

Champro®

METALWORKER



MILL DRILL

MODEL NO: CMD300

PART NO: 7610860

OPERATION & MAINTENANCE INSTRUCTIONS

UK
A | CE



ORIGINAL INSTRUCTIONS

DL0723 - Rev 7

INTRODUCTION

Thank you for purchasing this CLARKE product. Before attempting to use this product, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to your purchase giving you long and satisfactory service.

IMPORTANT

Please read all of the safety and operating instructions carefully before using this product. Please pay particular attention to all sections of these instructions that display warning symbols and notices.



WARNING: THIS SYMBOL IS USED THROUGHOUT THE INSTRUCTIONS WHENEVER THERE IS A RISK OF PERSONAL INJURY. ENSURE THAT THESE WARNINGS ARE READ AND UNDERSTOOD AT ALL TIMES.

GUARANTEE

This product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt which will be required as proof of purchase. This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

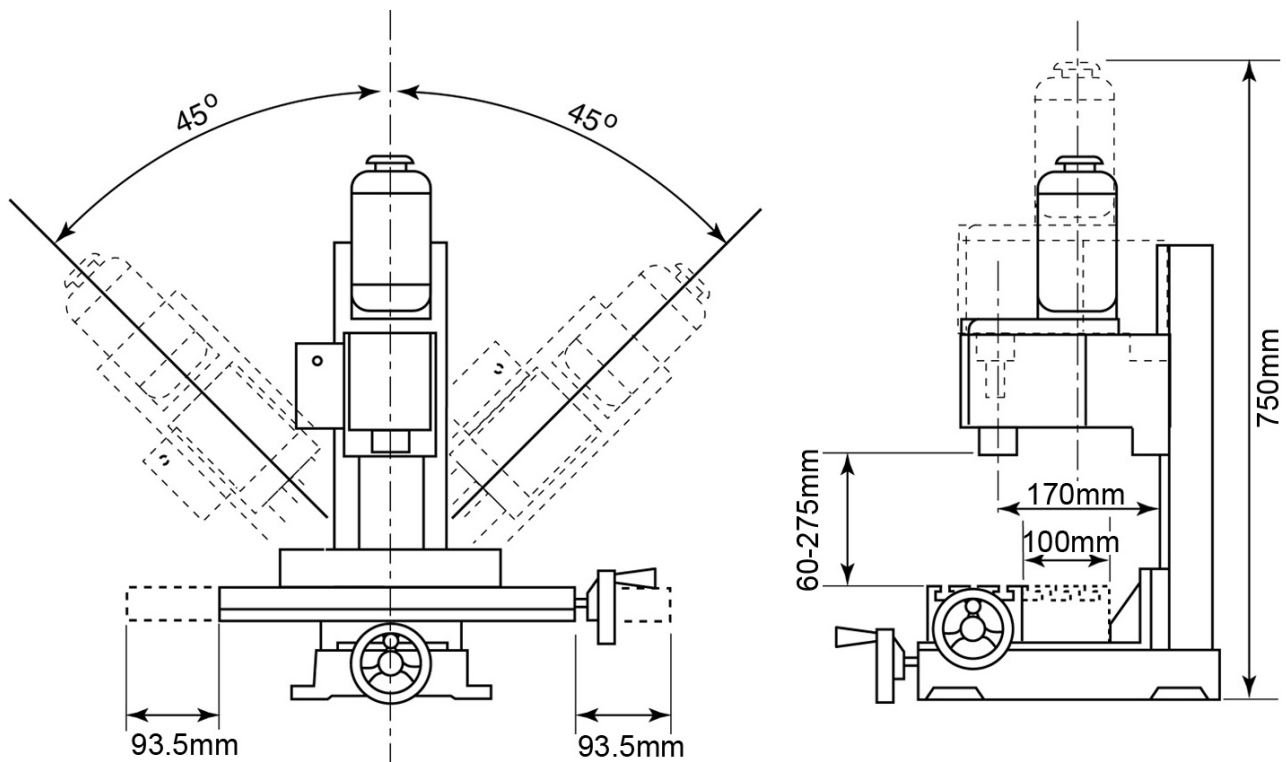
Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission. This guarantee does not effect your statutory rights.

ENVIRONMENTAL PROTECTION



Through purchase of this product, the customer is taking on the obligation to deal with Waste Electrical/Electronic Equipment (WEEE) in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE. In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

SPECIFICATION



Motor Supply	230Vac/ 50Hz / 1ph
Motor	470 W
Fuse link rating	5 Amp
Product Weight	51 kg
Operating temperature	0° - 40°
Sound Pressure Level	82 dB LpA
Max drill Capacity	13 mm
End mill capacity	16mm
Face mill capacity	30mm
Mill/Drill head angle	-45 to +45°
Spindle Taper	MT3
Table effective size	92mm x 400mm
Table cross travel	100mm
Table longitudinal travel	235mm
Spindle to Column	170mm
Overall dimensions	514 x 506 x 756mm
Spindle Speed Range	0-2500 rpm

GENERAL SAFETY RULES



WARNING: WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY INCLUDING THE FOLLOWING. READ ALL THESE INSTRUCTIONS BEFORE ATTEMPTING TO OPERATE THIS PRODUCT AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

GENERAL SAFETY IN THE WORKPLACE

1. Always ensure that air can circulate around the machine and that the air vents are unobstructed.
2. Always keep work area clean & tidy. Cluttered work areas and benches invite accidents.
3. Never over-reach. Keep proper footing and balance at all times.
4. Never store equipment in a wet/damp environment or expose to rain.
5. Keep other persons away. Do not let persons, especially children, not involved in the work, touch the tool or extension cable and keep them away from the work area.
6. Never operate a machine when under the influence of alcohol, drugs or medication.
7. Always ensure the workplace is well lit. Ensure that lighting is placed so that you will not be working in your own shadow.
8. Do not use power tools in the presence of flammable liquids or gasses.
9. Stay alert, watch what you are doing, use common sense and do not operate the machine when you are tired.
10. You should not operate this machine unless you are thoroughly familiar with drilling machines and drilling techniques. If there is any doubt whatsoever you should consult a qualified person.

CARE OF POWER TOOLS

1. Read this manual carefully. Learn the machines applications and limitations, as well as the specific potential hazards peculiar to it.
2. Always keep guards in place and in working order. A guard or other part that is damaged should be properly repaired or replaced by your Clarke service department, unless otherwise indicated in this instruction manual.
3. Remove any adjusting keys or wrenches before starting. Form the habit of checking to ensure that keys, wrenches and tools are removed from the machine.

4. Don't force the machine and use the correct power tool. It will do the job better and safer, at the rate for which it was intended.
5. Always disconnect the machine from the power supply before carrying out any servicing or changing of accessories.
6. Before further use of the power tool, it should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting or other condition that may affect its operation.
7. Have defective switches repaired by your Clarke service department. Do not use a power tool if the switch does not turn it on and off.
8. Always check for any damage or any condition that could affect the operation of the machine. Damaged parts should be properly repaired.
9. Never remove the cover panel unless the machine is disconnected from the power supply, and never use the machine with cover panels removed.
10. Have your tool repaired by a qualified person. This tool complies with the relevant safety rules. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.
11. Never use this product for any other purpose than that described in this booklet.
12. Never abuse the power cable by yanking the cable to disconnect it from the socket. Keep the cable away from heat, oil or sharp edges.
13. Guard against electric shock. Avoid body contact with earthed or grounded surfaces.
14. If the tool should be used outdoors, use only extension cables intended for outdoor use and marked accordingly.
15. Avoid accidental starting by making sure the power switch is off before plugging in the power cable.

ADDITIONAL SAFETY RULES FOR DRILLS



CAUTION: AS WITH ALL MACHINERY, THERE ARE CERTAIN HAZARDS INVOLVED WITH THEIR OPERATION AND USE. EXERCISING RESPECT AND CAUTION WILL CONSIDERABLY LESSEN THE RISK OF PERSONAL INJURY. HOWEVER, IF NORMAL SAFETY PRECAUTIONS ARE OVERLOOKED, OR IGNORED, PERSONAL INJURY TO THE OPERATOR, OR DAMAGE TO PROPERTY MAY RESULT.

1. Always use clamps or a drill vice bolted to the table, to hold the work. It should never be held with bare hands.
2. Always shut off the power before leaving the machine.

3. Always make all adjustments with the power off.
4. Always use the correct speeds for the bit size and the type of material being worked.
5. Never leave the machine unattended whilst it is running. Turn the machine OFF and do not leave until it has come to a complete stop.
6. Always remove and store the bits when you have finished work.
7. Never attempt to drill into a workpiece that does not have a flat surface unless a suitable support is used.
8. Always stop the machine before removing workpieces, work supports or swarf from the table.
9. Keep bits sharp and clean for best and safest performance. Follow instructions for changing accessories.
10. Adjust the table or depth stop to avoid drilling into the table surface.
11. Always be sure that the bit is securely locked in the chuck.
12. Never assemble or set up any work on the table while the machine is running.
13. Keep handles dry, clean and free from oil and grease.
14. Always keep hands and fingers away from the bit.



WARNING: DUST GENERATED FROM CERTAIN MATERIALS CAN BE HAZARDOUS TO YOUR HEALTH. ALWAYS OPERATE IN A WELL VENTILATED AREA. USE A DUST COLLECTION SYSTEM IF POSSIBLE.

WARNING: THE USE OF ANY ACCESSORY OR ATTACHMENT OTHER THAN ONE RECOMMENDED IN THIS INSTRUCTION MANUAL MAY PRESENT A RISK OF PERSONAL INJURY.

PROTECTIVE CLOTHING

1. Dress properly. Loose clothing or other jewellery may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
2. Always wear safety glasses. (Everyday glasses are not safety glasses)
3. Wear a face mask if drilling into any material which produces dust.
4. Never wear gloves when operating rotating equipment.

ELECTRICAL CONNECTIONS



WARNING! READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.

Before switching the product on, make sure that the voltage of your electricity supply is the same as that indicated on the rating plate. This product is designed to operate on 230VAC 50Hz. Connecting it to any other power source may cause damage.


This product may be fitted with a non-rewireable plug. If it is necessary to change the fuse in the plug, the fuse cover must be refitted. If the fuse cover becomes lost or damaged, the plug must not be used until a suitable replacement is obtained.

If the plug has to be changed because it is not suitable for your socket, or due to damage, it should be cut off and a replacement fitted, following the wiring instructions shown below. The old plug must be disposed of safely, as insertion into a mains socket could cause an electrical hazard.

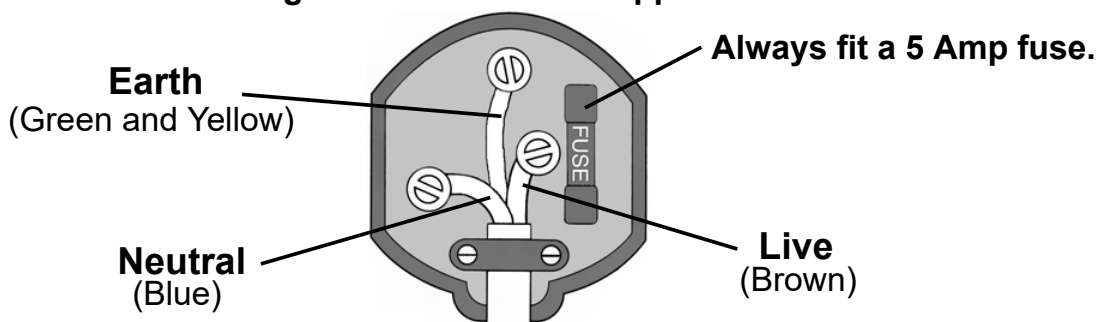


WARNING! THE WIRES IN THE POWER CABLE OF THIS PRODUCT ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE: BLUE = NEUTRAL BROWN = LIVE YELLOW AND GREEN = EARTH

If the colours of the wires in the power cable of this product do not correspond with the markings on the terminals of your plug, proceed as follows.

- The **Blue** wire must be connected to the terminal marked **N** or coloured **Black**.
- The **Brown** wire must be connected to the terminal marked **L** or coloured **Red**.
- The **Yellow and Green** wire must be connected to the terminal marked **E** or  or coloured **Green**.

Plug must be BS1363/A approved.



Ensure that the outer sheath of the cable is firmly held by the clamp

We strongly recommend that this machine is connected to the mains supply via a Residual Current Device (RCD).

If in any doubt, consult a qualified electrician. DO NOT attempt any repairs yourself.

PARTS INVENTORY (LOOSE ITEMS)

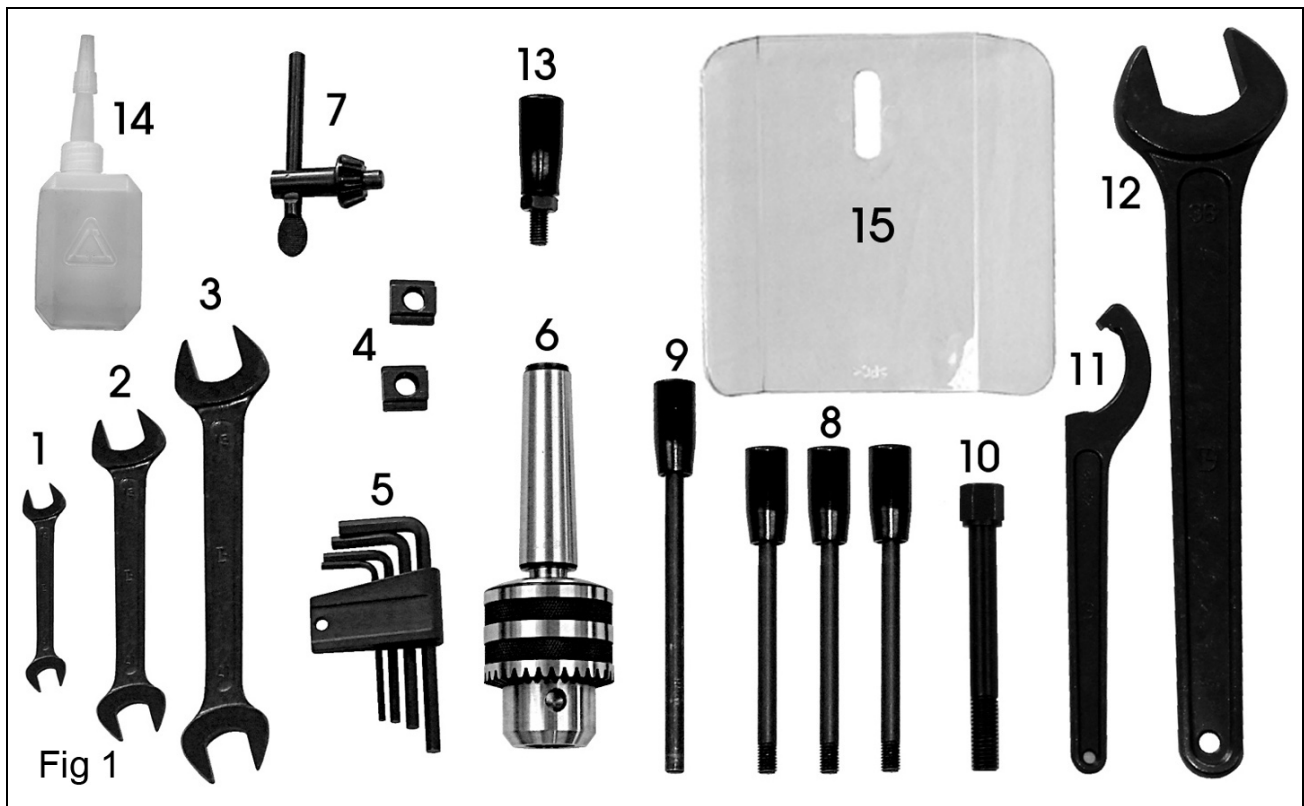


Fig 1

1. Double-ended open spanner 8/10mm AF
 2. Double-ended open spanner 14/17mm AF
 3. Double-ended open spanner 17/19mm AF
 4. 2 x T-nuts
 5. Set hex wrenches, 3, 4, 5 & 6mm
 6. Drill chuck with tapered shank
 7. Chuck key
 8. 3 x Levers/handles
 9. Tommy bar
 10. Drawbolt for taper shank
 11. Peg spanner
 12. Open ended spanner - 36mm AF
 13. 2 x Handles for wheel adjusters
 14. Oil bottle
 15. Chuck guard
- Not shown:-1 spare fuse

UNPACKING

Thank you for purchasing this **CLARKE** Milling/Drilling Machine, designed for drilling, deep milling and face milling of small workpieces with maximum dimensions of 300mm x 200mm x 200mm.

IMPORTANT: Careful consideration is required when choosing the location for the machine with regard to table movement, Mill/Drill head movement and location of the power supply. Additionally, the workbench should be firm, flat and level. Avoid installing in damp or very dusty locations and ensure that adequate light is provided.

Your new machine is delivered fully assembled (except for handles which are contained in a bag of loose parts), and should be bolted to a board with four bolts. Various tools and accessories are also contained in the bag of loose parts - see Fig.1.

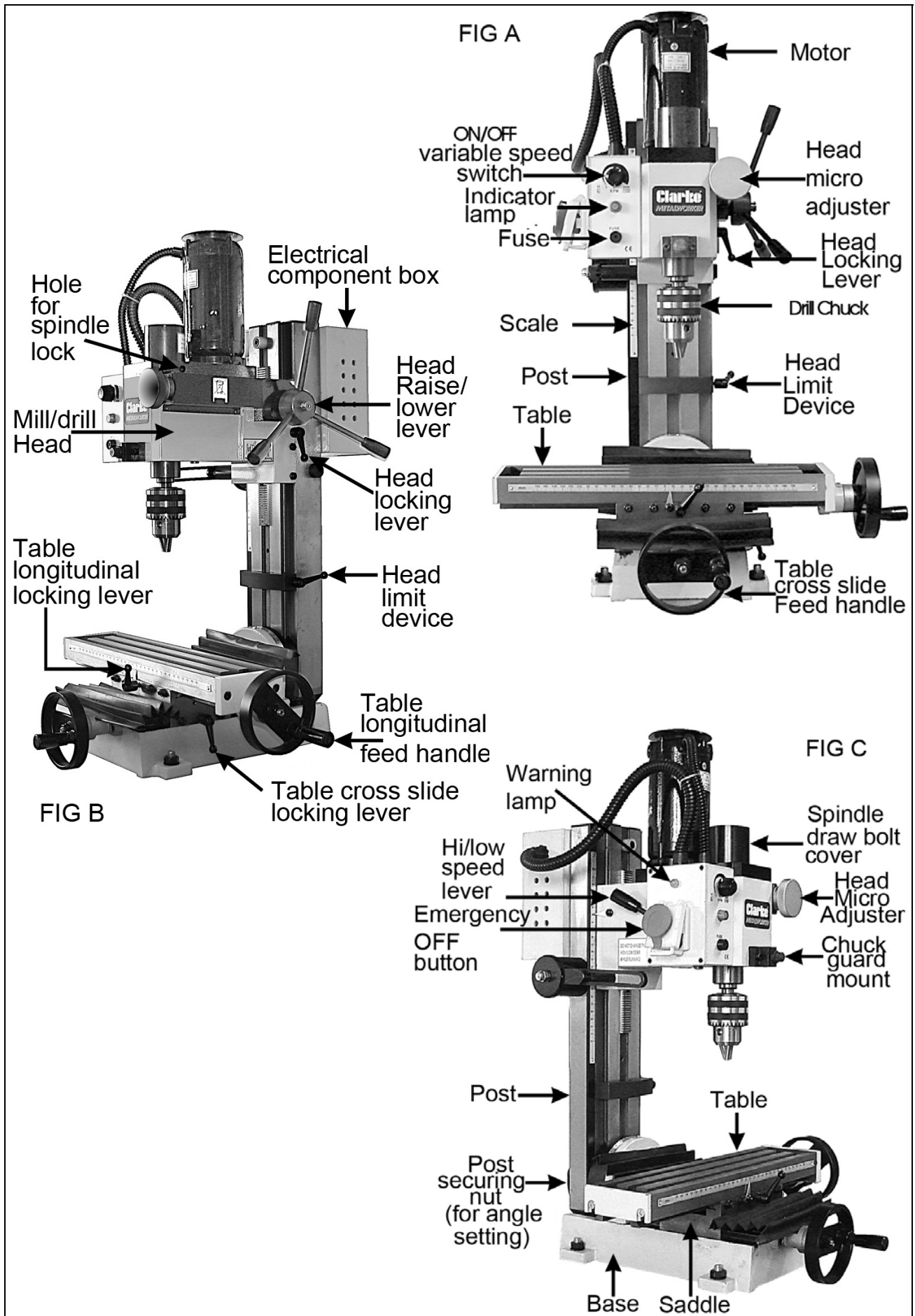
To remove the machine from the case, carefully lay the carton on its side and break the seal at the bottom. Fold the three flaps back and gently turn the carton so that it is upright. Tilt the carton in order to fold back the remaining flap then lift the carton from the machine and packing materials.

1. Remove all polystyrene packaging material, then, with assistance, lift the machine onto a workbench. DO NOT attempt to do this single handedly.
2. Unbolt the machine from the board - 4 nuts with countersunk screws and washers, and with assistance, carefully slide or lift into position on your workbench.
3. Before drilling the bench in order to secure the machine, ensure:
 - the head can be raised to its full height - 755mm from the table surface,
 - the head can be pivoted in either direction through 45° without fouling,
 - adequate clearance is available for the longitudinal travel of the cross slide.
4. Once satisfied, drill four holes corresponding with those in the machine base, and bolt the machine securely to the workbench using M10 nuts bolts and washers, (not supplied).
5. Alternatively, the Mill/Drill may be mounted centrally on a board of at least 20mm (3/4") thickness, and of minimum size, 455x455mm (18"x18").

This allows the Mill/Drill to be moved to somewhere more convenient when not in use, in a small workshop. The board may then be clamped securely (with 'G' clamps to a workbench when required for use.

6. Screw the three handles into the head raise/lower hub.

PARTS IDENTIFICATION



7. Screw a handle to each of the table cross feed and longitudinal feed handle and secure with the locknuts provided.
 8. If using the Drill chuck, attach the clear plastic chuck guard to its mount, using the single screw provided.
 9. Any preservative must be cleaned off thoroughly using a solvent, then dried and a thin film of machine oil applied to all untreated surfaces. Take great care when using the solvent, do not to allow it to get into the motor or electrical components - switches etc.
 10. Lightly lubricate all moving parts, handwheel threads etc., with machine oil.
 11. Check to ensure the post is secure by attempting to tighten the post securing nut at the rear of the machine using the 36mm spanner provided.
- Your Mill /Drill is now ready for use.

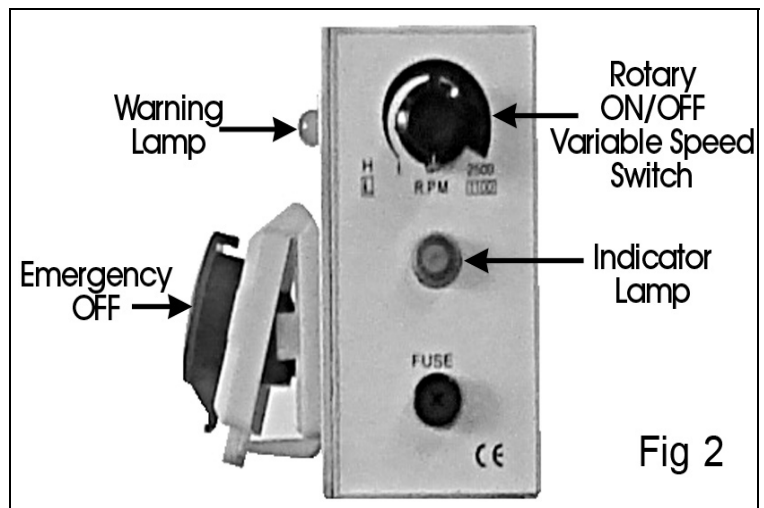
OPERATION

Ensure the work area is clean and tidy and all tools and accessories etc., are removed and stored safely, before plugging the machine into the power supply.

Switch the power on. The green indicator lamp on the switch panel on the front of the machine will illuminate, indicating that power is being supplied to the machine.

When first using the machine, use the following procedure.

1. Select LOW range by moving the lever, adjacent to the Emergency Stop, fully to the 'L' position.
2. Push the emergency OFF switch cover button (fig.2) upwards in direction of arrow. This will allow the cover to spring outwards, releasing the OFF button.
3. Start the machine by turning the rotary ON/OFF, variable speed switch, slowly clockwise to mid position and allow to run for a minute or two before winding up to full speed, then allow to run for a further two minutes.



4. Switch OFF by turning the rotary switch fully anticlockwise, then move the Hi-Lo range lever to the 'H' - high position, and repeat the process.

NOTE: In case of emergency, hit the switch cover quickly. The cover will latch down and the motor will be switched OFF.

The machine will not start when the emergency switch cover is closed.

If the emergency switch is used to switch OFF, when the rotary ON/OFF switch in the ON position, the machine will not start again when the emergency switch is released. The amber warning lamp will also illuminate.

The rotary switch must first be turned OFF then turned ON again to start the machine.

Once the machine has been 'run up' check to ensure that it is secure on the bench or board, and check again to ensure the post is secure by attempting to tighten the post securing nut at the rear of the machine using the 36mm spanner provided.



Fig 3

DRILLING

The machine is provided with a drill chuck and morse taper shank - Fig.4.

1. Insert the taper shank up into the spindle, sharply.

CAUTION: TAKE EXTREME CARE NOT TO DAMAGE THE TAPER IN ANY WAY. ANY BURR OR IRREGULARITY WILL RENDER IT UNSERVICEABLE UNTIL IT IS PROPERLY REPAIRED USING A GRIND STONE. PROFESSIONAL ADVICE SHOULD BE SOUGHT.

2. Pull off the spindle draw bolt cover from the head (see Parts ID, Fig-C on page 10.) and insert the draw bolt. Screw it into the end of the taper shank and tighten using the spanner provided - see Fig.5

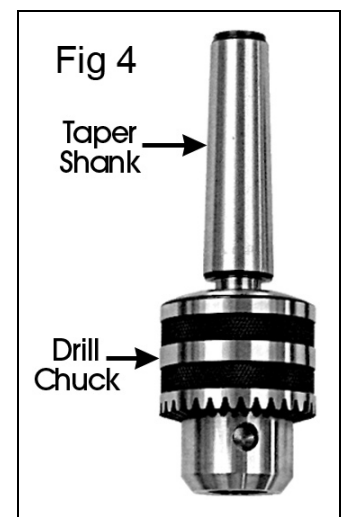
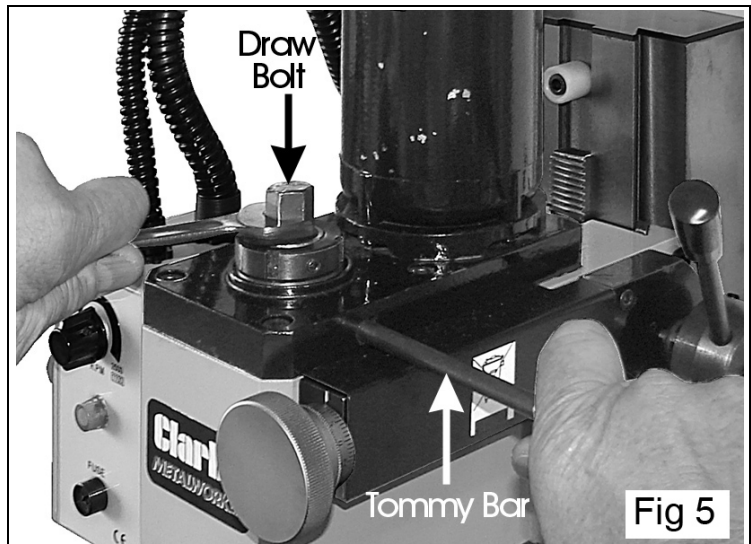


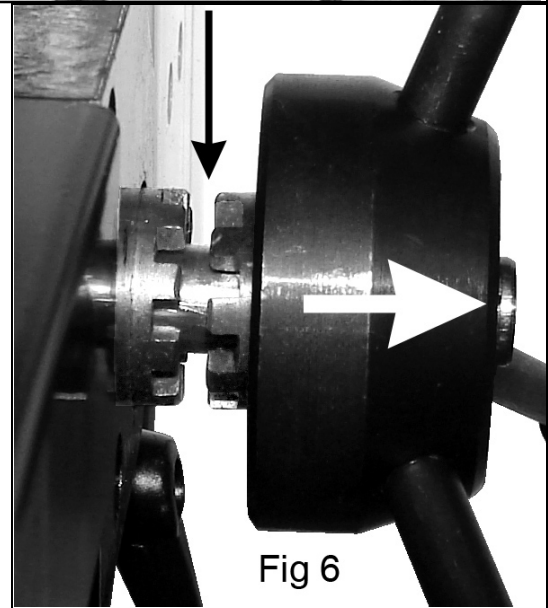
Fig 4

3. In order to hold the spindle, insert the tommy bar into the hole in the side of the head so that it locates in the hole in the spindle, see Fig. 5. Hold the spindle still whilst nipping up the draw bolt.



4. Place the drill chuck on to the end of the taper shank with a sharp upward movement.

5. The drill is lowered using the levers on the right side of the machine, however, in order to do so, it is first of all necessary to disconnect the Dog Clutch, shown in Fig. 6. Simply pull back on the hub to disconnect.



6. Now by turning the handles, the drill head may be lowered.

7. In order to ensure the drill chuck is firmly secured on the spindle, place a piece of wood on the table then lower the drill head so that the nose of the drill chuck comes into contact with it. Pull down sharply one time.

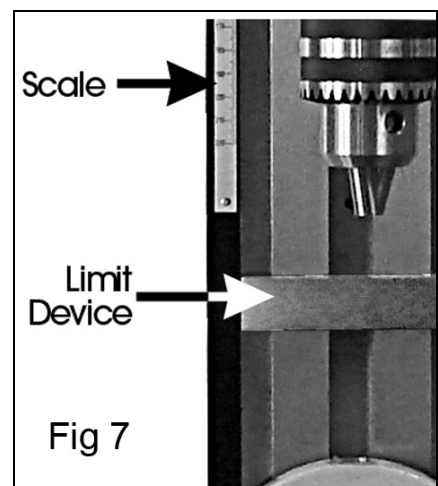
8. When drilling using a mill/drill machine, it must be remembered that without care, the drill bit could easily come into contact with the surface of the table.

9. Drill head travel must always be restricted therefore before proceeding to drill, otherwise damage to the table and/or drill bit could occur.

10. A limiting device is provided, mounted on the post slide, shown in Fig. 7.

11. When through drilling, wind the drill head, with drill bit installed, down to the maximum depth required, and hold in place whilst sliding the limit device up to meet it. Lock the limit device in place using its locking lever.

- The limit device is also used if you wish to drill to a predetermined depth.



12. Bring the drill bit down to touch the workpiece surface and note the reading on the scale on the post.
13. Move the workpiece away from the drill bit, using the longitudinal or cross slide handles, then lower the head once again to the depth previously noted, plus the depth of hole required. At this point, bring the limit device up to the head and lock firmly in place. Your drill depth is now set.
14. The workpiece must ALWAYS be firmly secured. This will normally be with the use of a vice which is securely clamped to the table. Alternatively, clamps may be used. A suitable vice and a 'T' nut and clamp set designed specifically for this machine, are available from your Clarke dealer. Please refer to Accessories on page 25.
15. The table, carrying the workpiece, is manoeuvred using the longitudinal and cross slide adjusting handles. Once the workpiece is positioned, any further movement is avoided by locking both longitudinal and cross slides in place using the locking levers provided - see parts identification Fig-B, on page 10.

Drill speeds are effected by using either the High or Low ranges together with the variable speed rotary switch. See notes on cutting speeds on page 16.

Never attempt to change ranges until the machine has come to a complete stop.

MILLING

Vertical milling is similar to drilling, except that instead of the workpiece being held stationary, it may be moved in 3 directions - A. vertically, and B. horizontally in both axis. Milling cutters are capable of cutting with their ends and their faces.

Several broad categories of end and face milling tools exist, such as centre cutting versus non-centre cutting (whether the mill can take plunge cuts), and categorisation by number of flutes, by helix angle, by material, and by coating material. Each category may be further divided by specific application and special geometry.

Please note that It is not within the scope of this manual to advise on types of cutter, it is assumed that the user is familiar with milling applications, cutters and techniques.

This machine is also capable of milling at any angle from vertical - 90°, to 45° left or right of vertical.

INSTALLING THE CUTTER

If the chuck is installed, proceed as follows:

1. Insert the tommy bar into the hole in the side of the head so that it locates in the hole in the spindle.

2. Remove the draw bolt cover and with the spindle being held, undo the draw bolt by two complete turns only, using the spanner provided.
3. Strike the head of the draw bolt sharply with a soft faced mallet, or by placing a piece of wood on the head and striking the wood with a hammer. The taper shank will disengage, thereby allowing the draw bolt to be fully unscrewed and the drill chuck and taper shank to be withdrawn.

NOTE: *It is possible that when the head of the draw bolt is struck, the chuck could become disengaged with the taper shank and drop on to the bed, with possible resultant damage. It is strongly advised therefore, that the operator holds the chuck with one hand whilst striking the head of the draw bolt, or a substantial piece of cloth is placed beneath the chuck, in order to avoid damage when it drops.*

With the taper shank removed, the cutter may be installed in a similar manner to the drill chuck, please see the notes on pages 12/13.

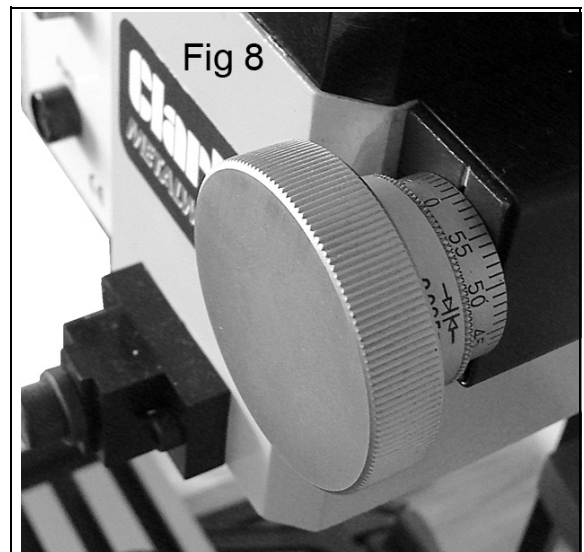
Please note that a range of accessories, including collet sets and collet chuck sets which are used to secure the cutter, are available from your Clarke dealer - see Accessories on pages 25-27.

USING THE MICRO FEED

For Milling, the micro feed should always be used.

In order to use this device, it is first of all necessary to engage the dog clutch on the raise/lower hub assembly. Simply turn the raise/lower handles until the cutter is as near the workpiece as possible and the dogs become aligned, then push the hub IN fully.

In this mode, the handles cannot be used to raise or lower the head, only by turning the micro adjuster knob, will this be effected.



A scale on the adjuster sleeve may be used to determine the depth of cut.

Turn the adjuster so that the cutter just touches the workpiece, then zero the scale by holding the adjuster knob whilst grasping the knurled rim of the scale and turning until the zero on the scale lines up with the pointer. Back off slightly and start the machine.

Turn the adjuster once again until the zero mark lines up with the pointer and double check that the cutter is just touching the work - if not, make the necessary adjustment. Any further movement of the adjuster will commence cutting.

GENERAL NOTES ON MILLING

Set up the workpiece in a similar manner to that for drilling.

- Slowly bring the cutter into contact with the work piece and start machining.
- DO NOT attempt to make too bigger cuts than the cutter and machine are capable of, it is much better and safer to make several small passes.
- Always use an appropriate cutting/cooling fluid whilst machining, which can be applied with a small brush etc, NOT FINGERS.
- DO NOT allow swarf to build up in the cutting area. Stop the machine and remove using a suitable implement, (brush etc).
- When finished turn the machine OFF, return the cutter to its highest position and allow it to come to a complete stop before attempting to remove the work piece or tool.
- Always finish by cleaning and drying the machine, and storing all tools and accessories etc, safely.

CUTTING SPEEDS

In order to drill, and particularly mill satisfactorily, it is most important that the correct cutting speed is used,

Cutting speed is the speed at which the cutting edge of the tool passes over the work. This is usually expressed in feet per minute or metres per minute.

For a given material there will be an optimum cutting speed for a certain set of machining conditions, and from this speed the spindle speed (RPM) can be calculated. Factors affecting the calculation of cutting speed are:

- The material being machined (steel, brass, aluminium etc. - see table below)
- The material the cutter is made from i.e. Carbon steel, High speed steel (HSS), carbide or ceramics.

Material type	Meters per min	feet per min
Steel (tool)	15 - 18	50 - 60
Mild steel	30 - 38	100 - 125
Cast iron (medium)	18 - 24	60 - 80
Bronze	24 - 45	80 - 150
Brass (soft)	45 - 60	150 - 200
Aluminium	75 - 105	250 - 350

A good rule of thumb is, the smaller the hole or depth of cut, and the softer the material to be machined etc, the faster the speed.

Please note that It is not within the scope of this manual to provide a tutorial on cutting speeds or the methods used to determine spindle speeds (RPM), for your particular application. It is assumed that the operator is familiar with these practices.

MAINTENANCE

The amount of maintenance depends on the amount of use the machine gets. However, it is important to carry out routine maintenance to prevent premature wear and shortening the life of the machine.

1. Inspect and clean all non painted surfaces. Lubricate using a light machine oil. **Do Not** over lubricate. Oil can be applied to the work table and column etc., using a soft oil soaked cloth.
2. Inspect and clean all moving parts. Lubricate using machine oil. Check for smooth operation.
3. Inspect the machine for signs of wear or damage. Any faults should be rectified before continuing.
4. Check all nuts and bolts are tight.

SLIDE ADJUSTMENTS

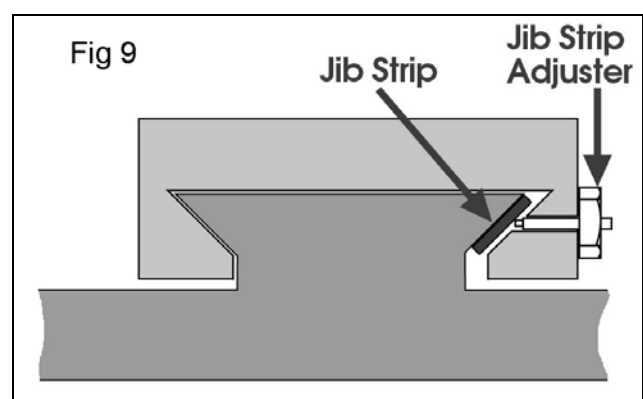
With use, play may develop in the cross, longitudinal and the post slides. It is possible to adjust these components in order to eradicate any unnecessary movement.

Before making any adjustments, clean all friction surfaces. It is necessary to move the table and cross slide to both extremes to carry out the cleaning process correctly.

When finished cleaning, re-lubricate using a light machine oil.

Return both the table and cross slide to their central positions.

Adjustment is effected by means of Jib Strips. These are precision machined steel strips, positioned between the mating surfaces as shown in Fig.9. The strips are adjustable so as to apply pressure on these surfaces, sufficient for the parts to slide easily about each other



without unnecessary slackness. The longitudinal slide for example carries four adjusters, shown in Fig.10.

To adjust, first ensure that the slides are lubricated with a thin film of machine oil as described previously.

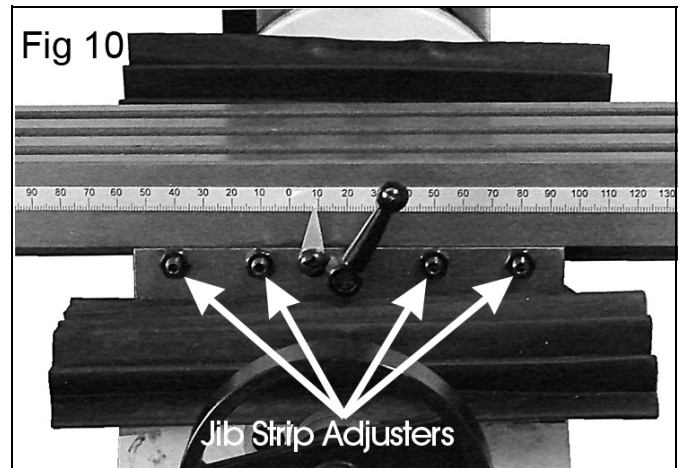
Slacken off all adjuster locknuts using the hex wrench provided, and back off each adjuster by half a turn.

Screw IN each adjuster in turn until a slight resistance is felt.

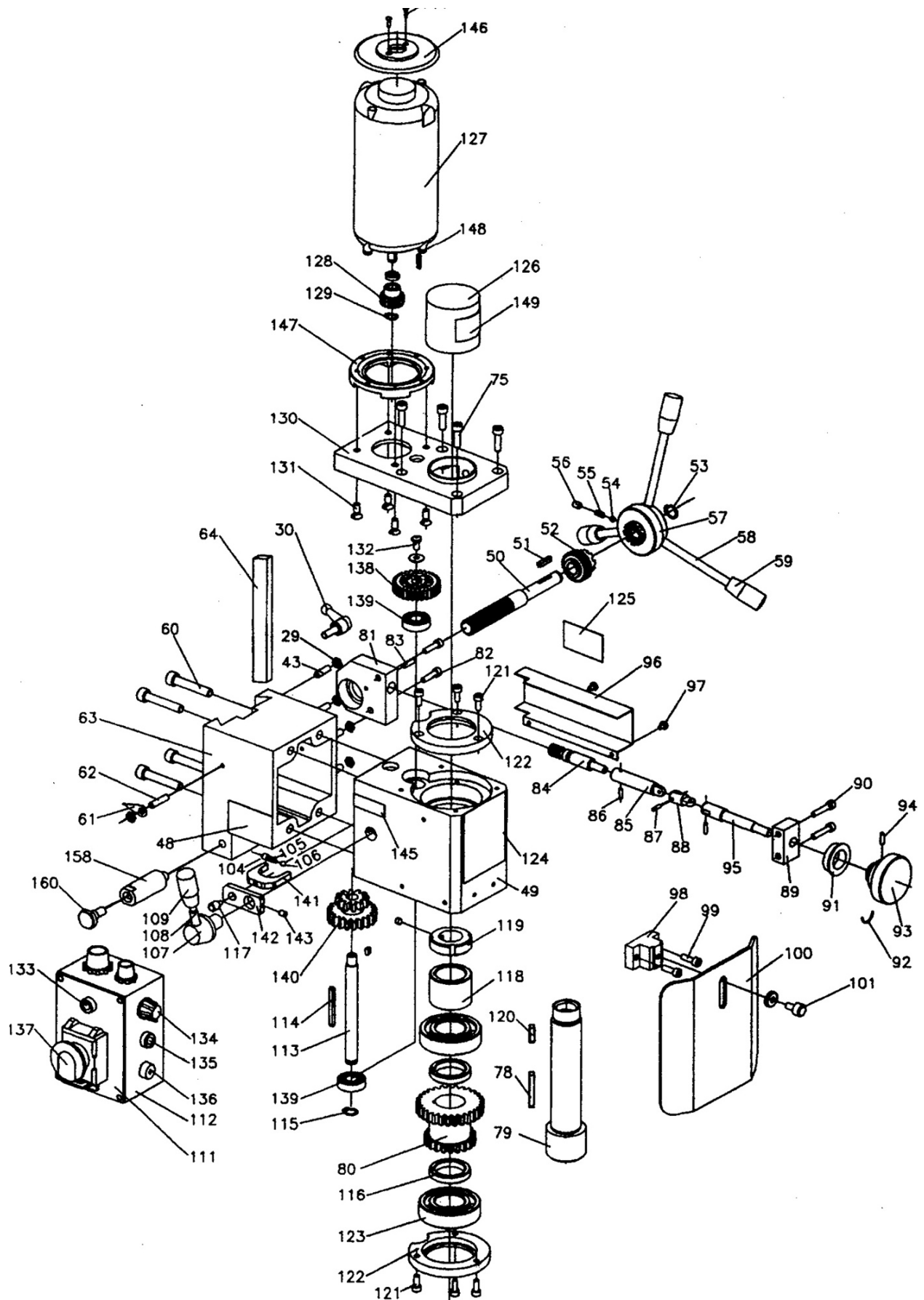
Wind the slide through its full travel to check that there are no high spots and travel is smooth throughout.

If the slide moves smoothly and all slack has been eliminated, hold the adjuster still and tighten all lock nuts.

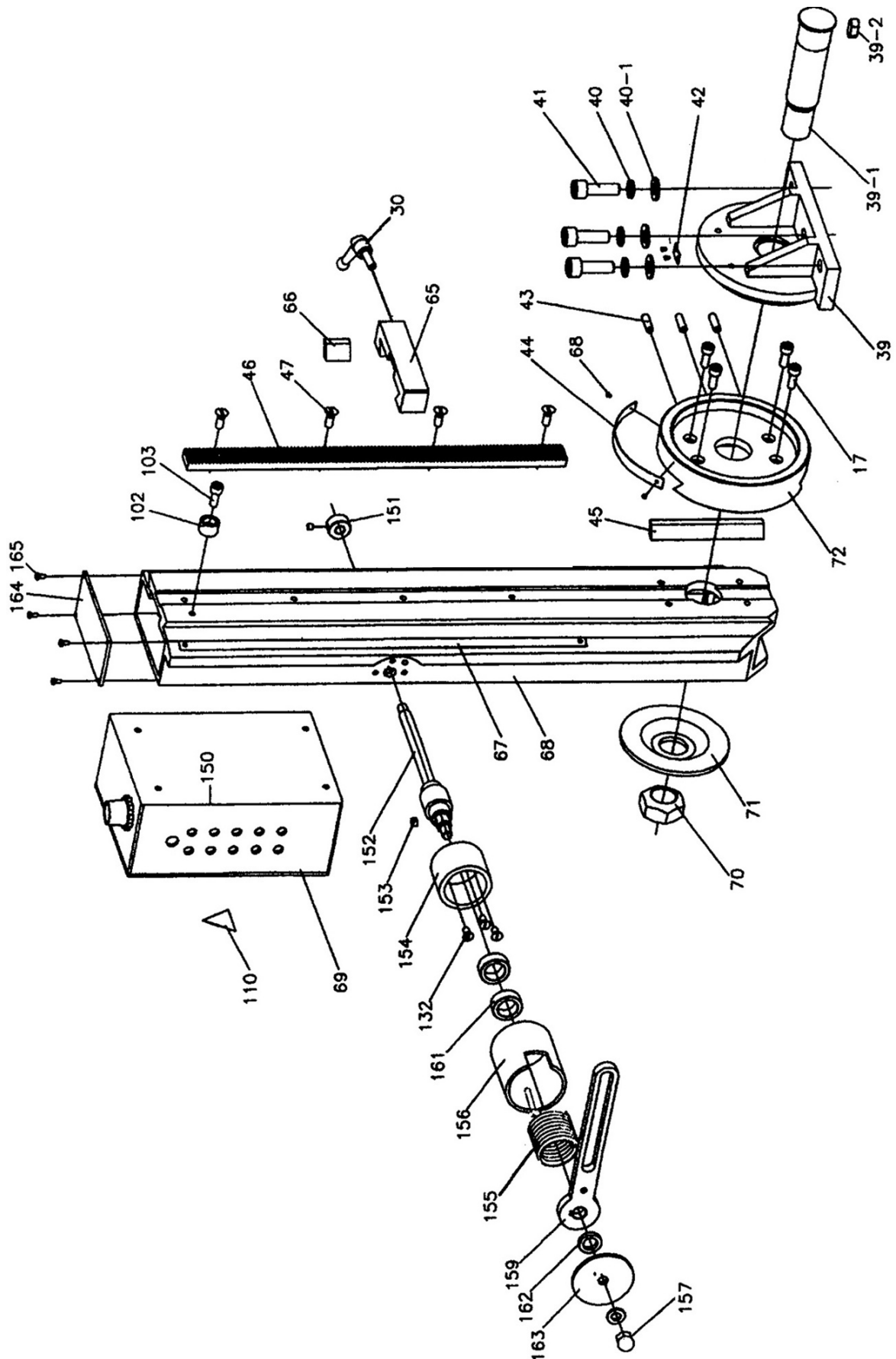
Finally, wind the slide through its full length once again to double check. If there is any slack or tightness, readjust as described above.



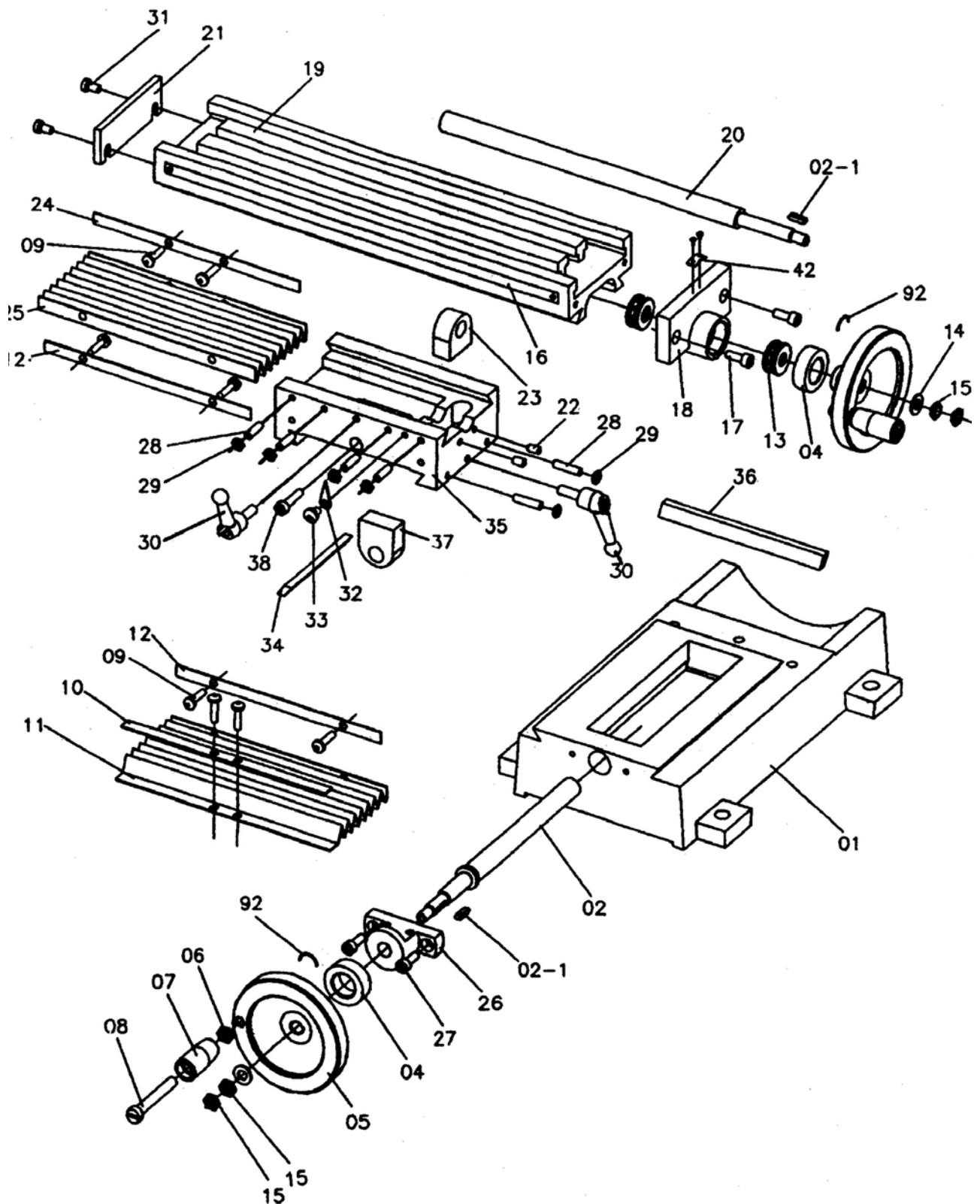
COMPONENT PARTS



COMPONENT PARTS



COMPONENT PARTS



COMPONENT PARTS

No	Description
1	Base
2	X-axis feed screw
3	Key 4 x 16
4	Dial
5	Hand wheel
6	Nut M8
7	Knob
8	Screw M8x55
9	Cap screw M6 x8
10	Plate(1)
11	Dust guard cover
12	Plate (2)
13	Bearing 8200
14	Washer
15	Nut M8
16	Y-axis scale
17	Cap screw M6 x 16
18	Y-axis bearing seat
19	Work table
20	Y-axis feed screw
21	End cover
22	Screw M6 x 10
23	Y-axis screw nut
24	Holding plate (3)
25	Dust guard cover
26	Screw seat
27	Cap screw M6 x 16
28	Set screw M6 x 22
29	Nut M6
30	Handle
31	Screw M6x10
32	Pointer

No	Description
33	Screw M6x8
34	Y-axis jib strip
35	Saddle
36	Y-axis jib strip
37	Y-axis screw nut
38	Cap screw M6x25
39	Vertical post seat
39-1	Shaft
39-2	Key 8x12
40	Spring washer 10
40-1	Washer 10
41	Cap screw M10x30
42	Pointer
43	Set screw M6x22
44	Scale
45	Jib strip
46	Gear rack
47	Cap screw M6x12
48	Label
49	Spindle box
50	Pinion
51	Key 4x25
52	Bevel gear
53	Circlip 12
54	Ball
55	Spring
56	Screw 6x8
57	Handle hub
58	Operating lever
59	Handle
60	Cap screw M8x25
61	Pointer

62	Cap screw M6x25
63	Spindle box seat
64	Jib strip
65	Limit block
66	Jib strip
67	Scale
68	Vertical post
69	Electric box
70	Locknut M24
71	Large washer
72	Connecting strut
78	Key 5x5x40
79	Spindle
80	Drive gear
81	Support block
82	Screw
83	Pin 4x78
84	Worm gear
85	Sleeve
86	Pin 3x12
87	Pin 3x12
88	Adjustable onion
89	Bracket
90	Screw M5x25
91	Dial
92	Steel spring
93	Small handwheel
94	Screw M8x6
95	Small shaft
96	Cover
97	Screw
98	Dust cover support
99	Screw M5x16
100	Dust guard
101	Clamp bolt M6x12
102	Upper end washer

103	Upper end screw M6
104	Setscrew M6x6
105	Spring
106	Ball
107	Handle seat
108	Double head bolt M8
109	Knob
110	Warning label
111	Controller
112	Label
113	Shaft
114	Double round headkey
115	Internal circlip
116	Spacing ring
117	Small shaft
118	Spacing ring
119	Spindle nut
120	Double round headkey
121	Cap screw M5x8
122	Bearing cover
123	Ball bearing 80206
124	Name label
125	Fine feed label
126	Cover
127	Motor
128	Motor gear
129	Ring 9.0
130	Motor seat
131	Screw M6x12
132	Round screw M5x8
133	Yellow lamp
134	Speed control knob
135	Green lamp
136	Fuse box
137	Emergency stop switch
138	Gear

139	Ball bearing 80101
140	Drive gear
141	Bar
142	Link board
143	Set screw M5x8
144	Self tapping screw
145	Hi/low label
146	Motor cover
147	Motor connecting flange
148	Screw M6x10
149	Warning label
150	Printed circuit board
151	Locking sleeve
152	Rotor shaft

153	Key 4x6
154	Spring support
155	Torsion spring
156	Cover
157	Nut
158	Extension tube
159	Supporting arm
160	Screw
161	Washer
162	Internal circlip 12
163	Cover
164	Top cover
165	Screw M3x6

ACCESSORIES

MILL CHUCK SET

Part Number: 7610866

A set comprising 7 collets, a chuck and 'C' spanner.

Collet sizes:

- 4 mm
- 6 mm
- 8 mm
- 10 mm
- 12 mm
- 14 mm
- 16 mm



1. Insert the shank of the chuck into the mill head spindle and screw on to the end of the draw bolt. Tighten the draw bolt, holding the spindle steady by hand or by inserting the tommy bar provided in the hole in the side of the head and into the spindle.
2. Unscrew and remove the end collar 'A', insert the appropriate collet and reattach the end collar.

3. Insert the respective end mill into the collet and tighten the end collar using the 'C' spanner.
4. To remove the chuck, undo the draw bolt a turn or two, then tap its' head using a mallet to break the seal.

HSS END MILL (2-FLUTED)

Part Number: 7610874

A set of 7 End Mills, of the following sizes, for use with the Mill Chuck or Collet Set.

- 4 mm
- 6 mm
- 8 mm
- 10 mm
- 12 mm
- 14 mm
- 16 mm



Collet Set (MT3)

Part Number: 7610864

Set of 7 Collets for use with HSS End Mills:

Insert the appropriate collet into the spindle.

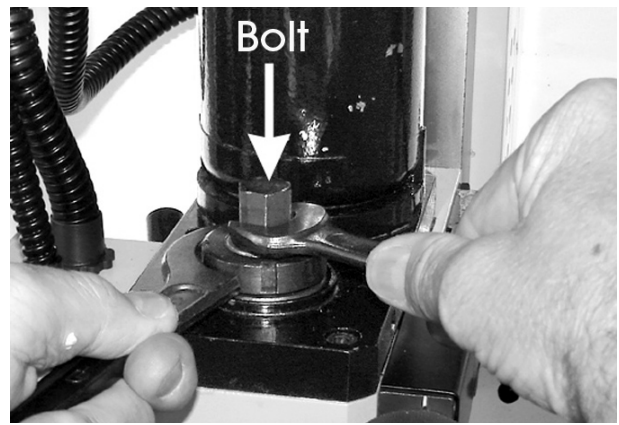
Insert the draw bolt provided, into the spindle from the top and screw onto the collet a few turns.

Insert the appropriate mill into the jaws of the collet and tighten the draw bolt.



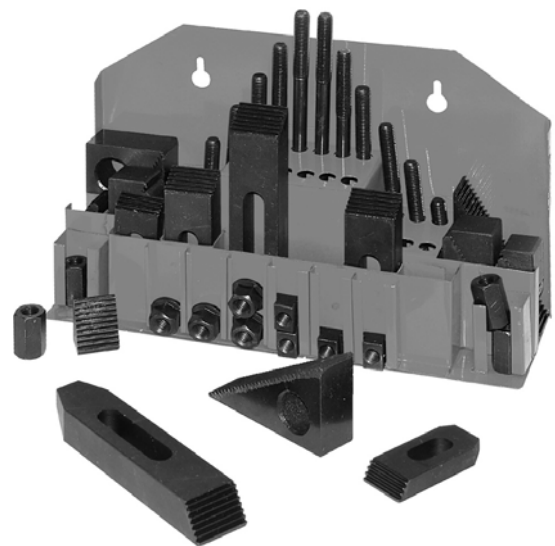
Hold the spindle by means of the tommy bar, inserted in the hole in the side of the head and into the hole in the spindle.

To remove the collet, unscrew the draw bolt a few turns and tap its head with a mallet to break the seal between the collet and spindle.



CLAMP SET

Part Number: 7610872



An example of how the clamp set may be used:

Select the appropriate studs and slotted clamp. Screw the 'T' nut on to the stud and assemble as shown, using the appropriate stepped blocks - adjust the blocks so that the clamp is horizontal.



DECLARATION OF CONFORMITY



Hennell Street, Epping, Essex, CM16 4LG

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- The Electromagnetic Compatibility Regulations 2016*
- The Supply of Machinery (Safety) Regulations 2008*
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012*

The following standards have been applied to the product(s):

- IEC 62321-3-1 Edition 1.0:2013, IEC 62321-4 Edition 1.1:2017, IEC 62321-5 Edition 1.0:2013, IEC 62321-6 Edition 1.0:2015, IEC 62321-7-1 Edition 1.0:2015, IEC 62321-7-2 Edition 1.0:2017, IEC 62321-8 Edition 1.0:2017, EN 55014-1:2017, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 13128:2001+A2:2009+A3:2010*

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2023

Product Description: Milling/Drilling Machine
Model Number(s): CMD300
Serial/Batch Number: Refer to product/packaging label
Date of Issue: 03/07/2023

Signed:

J.A. Clarke
Director



Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- 2014/30/EU Electromagnetic Compatibility Directive*
- 2006/42/EC Machinery Directive*
- 2011/65/EU Restriction of Hazardous Substances (RoHS) Directive*

The following standards have been applied to the product(s):

- IEC 62321-3-1 Edition 1.0:2013, IEC 62321-4 Edition 1.1:2017, IEC 62321-5 Edition 1.0:2013, IEC 62321-6 Edition 1.0:2015, IEC 62321-7-1 Edition 1.0:2015, IEC 62321-7-2 Edition 1.0:2017, IEC 62321-8 Edition 1.0:2017, EN 55014-1:2017, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 13128:2001+A2:2009+A3:2010*

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2006

Product Description: Milling/Drilling Machine
Model Number(s): CMD300
Serial/Batch Number: Refer to product/packaging label
Date of Issue: 03/07/2023

Signed:

J.A. Clarke
Director

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