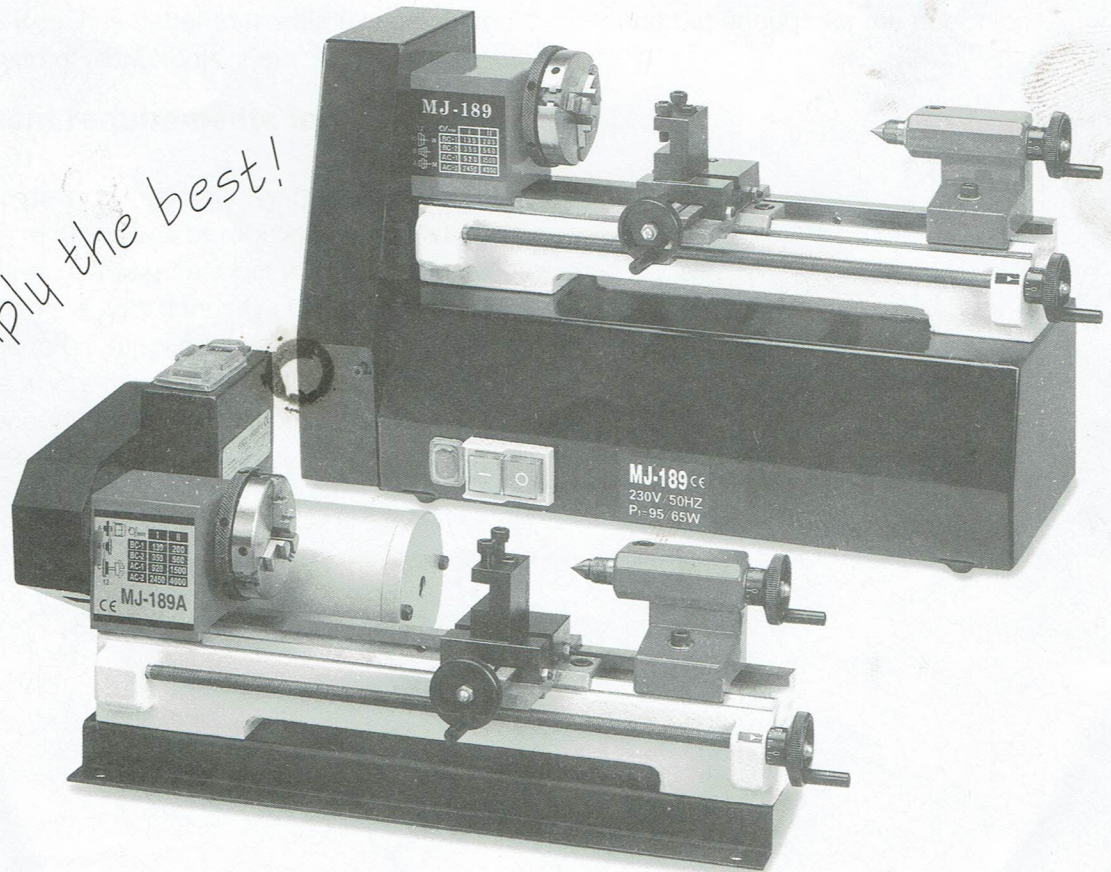


MJ-189(A) BENCH LATHE

Instruction Manual



Simply the best!



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Important Notice for CE

Handling of machine

1. The total weight of the machine must be ensured before handling.
2. The net weight of the machine without stand is about 8.6 Kgs. It is better to handle this machine with the help of lifting tools.

Environment requirements for installation

1. Be sure to provide sufficient light for operation according to the codes or regulations published for local area. If you do not get the information about lighting, a light intensity of 300Lux is the least value to be supplied.
2. The place where machine install must be flat and big enough for the operation.

Noise level

1. The noise level of the machine is about 70 dB(A) during operation.
2. The place where machine install must be flat and big enough for the operation.

Safety Rulers for All Power Tools

1. Read and become familiar with the entire instruction manual. Learn the tools applications, limitations and possible hazards.
2. Earth all tools. If the tool is equipped with a three-prong plug, it must be plugged into a three-contact electric outlet. The third prong is a ground to provide protection against accidental electrical shock. If an adapter is used to accommodate a two-contact outlet, the adapters grounding lug must be connected to a known ground. Never remove the third prong on a three-prong plug.
3. Check damaged parts. A guard or any other part that is damaged should be checked to ensure that it will operate properly and perform its intended function before the tool is used further. Check for proper alignment of moving parts and for possible of moving parts and for possible broken parts, loose mountings, or any other condition that could affect the tools operation. A guard or other damaged part should be properly repaired or replaced.
4. Disconnect power before servicing and when changing accessories such as blades, cutters.
5. Keep guards in place and in working order.
6. Protect your eyes from being injured by objects thrown by a power tool. Always wear safety glasses or safety goggles.
7. Wear a face mask or dust mask if the cutting operation produces dust.
8. Don't force the tool. It will give a better and safer performance when used on jobs for which it was designed.
9. Avoid accidental starting. Ensure that the power switch is in the OFF position before plugging in the power cord. Remove the switch when the tool is not being used.
10. Remove adjusting keys and wrenches. Ensure that keys and adjusting Wrenches are removed from the tool before turning it on.
11. Drugs, alcohol, and medication. Do not operate tool if you are under the influence of drugs, alcohol, or medication that could effect your ability to use the tool properly.
12. Use recommended accessories. Using improper accessories can be hazardous. If in doubt, check the instruction manual.
13. Never stand on a tool. Falls can result in injury.
14. Never leave a tool running unattended. Turn the power switch OFF. Don't leave the tool until it has come to a complete stop.
15. Always remove the power cord plug from the electric outlet when making adjustments, changing parts, cleaning, or working on the tool.
16. Avoid dangerous conditions. Don't use power tools in wet or damp areas or expose them to rain. Keep your work area clean and weltd. Do not use power tools in area where fumes from paint, solvents, or flammable liquids pose a potential hazard.
17. Keep visitors and children away. Other people should keep a safe distance from the work area, especially when the tool is operating.
18. Use the proper tool. Don't force a tool to do a job for which it was not designed.
19. Keep tools in top condition. Keep them clean and sharp for the best and safest performance. Follow the instructions for changing accessories and lubricating.
20. Secure all work. When practical use clamps or a vise to hold work. It is safer than using your hands and prevents round or odd-shaped pieces from turning.
21. Don't overreach. Keep proper footing and balance at all times. Wear oil-resistant rubber-soled footwear. Keep the floor clear of oil, scrap wood, and other debris.
22. Wear proper clothing and, if necessary, protective hair covering. Loose clothing or jewelry can get caught in moving parts.
23. Make the workshop childproof with padlocks, master switches or by removing starter keys.

Technical Data

Lathe:

Centre height..... 48mm(1.8")
 Distance between centre..... 200mm(7.8")
 Turning diameter over bed..... 96mm(3.7")
 Cross slide travel..... 52mm(2")

Headstock:

Spindle hole..... 10mm(0.4")
 Spindle nose..... M14x1
Spindle equipped with ball bearings.
 Main spindle speeds.....
 130 / 200 / 350 / 560 / 920 / 1500 / 2450 / 4000rpm

Tailstock:

Tailstock spindle travel..... 23mm(0.9")
 Tailstock spindle nose..... M14x1

Motor: AC single phase and two-speed power.

Rated power..... 65 / 95W

Net weight..... 8.6Kg

Basic Equipment

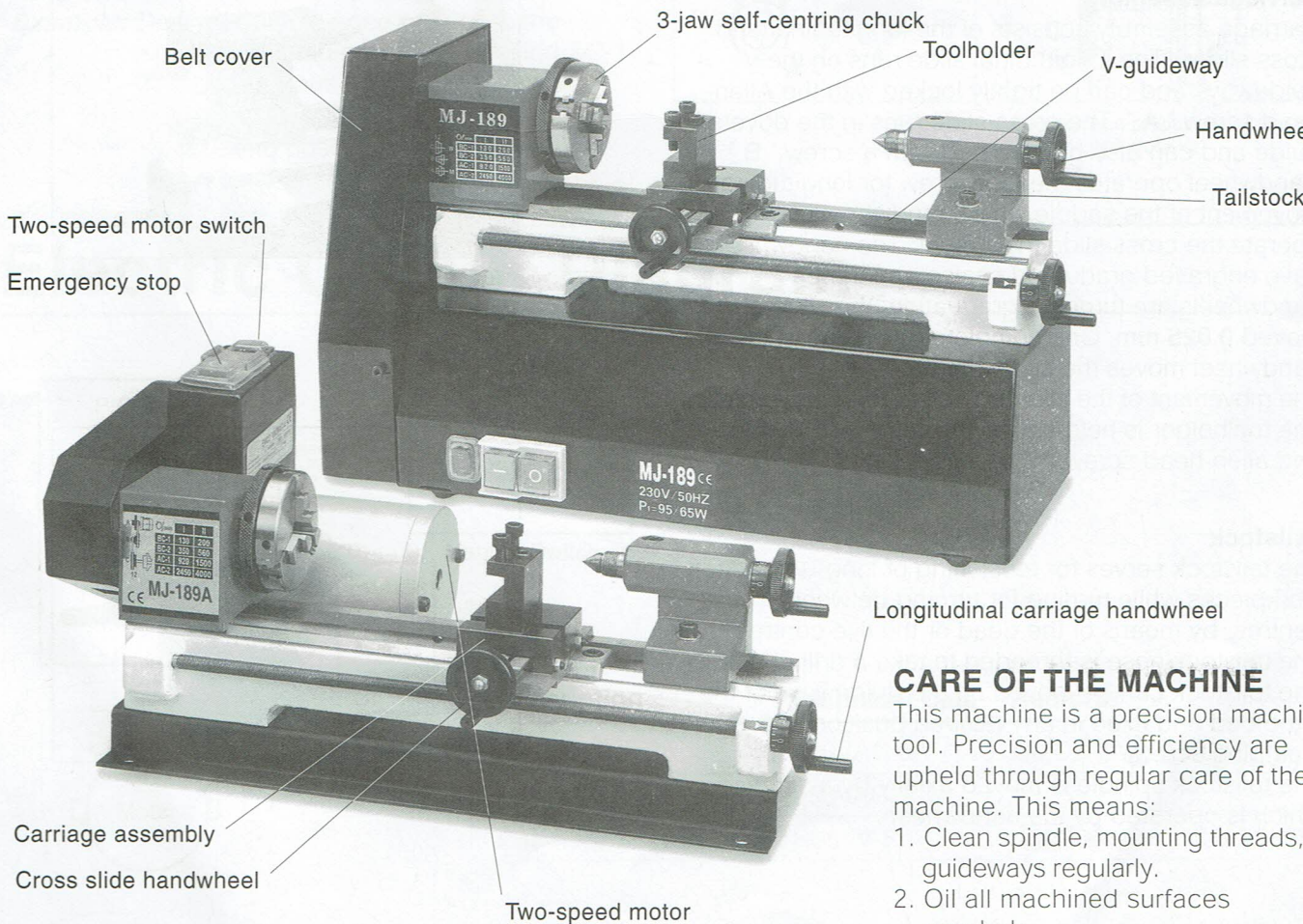
BASIC EQUIPMENT

Headstock, bed with V-guideway, longitudinal slide, cross slide, toolholder, tailstock, two-speed motor, driving belt, cover, 3-jaw self-centring chuck and instruction manual.

The work potential of the basic equipment can be increased by the addition of the respective accessories.

SETTING UP THE MACHINE

1. Remove the rust protective from all bright machined surfaces with mineral spirits and rag.
2. Give the machine surfaces a light coating of oil (such as sewing machine oil, etc).
3. It is recommended that the machine be attached to a board by means of the four holes which can be found in the base of the machine (MJ-189A).



CARE OF THE MACHINE

This machine is a precision machine tool. Precision and efficiency are upheld through regular care of the machine. This means:

1. Clean spindle, mounting threads, guideways regularly.
2. Oil all machined surfaces regularly.

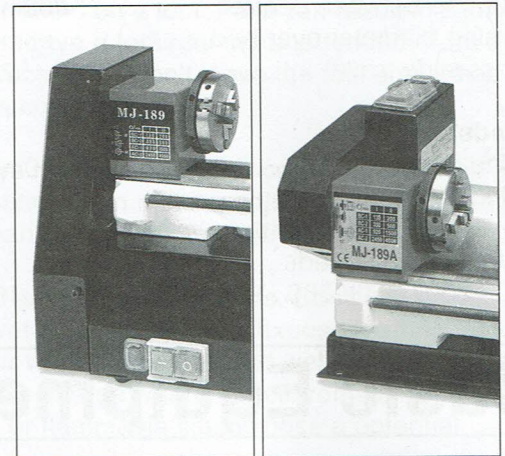
Working Elements

Lathe bed:

The lathe bed is made of high-grade cast-iron and is T-ribbed, which ensures rigidity and low vibration. The tailstock, spindle nose and the carriage assembly and lead screw are mounted on the lathe bed.

Headstock with speed index, carrier plate, gears and driving motor

The headstock is tightly bolted to the lathe bed. The main spindle is held in two grooved ball bearings. The various clamping tools (3-jaw chuck, drill chuck, chuck collet, etc.) are screwed onto the spindle nose. The cover is mounted onto the left-hand side of the headstock and bed. The cover carries the driving motor with motor belt pulley and switch box. The main spindle is driven via pulley. The cover should be closed while working to protect against accidents.



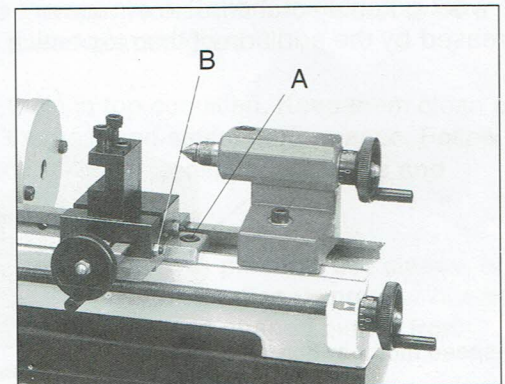
Driving motor

The driving motor is a two speed motor, operated by the switch in position I or II.

Carriage assembly

Carriage assembly consists of the longitudinal and cross slides. The longitudinal slide runs on the V-guideways and can be tightly locked with the Allen-head screw "A". The cross slide runs in the dovetail guide and can also be clamped with a screw "B". Handwheel operates the leadscrew for longitudinal movement of the saddle whilst handwheel is used to operate the cross slide movement. The handwheels have engraved graduated scales and if the handwheels are turned 1 graduation, the slide are moved 0.025 mm. One complete revolution of the handwheel moves the slide 1 mm.

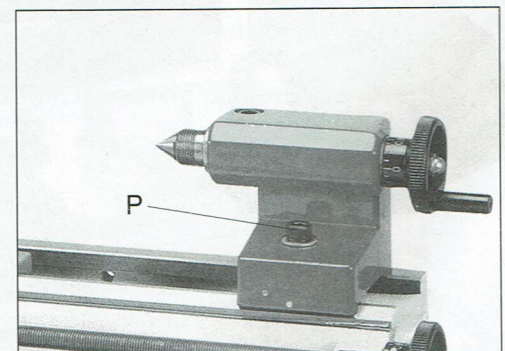
The movement of the slides is called feed movement. The toolholder is held on the top slide by a T-nut and allen-head screw.



Tailstock

The tailstock serves for tensioning of long workpieces while turning for turning between centres, by means of the dead or the live centre. The tailstock nose is threaded to take a drill chuck. The tailstock can be moved on the guideways of the lathe bed and fixed in any desired position with a clamping screw "P".

The tailstock spindle is moved axially by a screw which is operated by the handwheel.



The Speeds of the MJ-189(A)

Choosing the correct speed:

▲ The correct speed depends on the diameter and strength of the workpiece.

Generally:

The larger the diameter of the workpiece, the slower the speed.

The tougher the material, the slower the speed.

▲ For drilling and milling, the speed does not depend on the diameter or size of the workpiece, but on the diameter of the tool. (see speed index).

Speed index for adjustment of desired speed-see index on headstock.

Example: Aluminum bar, dia.6mm, requires a speed of 1360 rpm (please see chart).

Adjustment of the spindle speeds:

1. Open the belt guard.
2. The shorter drive belt is mounted on pulley A and countershaft pulley B. During speed adjustment, this belt position must not be changed.
3. Mounting the belts for spindle drive-belt position spindle speeds are indicated on the speed index.

Example: Desired spindle speed 920rpm, the speed index indicates belt position AC-1. The belt is mounted on pulley A and spindle pulley C, the motor switch is switched to position I.

CUTTING

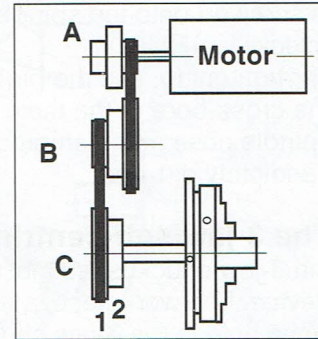
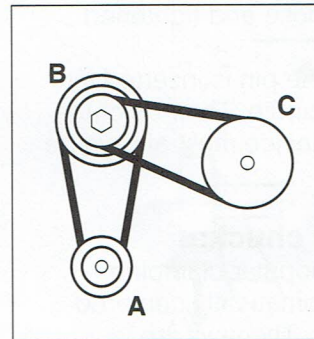
Material	Ø of work					
	~6mm	6~12mm	12~24mm	24~36mm	36~48mm	48~72mm
Steel	1360rpm	680	440	350	250	170
Fancy Metal	2400	1360	680	440	350	250
Wood Plastic	2400	2400	2400	2400	1360	680

Max. non load speed of spindle 3400rpm

DRILLING

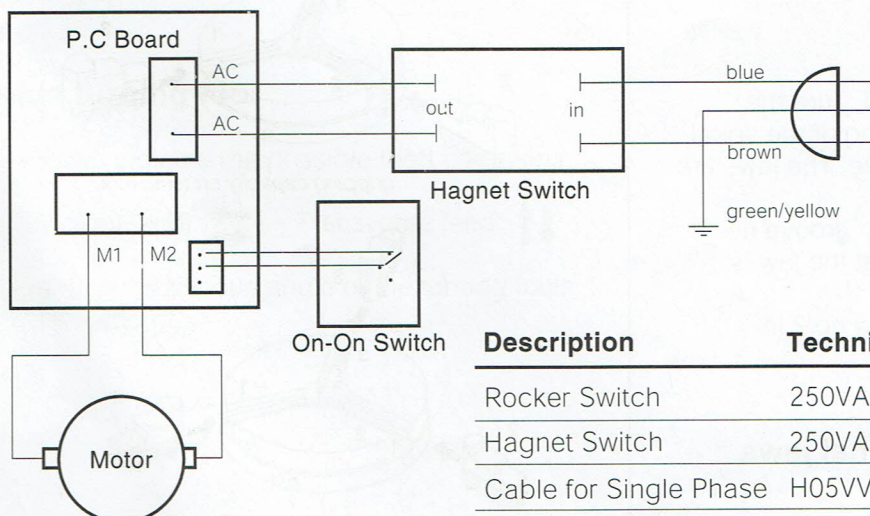
Material	Ø of drill			
	~2mm	2~4mm	4~6mm	6~8mm
Steel	1360rpm	680	440	350
Fancy Metal	2400	1360	680	440

Max. non load speed of spindle 2100rpm



1=outer belt position
2=inner belt position

Electric Circuit Diagram



Description	Technical Data	Remark
Rocker Switch	250VAC 6A	UL CSA
Hagnet Switch	250VAC	
Cable for Single Phase	H05VV-F	

Mounting the Workpiece

Adjustment of cutting tool center height

The height of tool bit tip must coincide exactly with the center of the lathe spindle. Have a number of small pieces of metal of appropriate thickness ready and slip them under the tool bit, then adjust the tip to the center of the spindle or tail stock. If the tip of tool bit is not positioned correctly, not only will the correct dimensions not be obtained, the tip of the tool may also be damaged.

Tool bit grinding and shaping

Use only a tool bit of ground tip. The tip can have any of a number of shapes depending on the purpose of the work.

Workpiece holding

Depending on the type of workpiece and the type of work to be done, the workpiece is held in one of the various clamping devices. First the clamping device is screwed onto the spindle nose and tightened (clockwise).

For tightening, use the pin. The pin is inserted into the cross-bore of the main spindle. Threads of the spindle nose and clamping device must always be absolutely dirt-free.

The 3-jaw self-centring chuck:

the 3-jaw chuck is the most popular clamping device. The workpiece is automatically centered when held in the 3-jaw chuck. The jaws are reversible and can be used as either internal or external jaws.

Workpieces with a diameter of up to 22mm are gripped with the internal jaws. Pins are used for tightening (as illustrated).

Workpieces with a diameter of up to 50mm are gripped with the external jaws, necessitating the reversal of the jaws. Do not exceed clamping capacity!

Reversing the jaws

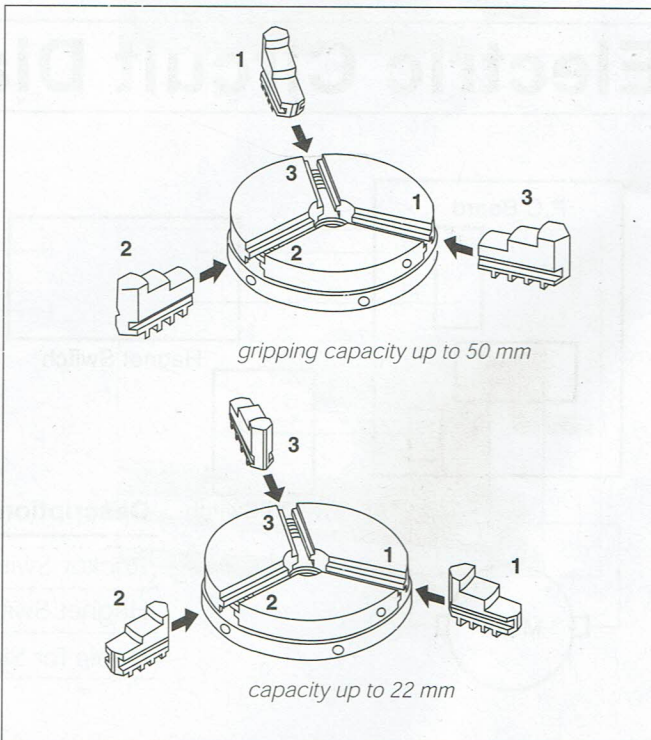
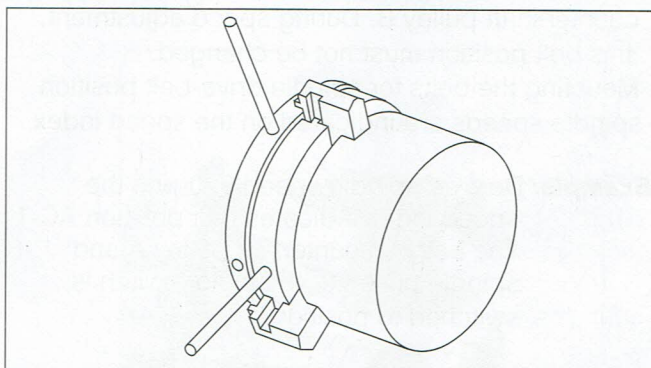
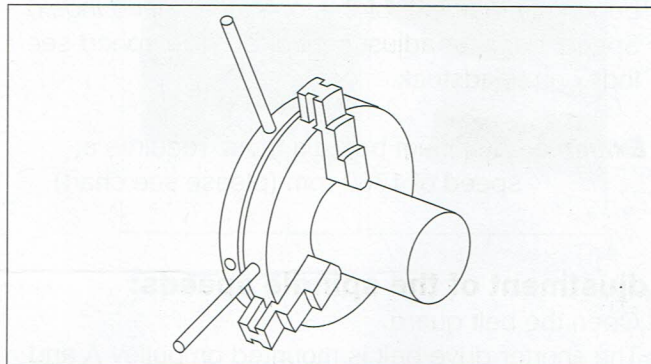
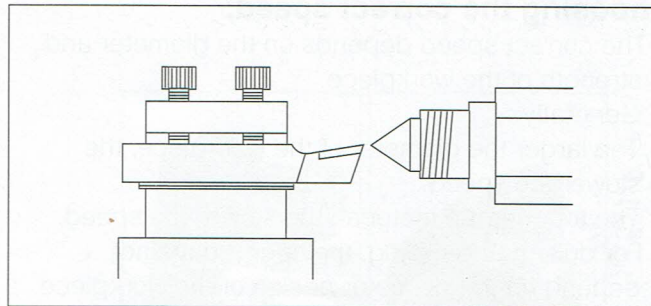
The jaws are unscrewed and cleaned. Turn the knurled tension ring until the beginning of the spiral thread comes to the respective groove. The jaws are then inserted in the following order:

1. Jaw no. 3 is inserted in reverse into groove no. 1 and the tension ring rotated, so that the jaw is held firmly
2. follow the same procedure with Jaw no.2 in groove no. 2
3. and jaw no. 1 in groove no.3

Remounting the jaws as internal jaws

Mount in the following order:

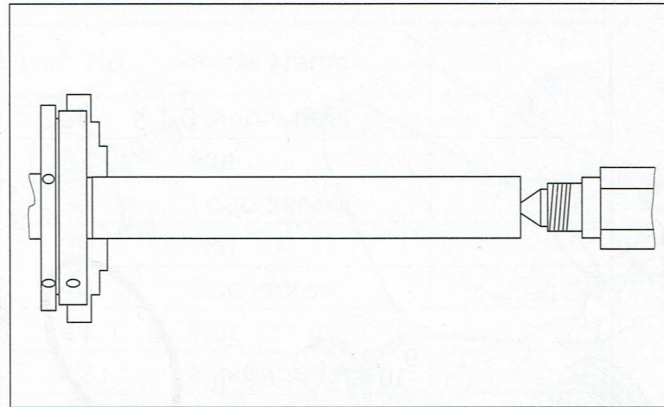
1. Jaw no. 1 in groove no. 1
2. Jaw no. 2 in groove no. 2
3. Jaw no. 3 in groove no. 3



For working on longer pieces, the centre in the tailstock ram is used for support and tensioning. For this purpose, a centre hole is made in the face of the workpiece. The dead centre must be continually lubricated. Lubrication is not necessary when the live centre is used.

Making a centre hole in the face of the workpiece:

The workpiece is mounted in the 3-jaw chuck and turns. Drill chuck (screw onto the tailstock ram) with centre drill is moved toward workpiece by operation of the tailstock handwheel.



The various turning tools and their uses

A different tool is required for each method of turning, as illustrated.

The tools in our turning tool selection are already ground.

Roughing tool: is used for removing a large amount of material in a short time.

Side tools are used for longitudinal and transverse turning and for turning acute corners.

Planing tool: for a smooth transverse surface.

Parting - off tool: is used for grooving and parting-off workpieces.

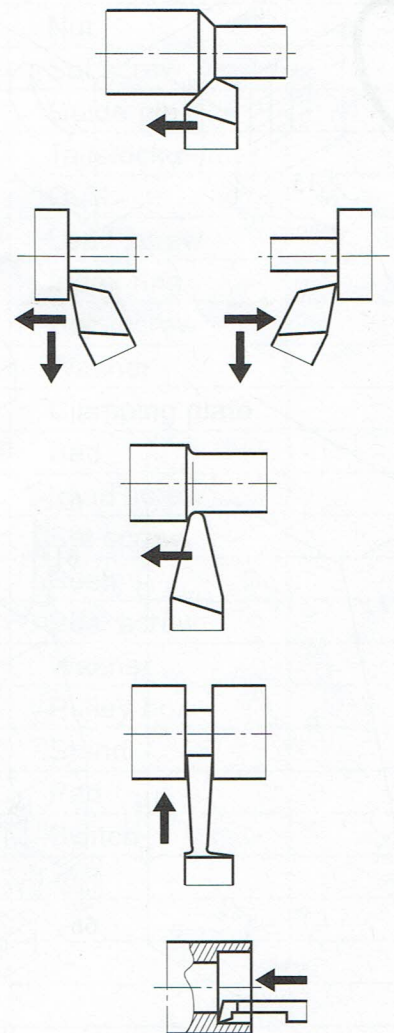
- Some important points to note when parting - off:
 - exact centre height of tool bit point
 - slowest spindle speed (170, 250 rpm.)
 - lubrication

Inside turning tool

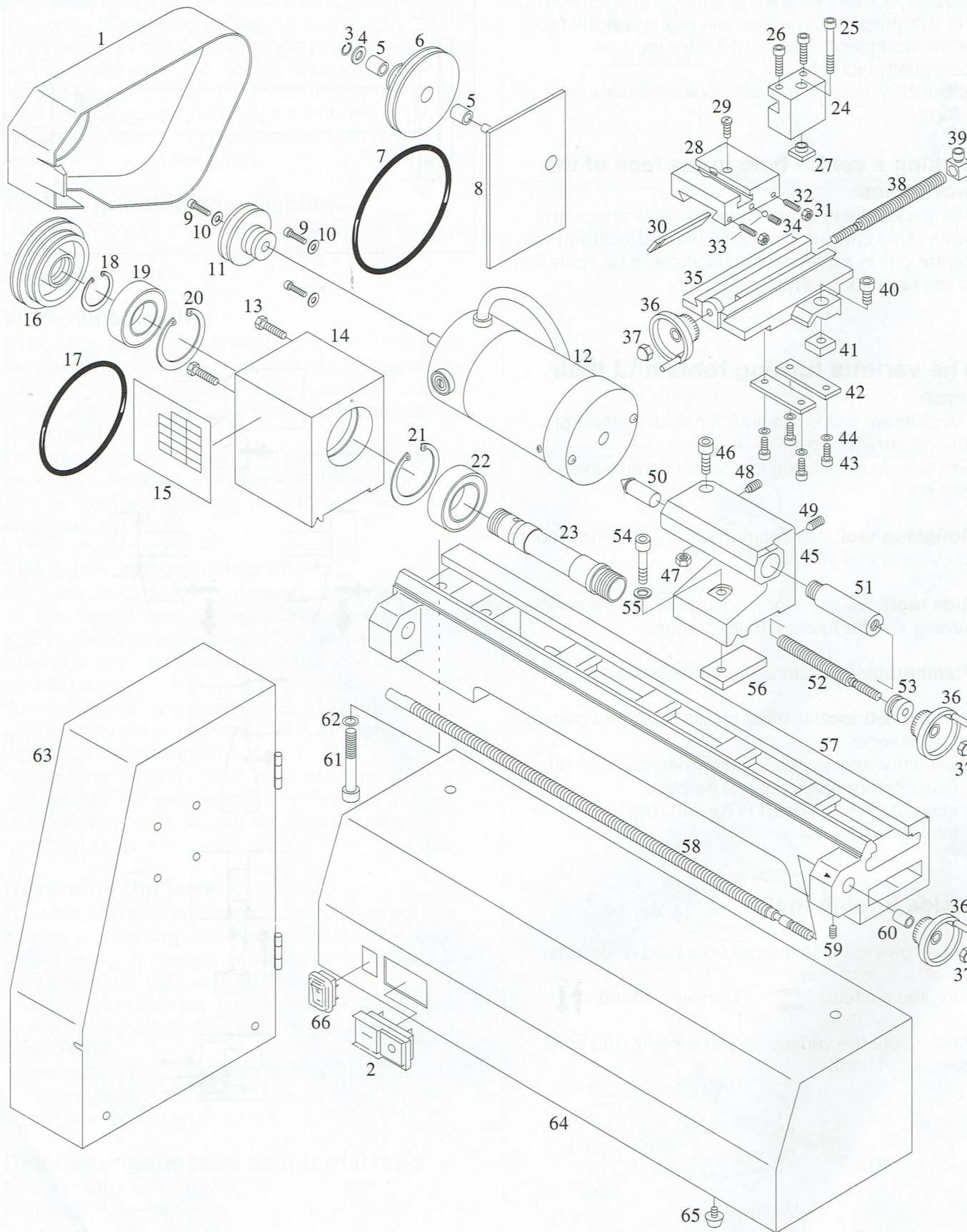
The arrows indicate the possible feed directions.

Longitudinal feed: \longleftrightarrow Transverse feed: \updownarrow

Please note the various angle of the turning tools (see illustration)!



Exploded View (MJ-189)

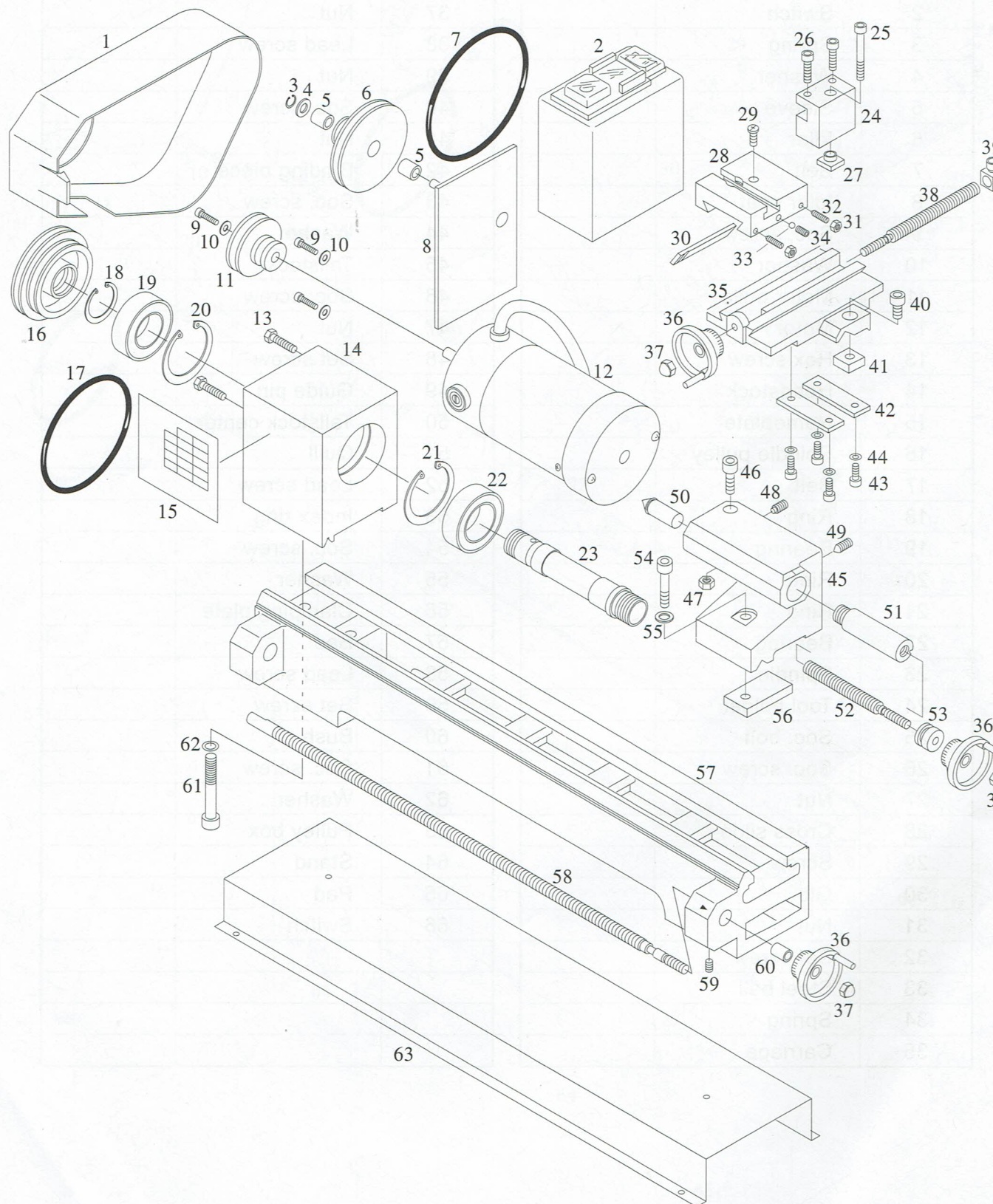


Parts List (MJ-189)

Ref. No.	Parts Name	
1	Cover	
2	Switch	
3	Spring	
4	Washer	
5	Sleeve	
6	Idler	
7	Belt	
8	Idler seat	
9	Soc. screw	
10	Washer	
11	Motor pulley	
12	Motor	
13	Hex screw	
14	Headstock	
15	Nameplate	
16	Spindle pulley	
17	Belt	
18	Ring	
19	Bearing	
20	Ring	
21	Ring	
22	Bearing	
23	Spindle	
24	Tool holder	
25	Soc. bolt	
26	Soc. screw	
27	Nut	
28	Cross slide	
29	Screw	
30	Gib	
31	Nut	
32	Set screw	
33	Steel ball	
34	Spring	
35	Carriage	

Ref. No.	Parts Name	
36	Hand wheel	
37	Nut	
38	Lead screw	
39	Nut	
40	Soc. screw	
41	Nut	
42	Binding piece	
43	Soc. screw	
44	Washer	
45	Tailstock	
46	Soc. screw	
47	Nut	
48	Set screw	
49	Guide pin	
50	Tailstock center	
51	Quill	
52	Lead screw	
53	Index ring	
54	Soc. screw	
55	Washer	
56	Clamping plate	
57	Bed	
58	Lead screw	
59	Set screw	
60	Bush	
61	Soc. screw	
62	Washer	
63	Pulley box	
64	Stand	
65	Pad	
66	Switch	

Exploded View (MJ-189A)



Parts List (MJ-189A)

Ref. No.	Parts Name	
1	Cover	
2	Switch	
3	Spring	
4	Washer	
5	Sleeve	
6	Idler	
7	Belt	
8	Idler seat	
9	Soc. screw	
10	Washer	
11	Motor pulley	
12	Motor	
13	Hex screw	
14	Headstock	
15	Nameplate	
16	Spindle pulley	
17	Belt	
18	Ring	
19	Bearing	
20	Ring	
21	Ring	
22	Bearing	
23	Spindle	
24	Tool holder	
25	Soc. bolt	
26	Soc. screw	
27	Nut	
28	Cross slide	
29	Screw	
30	Gib	
31	Nut	
32	Set screw	
33	Steel ball	
34	Spring	
35	Carriage	

Ref. No.	Parts Name	
36	Hand wheel	
37	Nut	
38	Lead screw	
39	Nut	
40	Soc. screw	
41	Nut	
42	Binding piece	
43	Soc. screw	
44	Washer	
45	Tailstock	
46	Soc. screw	
47	Nut	
48	Set screw	
49	Guide pin	
50	Tailstock center	
51	Quill	
52	Lead screw	
53	Index ring	
54	Soc. screw	
55	Washer	
56	Clamping plate	
57	Bed	
58	Lead screw	
59	Set screw	
60	Bush	
61	Soc. screw	
62	Washer	
63	Base	