUNNING UNATTENDED** Turn power "OFF". Do not leave the tool until it comes to a complete stop.
 22. **DIRECTION OF FEED** Always feed the workpiece into the blade against the rotation of blade or cutters.
 23. **DRUGS, ALCOHOL AND MEDICATION** Never operate tools while under influence of drugs, alcohol, or after taking medication.

WARNING: For Your Own Safety Read Instruction Manual Before Operating Tool. Wear Eye Protection. Always use both spindle nuts and make sure spindle nuts are tight. Feed workpiece *against* rotation of cutter. Do not use awkward hand position. Keep fingers away from revolving cutter. Use fixtures when necessary. Use overhead guard when adjustable fence is not in place.

ADDITIONAL SAFETY RULES FOR WOOD SHAPERS

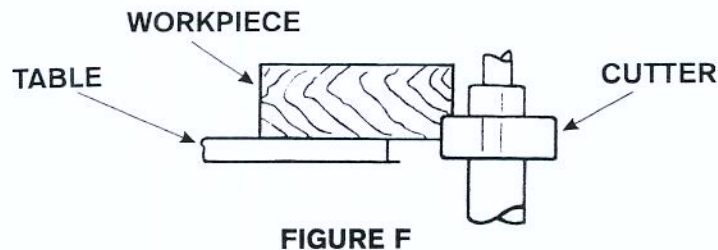
1. *Never* run the stock between the *fence* and the *cutter*.
2. *Always* feed *against* the cutter rotation, as shown in *figure A*.
3. When shaping with collars and starting pins, the collar must have sufficient bearing surface, as shown in *figure B*. *Figure C* illustrates the wrong way for this operation as the collar does not have sufficient bearing surface.



4. When shaping with collars and starting pin, the work must be fairly heavy in proportion to the cut being made as shown in *figure D*. Under no circumstances should short light bodied work be shaped against the collars as shown in *figure E*.



5. When shaping with collars, the cutter should be positioned below the collar whenever possible, as shown in *figure F*.



6. The fence should be adjusted endwise so that the opening never exceeds more than is required to clear the cutter.
7. *Always* use a *miter gauge* and *clamp* attachment when edge shaping work is less than 15mm (3/4") wide. The fence should be removed during this operation.

SPECIFICATIONS

Standard spindle diameter.....	30mm or 1"
Vertical movement of spindle.....	70mm(2 3/4")
Tilting range of spindle.....	0° - 30°
Length of spindle for cutter	70mm(2 3/4")
Motor.....	2.2kw(3HP)
Maximum cutter diameter:.....	200mm(7 7/8")
Dimensions of table top.....	680mm x 590mm(26 3/4" x 23 1/4")
Diameter of extraction nozzle.....	100mm(4")
Height of table	845mm(33 1/4")
Net weight.....	115kgs(250 lbs)
Gross weight.....	165kgs(340 lbs)

STANDARD EQUIPMENTS:

30mm(or 1") spindle with spacers, adjustable fences, T-slot miter gauge, cutter guard and dust chute and one table ring.

OPTIONAL EQUIPMENTS AND ACCESSORIES:

3/4" and 1/2" spindle with spacers, extra table rings, 1/4" and 1/2" router bit collets and sliding tables are available but not packed with your shaper. Please contact your distributor.

POWER CONNECTIONS

ALL POWER CONNECTION MUST BE DONE BY QUALIFIED ELECTRICIAN. A separate electrical circuit should be used for the shaper. This circuit should not be less than No.12 wire and should be protected with a 15 Amperes time lag fuse if three phase current is applied or a 20 Amperes time lag fuse if single phase current is applied. Before connecting the motor to the power line, be sure that the electric current is of the same characteristics as stamped on motor nameplate. All line connections should make good contact.

If extension cord is allowed according to local codes and ordinances. **USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use on heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. The correct cord size to be used depends on cord length and nameplate ampere rating. If in doubt, consult qualified electric service personnel.

NOTE: RUNNING ON LOWER VOLTAGE OR HIGHER VOLTAGE THAN THE VOLTAGE THAT THE MOTOR WAS DESIGNED WILL DAMAGE THE MOTOR.

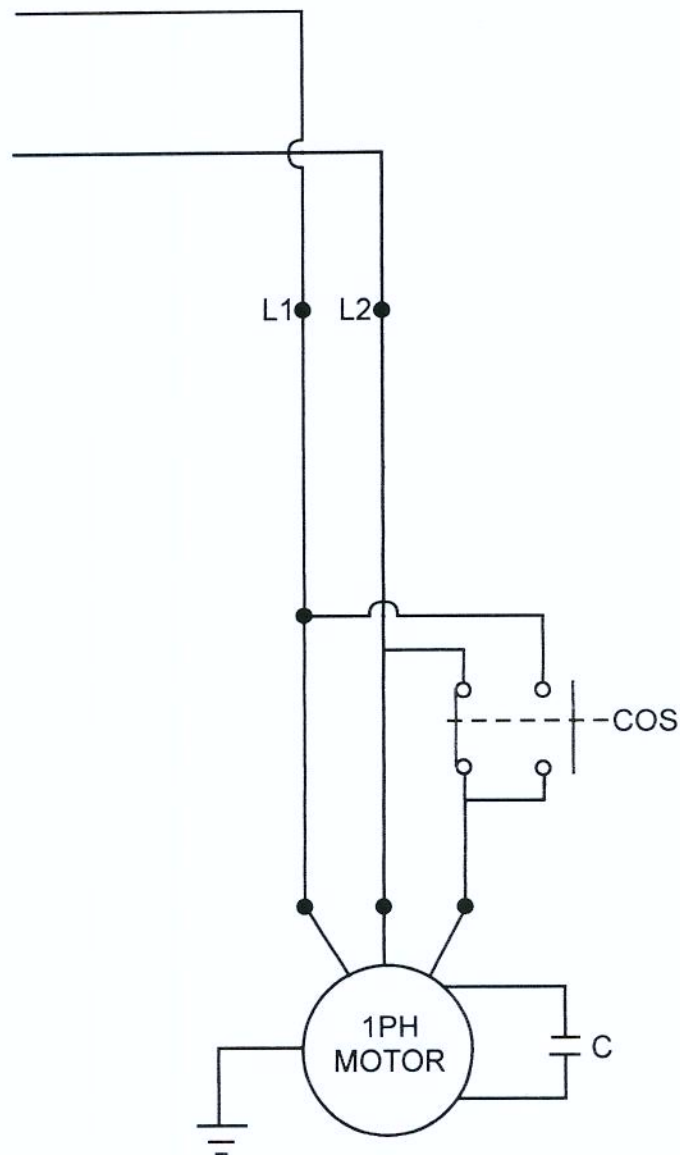
WIRING

The following are the wiring diagrams for single phase and three phase shaper for qualified electrician. Please do not wire yourself.

1. WIRING DIAGRAM FOR SINGLE PHASE MOTOR WITH FORWARD AND REVERSE FUNCTION.

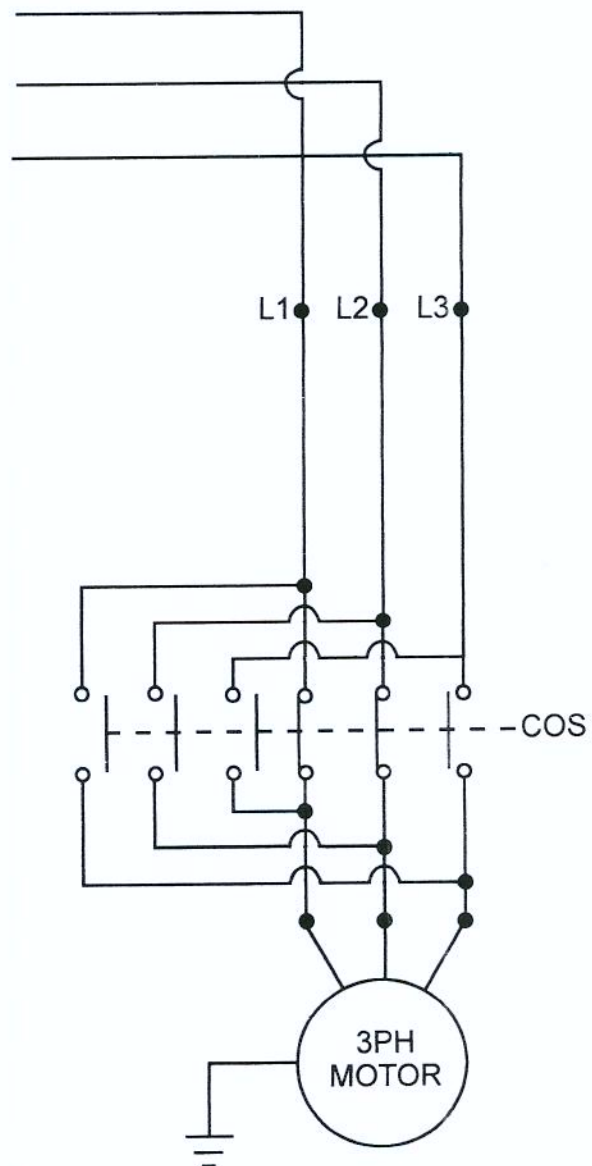
C=CONDENSER

COS=FORWARD AND REVERSE SWITCH



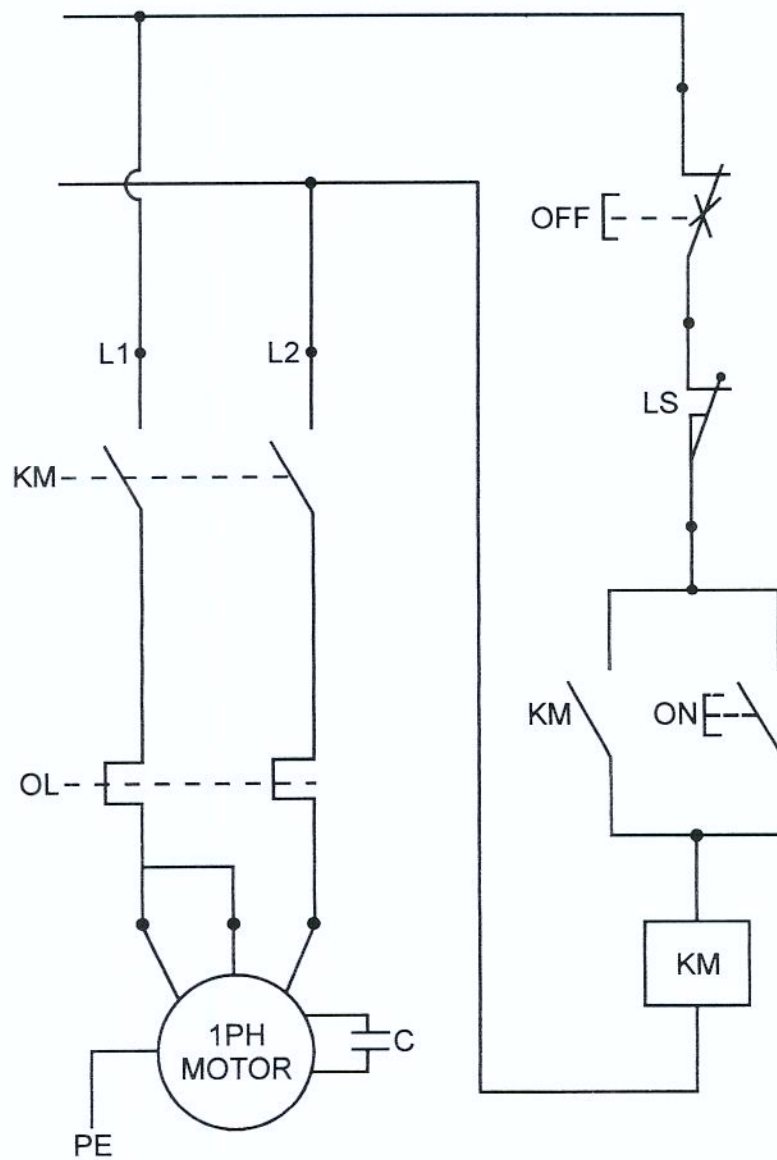
2. WIRING DIAGRAM FOR THREE PHASE MOTOR WITH FORWARD AND REVERSE FUNCTION.

COS=FORWARD AND REVERSE SWITCH



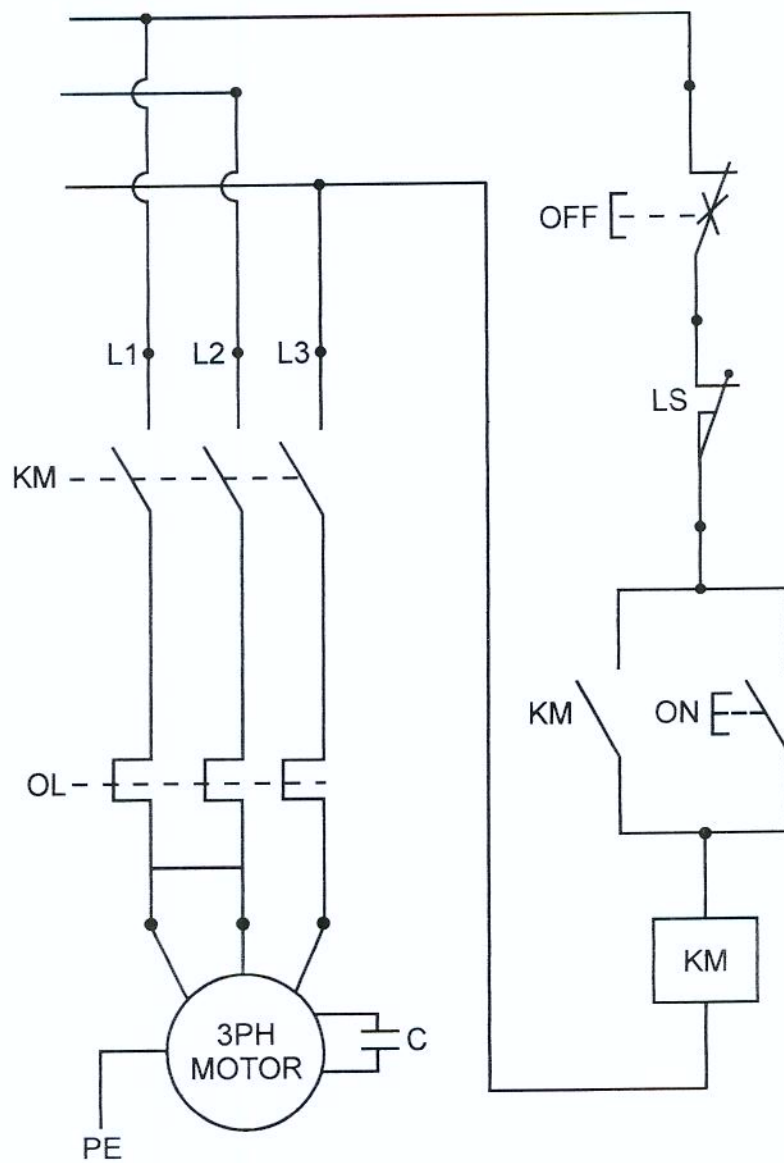
3. WIRING DIAGRAM FOR SINGLE PHASE MOTOR WITH OVERLOAD PROTECTION AND LIMIT SWITCH

KM=MAGNETIC COIL
OL=OVERLOAD PROTECTION
LS=LIMIT SWITCH
C=CONDENSER
PE=GROUND



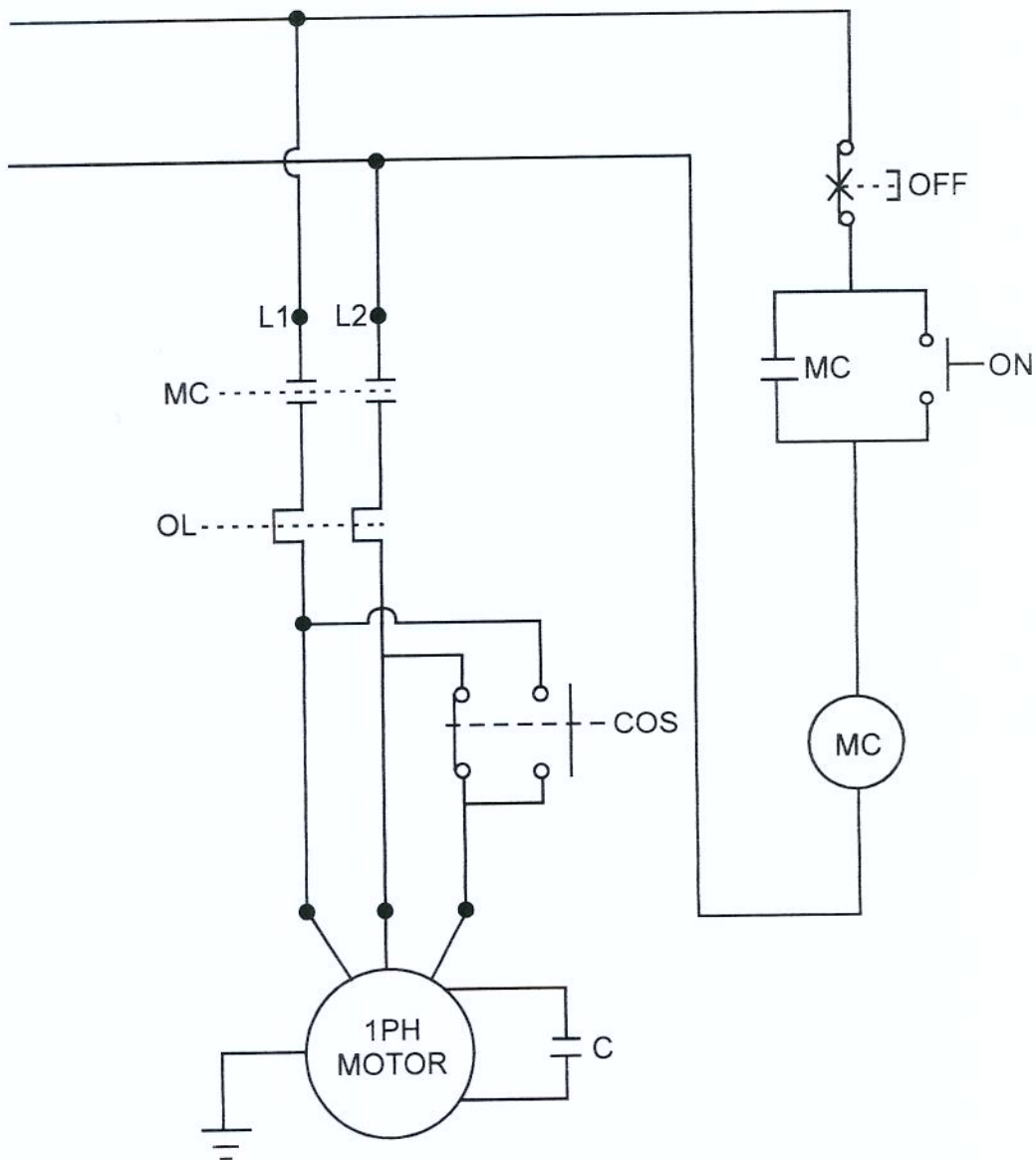
4. WIRING DIAGRAM FOR THREE PHASE MOTOR WITH OVERLOAD PROTECTION AND LIMIT SWITCH

KM=MAGNETIC COIL
OL=OVERLOAD PROTECTION
LS=LIMIT SWITCH
PE=GROUND



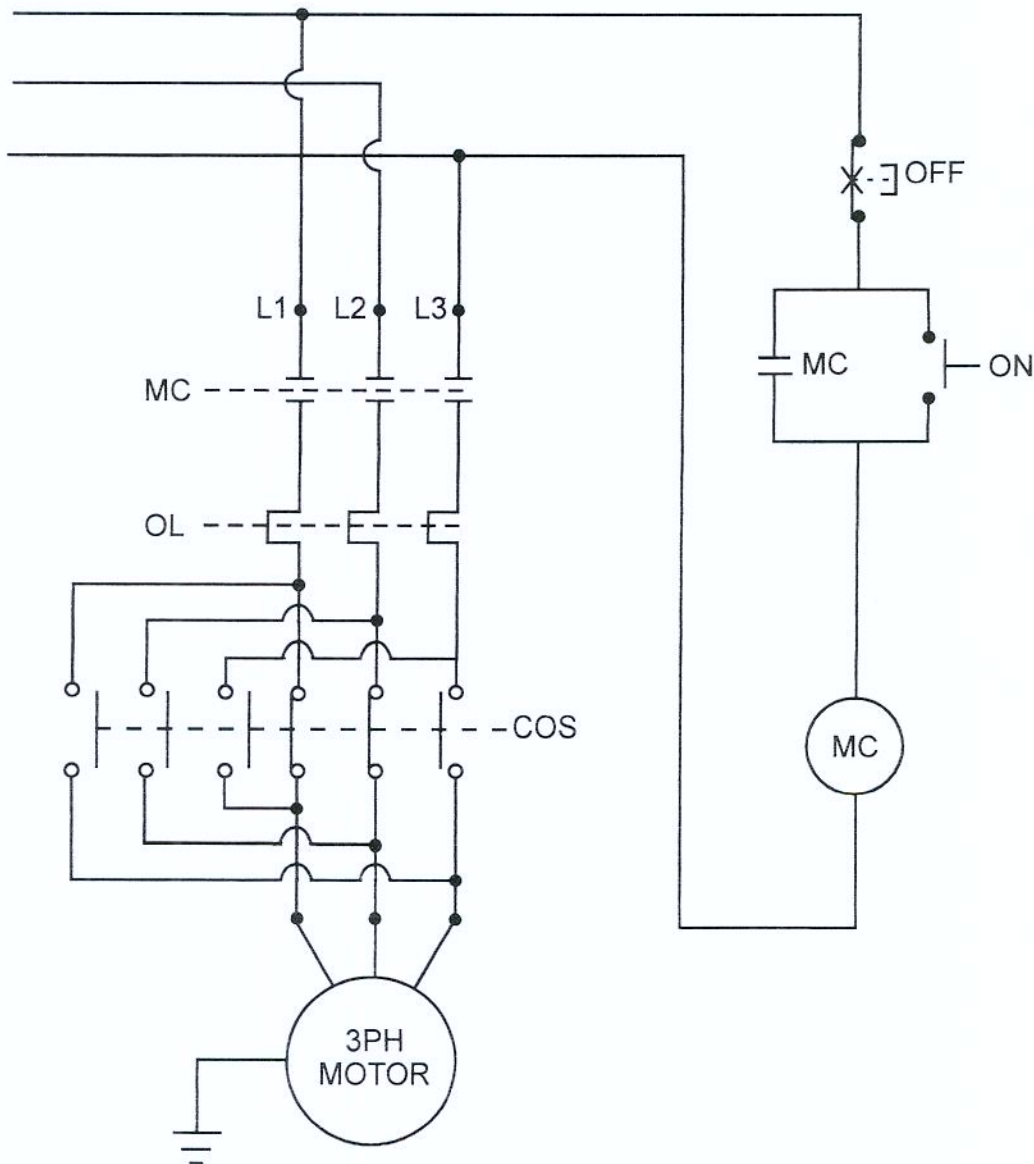
5. WIRING DIAGRAM FOR SINGLE PHASE MOTOR WITH OVERLOAD PROTECTION AND FORWARD AND REVERSE FUNCTION.

MC=MAGNETIC COIL
OL=OVERLOAD PROTECTION
COS=FORWARD AND REVERSE SWITCH
C=CONDENSER



6. WIRING DIAGRAM FOR THREE PHASE MOTOR WITH OVERLOAD PROTECTION AND FORWARD AND REVERSE FUNCTION.

MC=MAGNETIC COIL
 OL=OVERLOAD PROTECTION
 COS=FORWARD AND REVERSE SWITCH
 C=CONDENSER



WARNING:

This manual shows six types of wiring but the shaper uses only one type of wiring. Before repairing or making change to any of the electrical parts, the electrician must check the tape of wiring in the shaper. **BEFORE REPAIRING OR CHANGING ANY PART, DISCONNECT SHAPER FROM POWER SOURCE.**

GROUNDING INSTRUCTIONS

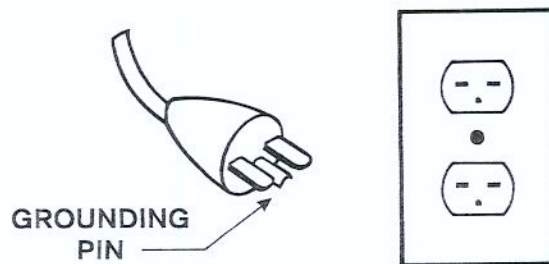
In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This shaper is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Proper connection of the equipment of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the shaper is properly grounded.

Repair or replace damaged or worn cord immediately.

If your shaper is provided with a power supply cord with a plug: This shaper is intended for use on a circuit that has an outlet that looks like the one illustrated below. The plug should look like the plug illustrated.



Make sure the shaper is plugged to an outlet having the same configuration as the plug. No adapter is available or should be used with this shaper.

Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3 pole receptacles that accept the shaper's plug.

If the shaper must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after reconnection, the shaper should comply with all local codes and ordinances.

If your shaper is provided with a power supply cord without a plug: This shaper is intended for use directly on a circuit that extends from the power source. Have it connected by a qualified electrician.

If your shaper is not provided with a power supply cord, but provided with a wiring box: There is a 19mm(3/4")diameter opening on the wiring box for connection of a 19mm(3/4")cord conduit through the opening. Please connect grounding wire to grounding lug provided. Have a qualified electrician connect this unit to the right power source.

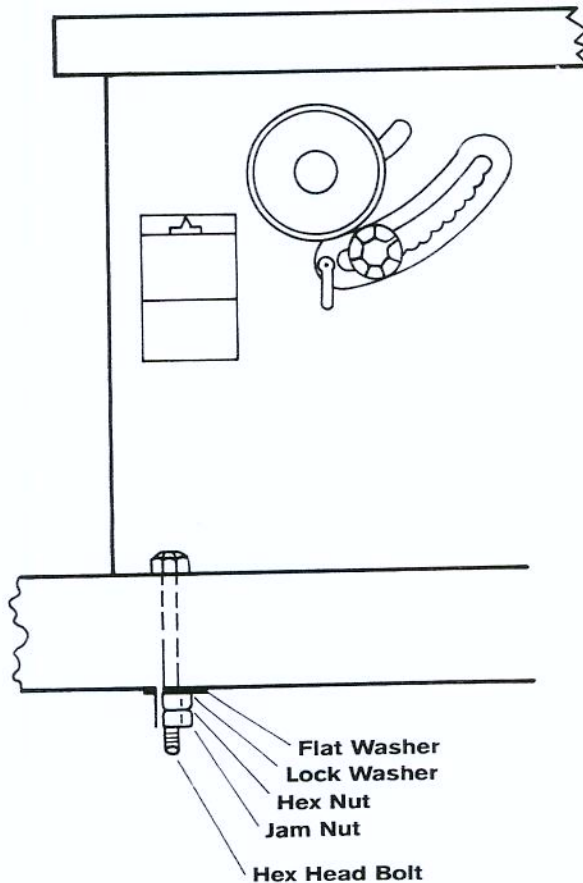
This shaper should be connected to a grounded metal permanent wiring system; or to a system having an equipment-grounding conductor.

MOUNTING SHAPER TO WORKBENCH WARNING: Turn off shaper and unplug before making any adjustments.

1. When mounting the shaper to a work bench, a solid bench is preferable to a plywood bench where noise and vibration will be more noticeable.
2. Hardware to mount this shaper to a workbench is NOT SUPPLIED with the shaper. However we recommend the hardware used be no smaller than the following:

Quantity	Description
4	Hex head bolts with appropriate length
4	Flat washers
4	Lockwasher
8	Hex nut

3. Example of mounting this shaper to workbench, as shown.



TO RUN

BE SURE THAT ALL SWITCHES ARE IN "OFF" POSITIONS BEFORE CONNECTIONG THE MACHINE TO THE POWER SOURCE. If your shaper is with F/R switch, to start the machine, switch to the turing direction desired. If your shaper is without F/R switch, press the green button to start the machine.

TO CHANGE ROTATION DIRECTION

※Please note that this section is for spindle with Forward and Reverse function.

The Rotation direction is changed by turning the F/R switch. Turn the F/R switch to "OFF" position and wait until the spindle is completely stopped before change to other direction.

Rotation of spindle

The spindle should rotate against the work to be cut. Otherwise change the power source wires to obtain the correct rotation direction.

CHANGING SPINDLE

※This section is for shaper with interchangeable spindles.

Load spindle

- 1.Screw the draw bar into the threaded hole at the bottom of the spindle.
- 2.Put the spindle with draw bar into the housing. Be sure the locking lever is in the locked position.
- 3.Use the standard wrench to lock the draw bar with the draw bar nut. **BE SURE IT IS TIGHT ENOUGH.**
- 4.Make sure to release the locking lever after tightening the spindle.

***TO LOCK THE SPINDLE, PUSH THE LOCKING LEVER WHILE TURNING THE SPINDLE UNTIL IT REACHES AT THE GROOVE ON THE SPINDLE AND TURN THE LOCKING LEVER CLOCKWISE. TO UNLOCK, TURN THE LOCKING LEVER ANTI-CLOCKWISE.**

Unload spindle

- 1.Lock the spindle. Loosen and remove the draw nut by using a standard wrench provided.
- 2.Take the spindle out from the top of the housing. If you can not take spindle out, just use a piece of wood(please do not use any metal block or hammer for it can damage the thread), hit the bottom of the draw bar to pop the spindle up and out.

TO RAISE OR LOWER THE SPINDLE

The spindle is raised and lowered with the spindle raising handwheel. Be sure to unlock it by using the locking lever before raising or lowering the spindle to required height.

TO TILT THE SPINDLE

STOP THE MACHINE BEFORE TILTING THE SPINDLE. Unlock the spindle. The spindle is tilted with the spindle tilting handwheel. The spindle tilting degree can be read from the label beside the handwheel. **BE SURE THE CUTTER DOES NOT TOUCH THE TABLE AND THE FENCE.**

MOUNTING CUTTER

The cutter is mounted directly on the spindle with a variety of spacer collars, which are locked in place by two locking nuts. It is better that the cutter is mounted at the lower portion of the spindle to avoid any vibration. When cutting, the largest section of the cutter or the cutter itself should be close to the table such that the workpiece itself serves the function of hooding or containing the cutter. BE SURE THE LOCKING NUT IS TIGHT ENOUGH.

FENCE OPERATION

The fence is mounted to the table with two screws for easy removal when not needed. Each side of the two-piece fence can be adjusted independently sidewise, only the left fence can be adjusted front to back. It is faced with smooth aluminium plates to minimize marring the workpiece. For rabbetting and other straight type cuts* where the cut does not remove the entire thickness of the board, both sides of the fence should be in line.

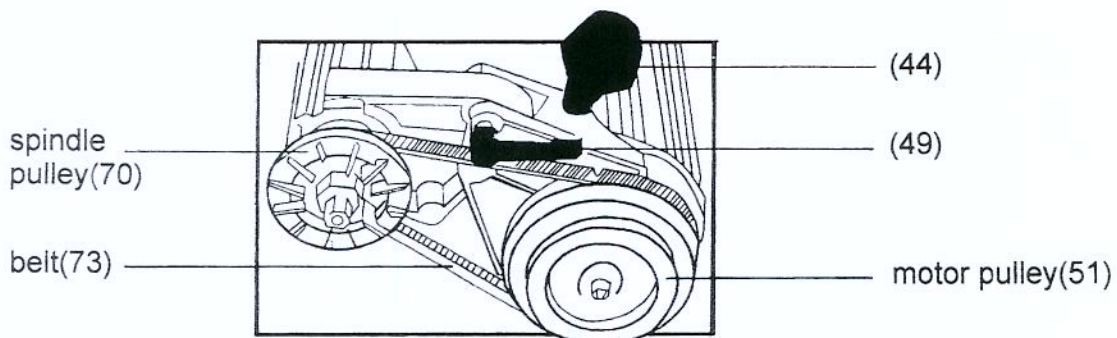
*Straight cuts

To set up for a straight cut after the cutter has been installed and its height above the table adjusted by measurement.

1. Roughly position the right hand fence to produce the depth of cut desired. Adjust it sidewise to minimize the gap between the fence and cutter. Final adjustment of the depth of cut can be made by cutting on a waste piece just past the center line of the cutter and measuring the depth.
2. Using a straight edge, align the left hand fence to the right and side. Adjust the fence sidewise to be close to the cutter to minimize the opening.

CHANGING SPINDLE SPEED

This shaper has three spindle speeds. To change spindle speed, open the back door of the cabinet. See the following figure. Loosen the locking knob(49), push the handle(44) forward to loosen the belt so that it can easily change its position and roll the belt to the new position. Pull back the handle(44) so that the belt gets the right tension and lock it.



LUBRICATION

Clean out dust or chips on the spindle cartridge, racks gears and other moving parts occasionally and apply grease on them to allow free movement when raising or lowering the spindle.

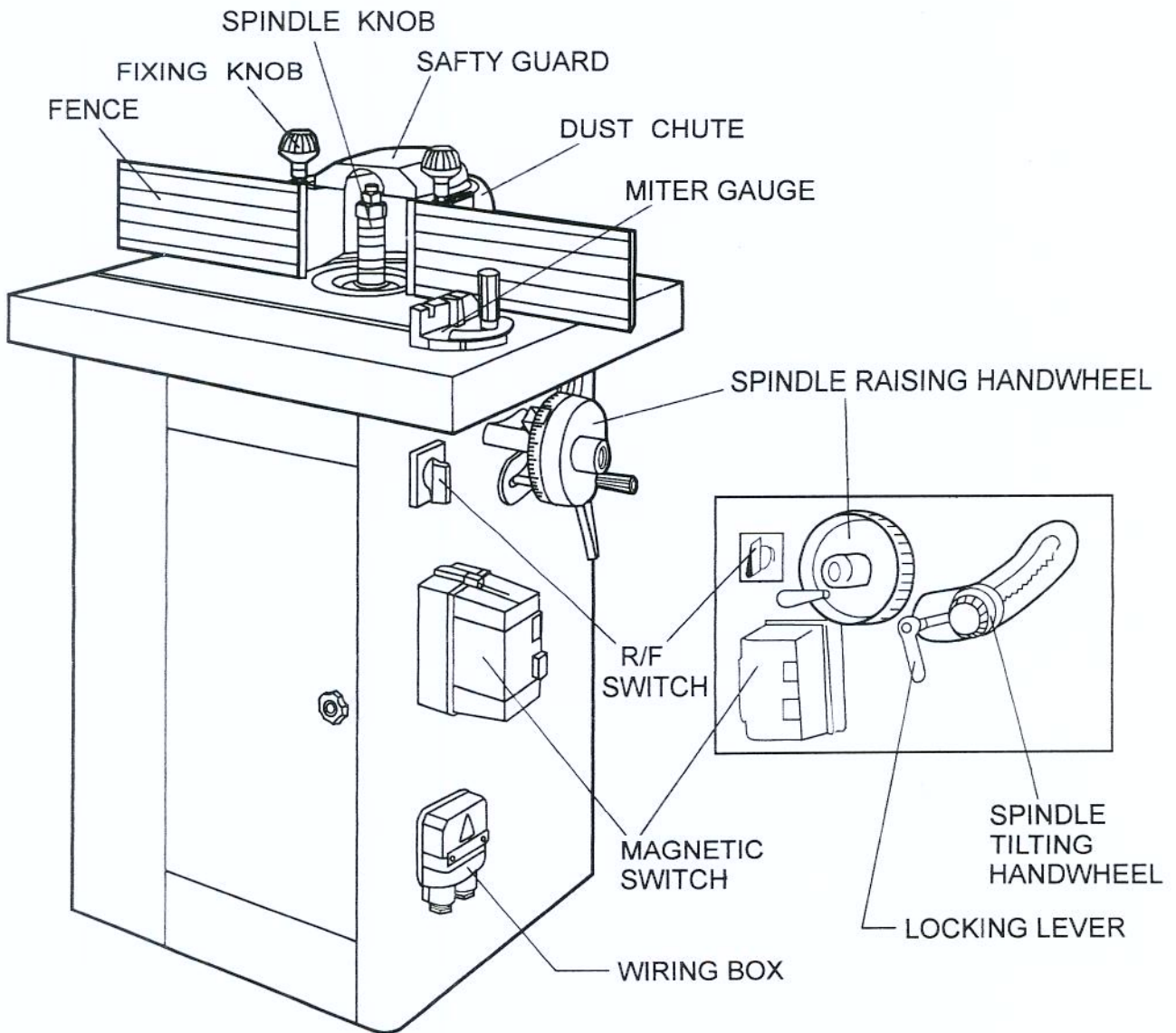
TROUBLE SHOOTING GUIDE

WHAT IS WRONG?	WHAT TO DO...(SOLUTIONS)
A. Shaper will not start. 1. Shaper not plugged in. 2. Fuse blown or circuit breaker tripped. 3. Cord damaged.	1. Plug in shaper. 2. Replace fuse or reset circuit breaker. 3. Have cord replaced by qualified service center or technician.
B. Overload kicks out frequently. 1. Extension cord too light or too long. 2. Feed the stock more slowly. 3. Cutter in poor condition (dull or gummed).	1. Replace with adequate size or cord. 2. Feeding stock too fast. 3. Clean or replace cutter, see also "unsatisfactory cuts" in Trouble C.
C. Shaper makes unsatisfactory cuts. 1. Dull cutter. 2. Feeding working in wrong direction. 3. Gum or pitch on cutter.	1. Replace cutter. 2. Feed work against the cutter rotation. 3. Remove cutter and clean with turpentine and steel wool. 4. Clean table with turpentine and steel wool.
D. Cutterhead does not come up to speed. 1. Extension cord too light or too long. 2. Low house current. 3. Motor not wired for current voltage.	1. Replace with adequate size cord. 2. Contact the electric company. 3. Refer to motor nameplate for correct wiring.
E. Machine vibrates excessively. 1. Damaged cutterhead. 2. Bad V-belt. 3. V-belt not tensioned correctly. 4. Belt pulley. 5. Improper motor mounting.	1. Replace cutterhead. 2. Replace belt. 3. Adjust belt tension by moving the V-belt tension handwheel. 4. Replace pulley. 5. Check and adjust motor mounting.
F. Cutterhead does not raise freely. 1. Sawdust and dirt in raising mechanism.	1. Brush or blow out loose dust and dirt.

ASSEMBLY DIAGRAMS

The following pages are the assembly diagrams for the owner self reference. If the owner decides to order any parts, please write clearly the following information:

1. Date of purchase.
2. Serial number.
3. Selling dealer.
4. Detailed description of failure.
5. Detailed information of particular work to be carried out
6. Working period - number of working hours.

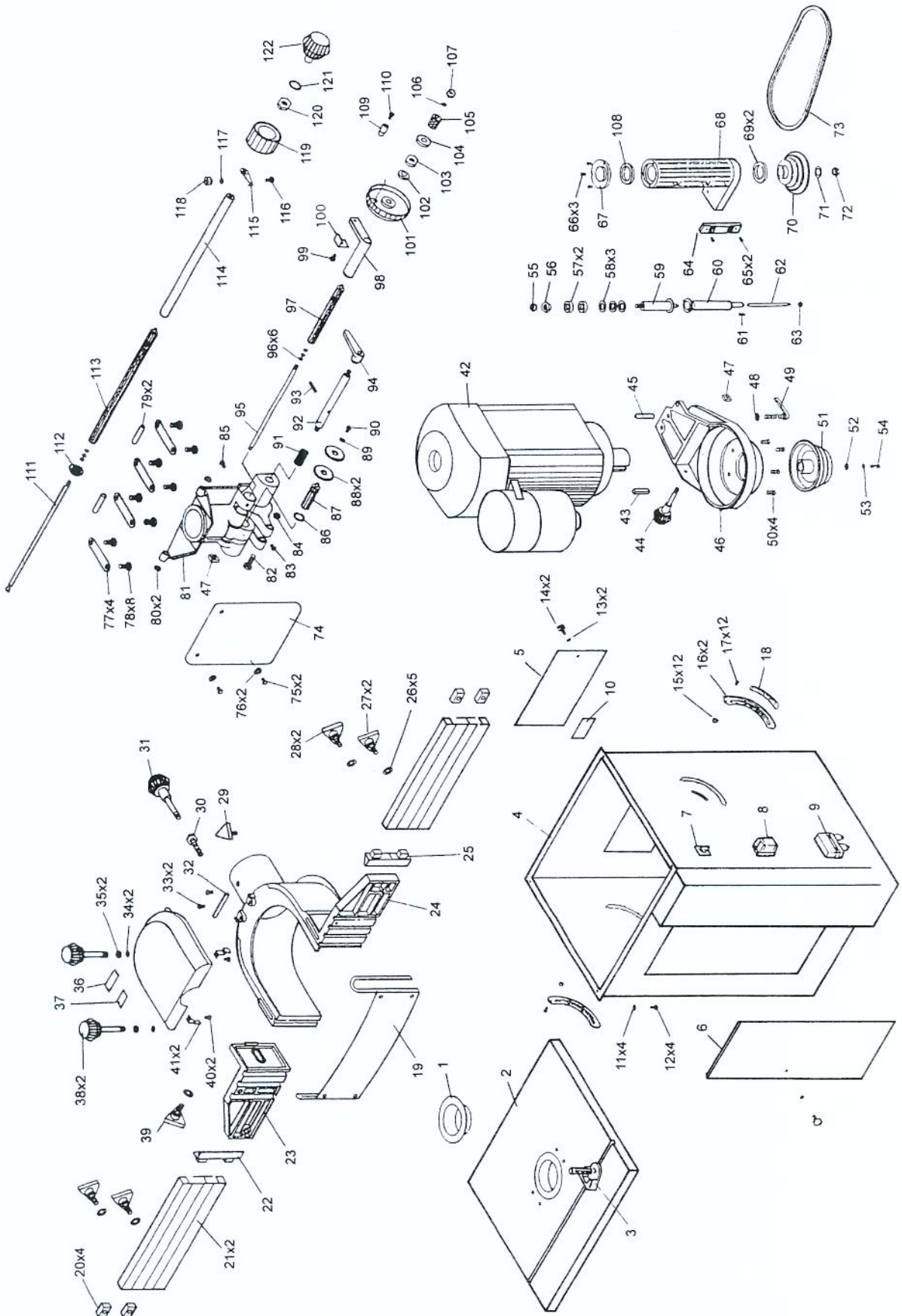


OUTSIDE FEATURES

OUTSIDE FEATURES

The manufacturer reserve the right to make changes for improvement or technical reasons without changing the descriptions or pictures or diagrams in this manual.

PART DIAGRAM

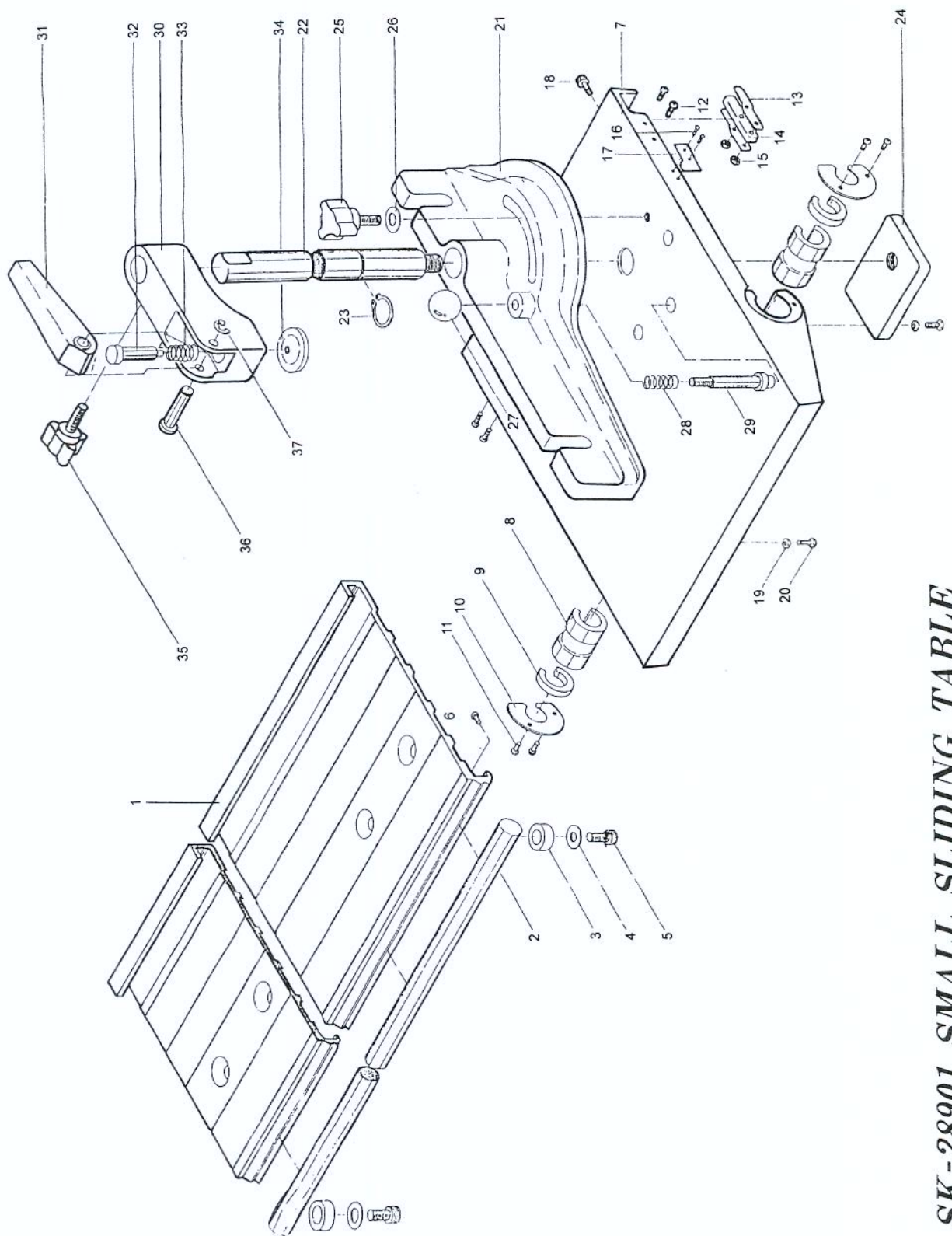


PART LIST

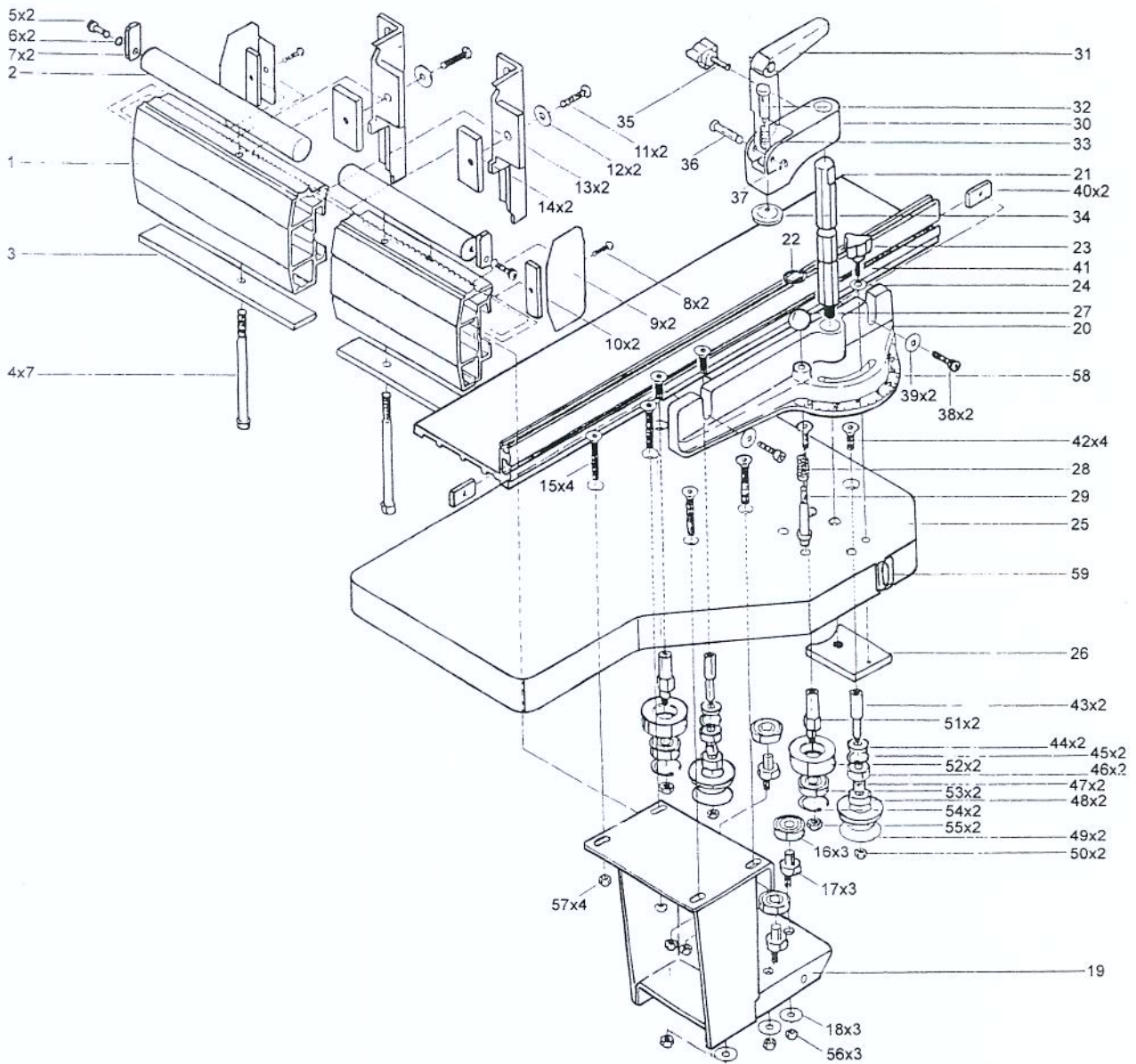
1.RING	42.MOTOR	82.SCREW
2.TABLE	43.KEY	83.SCREW
3.MITER GAUGE	44.HANDLE	84.NUT
4.CABINET	45.PIN	85.SCREW
5.BACK COVER	46.MOTOR SEAT	86.SNAP RING
6.FRONT DOOR	47.NUT	87.COPPER
7.FORWARD-REVERSE CONTROL SWITCH	48.WASHER	88.GEAR
8.MAGNETIC SWITCH	49.TIGHTENING HANDLE	89.WASHER
9.WIRING BOX	50.SCREW	90.SCREW
10.RPMLABEL	51.MOTOR PULLY	91.SPRING
11.WASHER	52.WASHER	92.LOCKING LEVER
12.SCREW	53.SPRING WASHER	93.SCREW
13.WASHER	54.SCREW	94.HANDLE
14.KNOB	55.NUT	95.CONNECTING ROD
15.NUT	56.NUT	96.O-RING
16.TILT ADJUSTING RACK	57.SPACER #1	97.copper RACK
17.SCREW	58.SPACER #2	98.TUBE
18.LABEL	*59.SPINDLE	99.SCREW
19.SAFETY	*60.SPINDLE MOUNTING SHAFT	100.POINTER
20.SQUARE NUT	61.KEY	101.SPINDLE RAISING HANDEL
21.FENCE	62.DRAW BAR	102.WASHER
22.PLASTIC INSERT #1	63.DRAW BAR NUT	103.NUT
23.ADJUST ABLE FOOT	64.RACK	104.WASHER
24.FENCE ASSEMBLY WITH DUST CHUTE	65.SCREW	105.FIXING KNOB
25.PLASTIC INSERT #2	66.SCREW	106.WASHER
26.WASHER	67.COVER	107.NUT
27.KNOB	68.SPINDLE HOUSING	108.BEARING
28.KNOB	69.BEARING	109.HANDLE
29.KNOB	70.SPINDLE MOUNTING SHAFT	110.SCREW
30.BOLT	71.WASHER	111.CONNECTING ROD
31.ADJUSTING KNOB	72.NUT	112.SPECIAL WASHER
32.ROUND PIN	73.BELT	113.COPPER RACK
33.SCREW	74.RUBBER DUST GUARD	114.TUBE
34.O-RING	75.SCREW	115.POINTER
35.WASHER	76.NUT	116.SCREW
36.LABEL	77.FIXTURE	117.WASHER
37.LABEL	78.SCREW	118.SCREW
38.FENCE FIXING KNOB	79.ROUND BAR	119.SPINDLE TIL TING HAND WHEEL
39.KNOB	80.BUSHING	120.NUT
40.SCREW	81.SPINDLE HOUSING SUPPORT	121.WASHER
41.FIXING SPRING		122.FIXING KNOB

*If the owner decides to order the spindle or spindle mounting shaft, other than the informations mentioned in previous page, the following information also should be clearly written in order to get the right spindle.

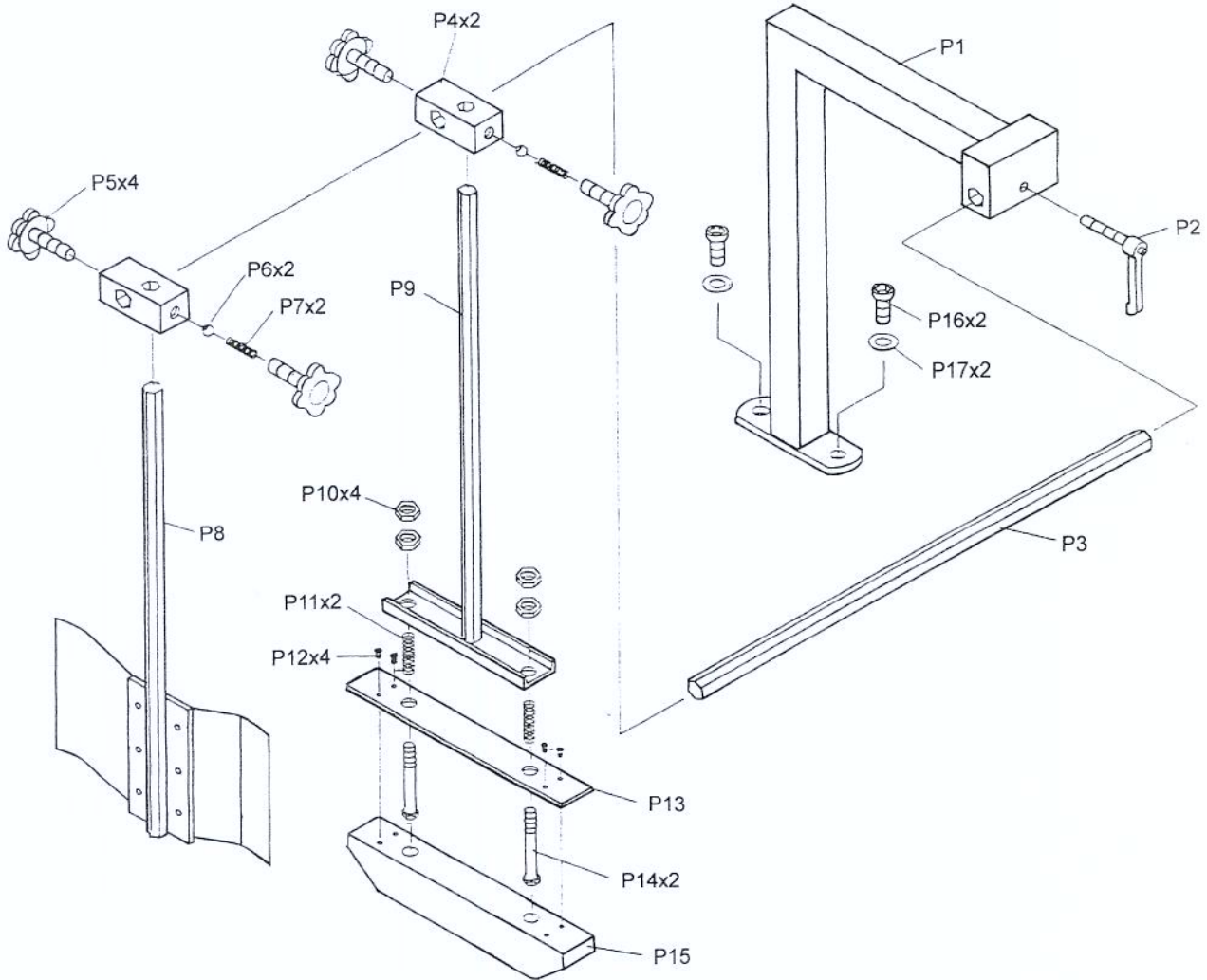
- 1.Is the spindle on your shaper an interchangeable type?
 - 2.Spindle diameter.
 - 3.Spindle length.
-



SK-28901 SMALL SLIDING TABLE



SK-28902 BIG SLIDING TABLE



EXTRA SAFTY DEVICE FOR CE STANDARD