Clarke®

METALWORKER

13mm DRILL PRESS

Model No. CDP151B

Part No. 6505520

OPERATING & MAINTENANCE INSTRUCTIONS

SERIAL No.....

0307

Clarke®
INTERNATIONAL

DECLARATION OF CONFORMITY

We declare that this product complies to the following standards/directives:

■ **98/37/EC**

Product Description: **DRILL PRESS**

Model Number: **CDP RANGE**

Serial Number: See Front Cover

Signed _____
Engineering Manager

Clarke® INTERNATIONAL
Hemnall Street, Epping, Essex CM16 4LG

Clarke International is a trading style of Clarke International Limited

When disposing of this product, do not dispose of with general waste. It must be disposed of according to law at a recognised disposal facility.

INTRODUCTION

Thank you for purchasing your CLARKE - CDP 151B, 13mm bench mounted Drill Press.

Before attempting to operate the machine, please read this instruction manual thoroughly, and follow all directions carefully. By doing so you will ensure the safety of both yourself and others around you, and at the same time, you should look forward to long and trouble free service from your Clarke Drill Press.

GUARANTEE

This product is guaranteed against faults in manufacture for 12 months from date of purchase. Keep your receipt as proof of purchase. This guarantee is invalid if the product has been found to have been abused or tampered with in any way, or not used for the purpose for which it was intended. The reason for return must be clearly stated. This guarantee does not affect your statutory rights.

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GENERAL SAFETY PRECAUTIONS

WARNING

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. KNOW YOUR MACHINE. Read the manual carefully. Learn the machines applications and limitations, as well as the specific potential hazards peculiar to it.
2. KEEP GUARDS IN PLACE and in working order.
3. EARTH ALL MACHINES. If the machine is equipped with three-pin plug, it should be plugged into a three-pin electrical socket. Never remove the earth pin.
4. REMOVE ALL ADJUSTING KEYS AND WRENCHES. Before starting, form the habit of checking to ensure that keys, wrenches and tools are removed from the machine.
5. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
6. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use machinery in damp or wet locations, or expose them to rain. Keep work area well lit.
7. MAKE WORKSHOP CHILDPROOF - with padlocks, master switches etc.
8. KEEP CHILDREN AND VISITORS AWAY. All children and visitors should be kept a safe distance from work area
9. DON'T FORCE THE MACHINE. It will do the job better and safer, at the rate for which it was designed.
10. USE THE RIGHT TOOL. Don't force a tool or attachment to do a job for which it was not designed.
11. WEAR PROPER APPAREL. Loose clothing, gloves, neckties, rings, bracelets, or other jewellery may get caught in moving parts. Nonslip footwear is recommended. Long hair should be contained.
12. USE SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
13. USE EAR DEFENDERS.
14. DON'T OVERREACH. Keep proper footing and balance at all times.
15. MAINTAIN TOOLS IN TOP CONDITION. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. ALWAYS DISCONNECT THE MACHINE before servicing or changing accessories.
17. CHECK FOR DAMAGE. If part of the machine (eg. A cover or guard), is damaged, it should be carefully inspected to ensure that it can perform its' intended function correctly. If in doubt, the part should be renewed. Damage to moving parts or major components should be Inspected by a qualified technician before operating the machine. Contact your local dealer for advice.

19. DO NOT STAND ON THE MACHINE. Serious injury could occur if the machine is tipped over. Do not store materials above or near the machine such that it is necessary to stand on the machine to get to them.
20. NEVER operate a machine when under the influence of alcohol, drugs or medication.
21. ALWAYS ENSURE THAT ADEQUATE LIGHTING is available. A minimum intensity of 300 lux should be provided. Ensure that lighting is placed so that you will not be working in your own shadow.

ADDITIONAL SAFETY RULES FOR DRILL PRESSES

WARNING:

THIS MACHINE MUST NOT BE MODIFIED, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS DESIGNED.

1. IMPORTANT: 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.
2. Do not operate the machine until it is completely assembled, and you have read, and understood. this entire manual
3. Ensure the proper electrical regulations are followed, and that the machine is properly earthed.
4. Before switching the machine ON, ALWAYS:-
   a. Ensure all chuck keys, spanners and wrenches are removed from the machine.
   b. Examine the setup carefully, ensuring that the workpiece is perfectly secure.
   c. Ensure your clothing is properly adjusted.
5. Make all adjustments with the power OFF.
6. Always use the correct drilling speeds for the drill size, and the type of material being drilled (see page 14).
7. NEVER leave the drill unattended whilst it is running. Turn the machine OFF and do not leave until it has come to a complete stop.
8. When you have finished with the machine, always remove and store the drill bits.
9. CAUTION: This Drill Press is designed for use with Drill Bits ONLY. The use of other cutting tools or accessories could be hazardous.
10. ALWAYS use clamps, or a drill vice bolted to the table, to hold the work. It should NEVER be held in bare hands.

ELECTRICAL CONNECTIONS

Connect the mains lead to a standard, 230 Volt (50Hz) electrical supply through an approved 13 amp BS 1363 plug, or a suitably fused isolator switch.

WARNING! THIS APPLIANCE MUST BE EARTHED

IMPORTANT: The wires in the mains lead are coloured in accordance with the following code:

Green & Yellow	-	Earth
Blue	-	Neutral
Brown	-	Live

As the colours of the flexible lead of this appliance may not correspond with the coloured markings identifying terminals in your plug proceed as follows:

Connect GREEN & YELLOW cord to terminal marked with a letter "E" or Earth symbol "⏚" or coloured GREEN or GREEN & YELLOW.

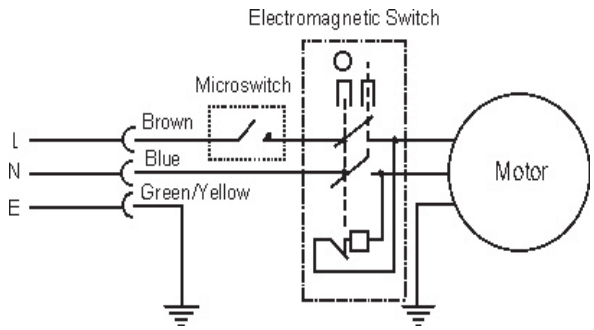
Connect BROWN cord to terminal marked with a letter "L" or coloured RED.

Connect BLUE cord to terminal marked with a letter "N" or coloured BLACK.

If this appliance is fitted with a plug which is moulded onto the electric cable (i.e. non-rewirable) please note:

1. The plug must be thrown away if it is cut from the electric cable. There is a danger of electric shock if it is subsequently inserted into a socket outlet.
2. Never use the plug without the fuse cover fitted.
3. Should you wish to replace a detachable fuse carrier, ensure that the correct replacement is used (as indicated by marking or colour code).
4. Replacement fuse covers can be obtained from your local dealer or most electrical stockists.
5. The fuse in the plug must be replaced with one of the same rating (**13 amps**) and this replacement must be ASTA approved to BS1363.

WIRING DIAGRAM



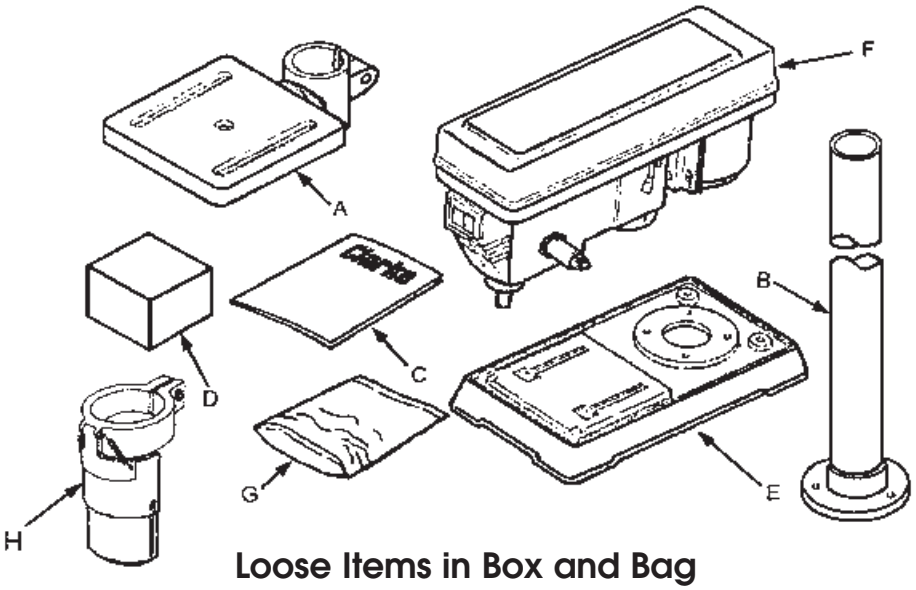
PREPARATION

On receipt, carefully unpack the components, ensuring that no damage was suffered in transit, and that all parts are accounted for.

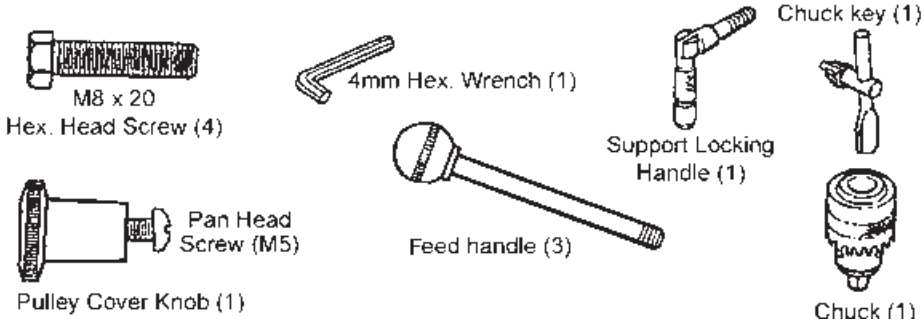
The following loose items are to be found in the packing case.

A. Table Assy.
B. Column Assy.
C. This Manual
D. Box of loose parts
E. Base.
F. Head Assy.
G. 1 X Bag of loose parts.
H. Chuck Guard Assy.

Check the parts against the above list and refer to the following diagrams.
Should there be any deficiencies or damage, you should contact your CLARKE dealer immediately .



Loose Items in Box and Bag



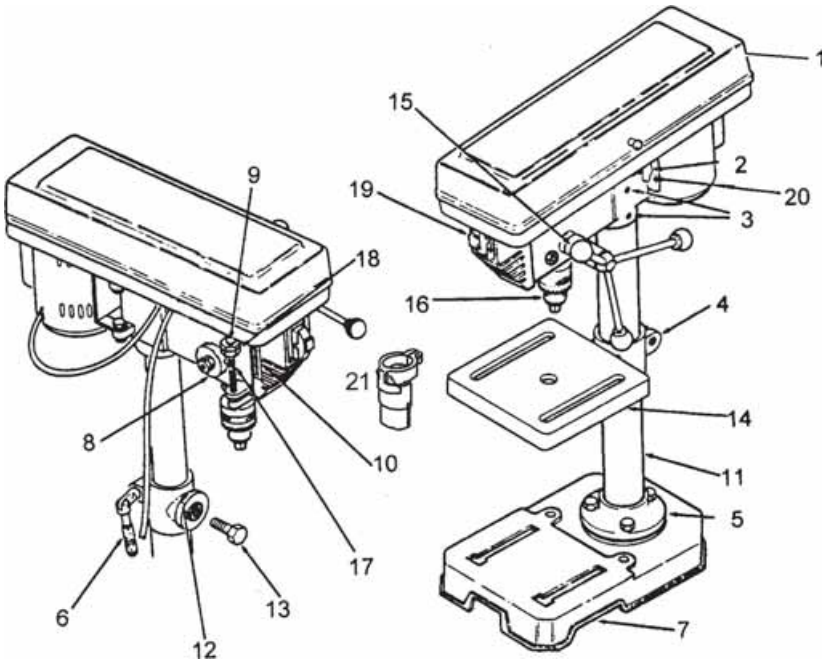
Remove all traces of preservative from the components with paraffin or a good quality solvent, and wipe all parts thoroughly with a clean dry cloth. Apply a coating of wax paste or light oil, to the table, column and base, to prevent rust.

Take the necessary precautions when lifting components, considering their weight. Assistance will be required.

Before use, the machine must be mounted, and securely bolted, to a strong, heavy workbench, of sufficient height so that you do not need to bend your back to perform normal operations.

Ensure the location is adequately lit, and that you will not be working in your own shadow.

DESCRIPTION OF PARTS



1. Pulley Cover
2. Belt Tension Locking Screw
3. Head Lock Set Screws
4. Table Support
5. Column Support
6. Table Support Locking Handle
7. Base
8. Quill Spring Assembly
9. Pointer
10. Depth Scale
11. Column
12. Bevel Scale
13. Table Lock Set Screw
14. Table
15. Feed Handles
16. Chuck
17. Feed Stop Rod
18. Stop Nuts
19. Switch
20. Motor Stop
21. Chuck Guard

ASSEMBLY

CAUTION!

IT IS ADVISED THAT ASSISTANCE BE USED WHEN ASSEMBLING THIS MACHINE.

A. Column to the Base.

Bolt the column assembly to the base with the four M8 x 20mm hex. screws provided.

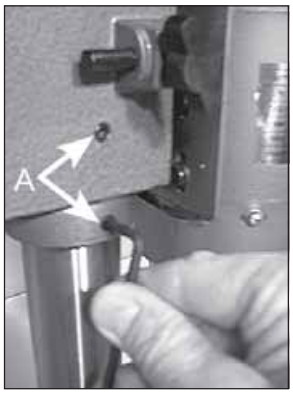
NOTE: *Ideally, the base with column attached, should be firmly bolted to the workbench, prior to the assembly of other components.*

Fig. 1

B. Table to Column.

1. Thread the Table Support Locking Handle into the Table Support from the left hand side, and leave it loose at this stage.
2. Slide the Table Support with Table, over the Column, and lower it so that it rests against the column support bracket (Fig. 1). Nip up the locking handle to prevent the table from swinging freely during the assembly process.
3. Check to ensure the column set screws, at the column support, are tight

Fig. 2

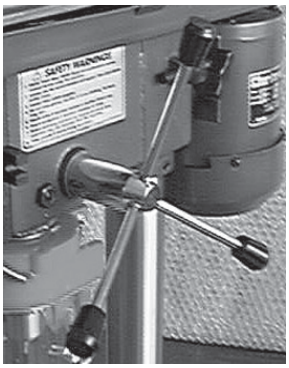


C. Head to Column.

NOTE: I*t may be necessary to unscrew the Head Lock Set Screws (A fig.2), to ensure they do not protrude internally, as this would prevent the head from sliding fully into position.*

1. With assistance, raise the Head, and locate it on top of the Column, ensuring it slides home fully.
2. Align the head with the base, and tighten down the Head Lock Set Screws using the wrench provided, to secure the head.

Fig. 3



3. Locate the three feed handles, and screw them firmly into the hub of the feed shaft.

D. Chuck Guard Assembly

Slide the Chuck Guard over the Quill Shaft and nip up the pinch bolt, temporarily, with the pinch bolt facing the front (see fig.4). Ensure the Quill Shaft/Spindle is at the top of its travel.

NOTE: *This operation should be carried out before the chuck is installed.*

E. Installing the Chuck.

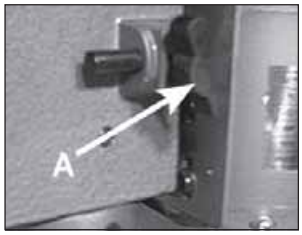
Fig. 4

1. Slide the work table up the column to within 6" of the spindle.
2. Open the jaws of the chuck to their maximum, using the chuck key supplied.
3. Put a piece of scrap wood on to the table to protect the chuck nose.
4. Ensuring all parts are thoroughly clean, dry, and burr free, place the chuck over the end of the spindle, and pull the spindle down using the feed handles, pressing the chuck hard against the piece of scrap wood until the chuck is forced home.
5. Slacken the chuck guard pinch bolt and turn the chuck guard so the the pinch bolt is towards the rear and tighten the pinch bolt.

F. Belt Cover Knob.

Fig. 5

Locate the knob, with pan head screw, and attach to the cover, screwing on tightly.



G. Fitting the Drive Belt.

1. Undo the Belt Tension Locking Screw (A, Fig.5), and, referring to the chart inside the belt cover (which is duplicated on page 12), fit the belt in the position corresponding to the spindle speed required.

CHECKING THE OPERATION OF THE MICROSWITCH

IMPORTANT:

When closing the cover, check the operation of the Microswitch. It is important that it operates immediately the cover is pulled open, in order to prevent the machine from operating.....NOT when the cover is opened sufficiently for fingers to be inserted. If necessary, bend the actuating tab, which is attached to the cover, to ensure this.

Fig.6

2. Lever the motor, on its bracket, away from the head, so that tension is applied to the belt.Tension is correct, when the belt deflects by approx. ½" at its centre, when using reasonable thumb pressure. Lock the motor in this position using the Locking Screw.

NOTE: *If the belt should slip whilst drilling, adjust the belt tension.*

SETTINGS and ADJUSTMENTS

1. Table.

Fig. 7

Table Support Locking Handle

The table may be raised, lowered or swivelled about the column, by slackening off the table support locking handle, (Fig. 7), adjusting accordingly, and re-tightening the handle.

Fig. 8

Table shown tilted and swivelled about the column

It may also be tilted by loosening the screw, which secures the table to its' mount, beneath the table, tilting to the required position, and re-tightening the screw.

A bevel scale is provided on the table mounting, measured in degrees, to assist in setting the required angle.

Fig. 9

Table Tilt Scale

For all normal operations, the table should be set to 0°.

To check to ensure the table is entirely square to the drill, insert a piece of straight round bar in the chuck, place a square on the table and bring it up to the round bar. Adjust the table tilt if necessary so that the table is correctly aligned.

2. Spindle Depth

Located around the Spindle Feed Shaft is a Depth Stop Collar carrying a graduated scale (A, Fig.10). The Collar is capable of turning about the shaft and may be locked in place by Locking Screw B. The Graduations are Imperial (inches) and Metric (mm).

To set a driling depth:

Fig. 10

Lower the drill bit...WITH THE POWER OFF, so that it contacts the work, and hold in that position with one hand whist slackening the locking screw (B) and rotating the scale so that the measurement for the depth of hole to be drilled is in line with the pointer (C). Lock the collar in this position with the locking screw (B).

The drill is now preset to drill holes to your pre-determined depth. i.e. Providing your workpiece is level and flat, you may drill a series of holes, each to the same depth, quickly and accurately.

3. Changing Drill (Spindle) Speed.

Fig. 11

Before changing the speeds, ensure the machine is switched OFF and disconnected from the mains supply.

1. Slacken off the Belt Tension Locking Screw (see fig.5), to relieve any tension on the drive belt.
2. Open the pulley cover.
3. Consult the chart inside the pulley cover and position the belt on the pulley's according to the spindle speed required.
4. When the belt has been correctly positioned, re-tension by levering the motor away from the head, until the belt deflects by approx. ½" at its centre when using reasonable thumb pressure. Lock the motor in this position with the Belt Tension Locking Screw. Finally, recheck the operation of the Microswitch (see page 10)

DRILL SPEED TABLE

The table below gives the belt arrangement for given drill speeds. The diagram shows the belts fitted to step D of the Spindle Pulley and 4 of the Motor Pulley, giving a drill speed of 1,670 RPM.

A full chart is also provided on the inside of the pulley cover.

Spindle Speed (RPM)	Belt Position
460	A1
730	B2
1130	C3
1670	D4
2480	E5

OPERATION.

1 . Insert the drill bit into the jaws of the chuck by approx 1", ensuring that the jaws do not touch the flutes of the drill. Before tightening the chuck, ensure that the drill is centred within the jaws.

2. Ensure the table height and position is set so that drill travel is sufficient for the job in hand.

3. Ensure the work is securely clamped or held in a drill vice, bolted to the table. Never hold it with bare hands. Severe personal injury may be caused if the workpiece is whipped out of the operator's hand and damage to the machine incurred if the work strikes the column.

   If the piece is of irregular shape and cannot be laid flat on the table, it should be securely blocked and clamped.

   Any tilting, twisting or shifting, results not only in a rough hole but also increases drill breakage.

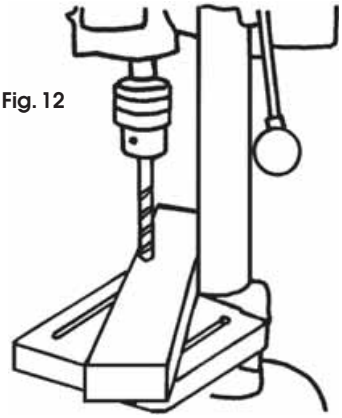


Fig. 12

4. For small workpieces, that cannot be clamped to the table, use a Drill Press Vice. The vice must be clamped or bolted to the table.

5. When drilling completely through wood, always position a piece of scrap wood between the workpiece and the table to prevent splintering on the underside of the workpiece as the drill breaks through. The scrap piece of wood must make contact with the left side of the column as shown in Fig 12. In addition, set the depth of drill travel so that the drill cannot possibly come into contact with the table, or align the table so that the hole in its' centre is directly in line with the drill bit.

6. When completely satisfied that the setup is sound, lower the Chuck Guard into place, and switch the machine ON by pushing the GREEN 'I' button. To switch OFF...push the RED 'O' button, see fig. 13.

Fig. 13

NOTE:

a. As a safety feature, the ON/OFF switch is a No Volt Release type. Therefore, if the power is interrupted whilst the machine is switched ON, it will not automatically start when the power is restored.

b. A Micro switch is provided within the Pulley Cover, which prevents the machine from operating unless the Pulley Cover is firmly closed.

Drill Press Vices, Cross Vices and Clamps, are available from your CLARKE dealer.

MAINTENANCE

For maximum performance, it is essential that the Drill Press is properly maintained. Always inspect before use. Any damage should be repaired, and faults rectified.

If the mains lead is worn or cut, or damaged in any way, it should be replaced immediately.

Please refer to the trouble shooting chart on page 13 . If you are unable to rectify any faults, please contact your local dealer or Clarke International Service Division on 020 8556 4443 for assistance.

Monthly (When in constant use)

1. Check tightness of mounting bolts, and, head and column securing set screws.
2. Check belt for wear, and replace if frayed or damaged in any way.
3. Blow out any dust that may have accumulated in the motor fan.
4. Apply a thin coat of wax paste or light oil to the table and column, for lubrication, and to help prevent corrosion.

Lubrication

All bearings are packed with grease at the factory and require no further lubrication.

After use

Remove all swarf from the machine and thoroughly clean all surfaces.

Components should be dry, with machined surfaces lightly oiled.

Always remove drill bits, and store in a safe place.

CUTTING SPEEDS

Factors which determine the best speed to use in any drill press operation are:

• Kind of material being worked • Size of hole • Quality of cut desired • Type of Drill

Generally, the smaller the drill, the greater the required RPM. In soft material, the speed should be higher than for hard metals.

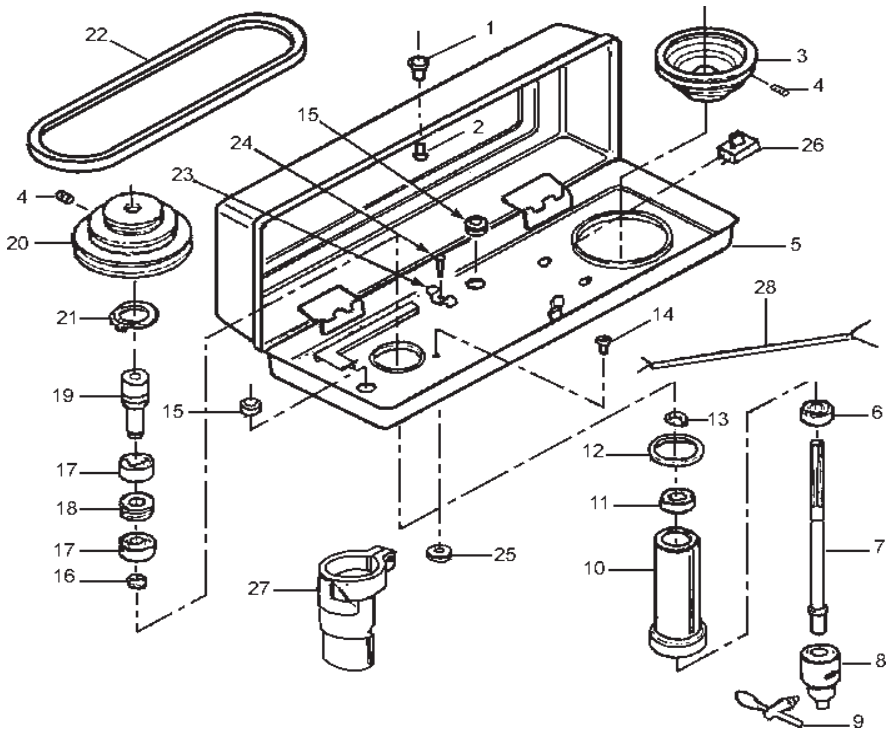
As a general guide, the drill speed for a given drill bit size, is according to the table below.

Speed Range (RPM)		**2480**	**1670**	**1130**	**730**	**460**
Wood	in	3/8	1/2	-	-	-
	mm	9.5	12.5	-	-	-
Alum, Zinc & Brass	in	7/32	11/32	15/32	-	-
	mm	5.6	8.75	12	-	-
Iron & Mild Steel	in	3/32	5/32	1/4	3/8	1/2
	mm	2.4	4	6.4	9.5	12.5

TROUBLE SHOOTING

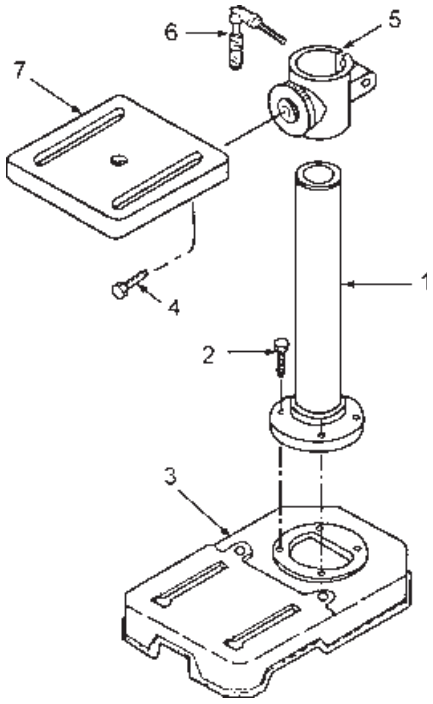
PROBLEM	PROBABLE CAUSE	REMEDY
Noisy operation (under load)	A) Incorrect belt tension B) Dry spindle C) Loose pulley D) Loose belt E) Worn bearing	A) Adjust tension B) Remove spindle/quill assembly and lubricate C) Tighten pulley D) Adjust belt tension E) Replace bearing
Excessive drill wobble	A) Loose chuck B) Worn spindle, or bearing C) Worn chuck D) Bent drill	A) Tighten by pressing chuck down on to a block of wood against table. B) Replace spindle shaft or bearing C) Replace chuck D) Renew Drill
Motor won't start	A) Power supply B) Motor connection C) NVR Switch connections D) Faulty switch E) Motor windings burned F) Pulley Cover not closed. G) Micro Switch inoperative.	A) Check power cord/fuse B) Check motor connections C) Check switch connections D) Replace switch E) Replace motor F) Close pulley cover. G) Check operation of micro switch, per instructions Page 10. If switch operates correctly but motor fails to start consult your Clarke dealer
Drill binds in workpiece	A) Excessive feed pressure B) Loose belt C) Loose drill D) Incorrect drill speed. E) Drill angles incorrect for type of material F) Loose Spindle Pulley	A) Apply less pressure B) Check belt tension C) Tighten drill with key D) Refer to Cutting Speed chart,and adjust drill speed accordingly E) Consult an appropriate manual re. Drills and CuttingAngles, and sharpen drill accordingly. F) Tighten Pulley grub screw
Drill burns or smokes	A) Incorrect speed. B) Chips are not discharging C) Dull drill or incorrect clearance for material. D) Needs coolant E) Excessive feed pressure	A) Refer to Cutting Speed chart, and adjust drill speed accordingly B) Clean drill C) Check sharpness & profile D) Use coolant whilst drilling E) Apply less pressure
Table difficult to raise	A) Needs lubrication B) Table lock tightened	A) Lubricate with light oil B) Loosen clamp

PULLEY ASSEMBLY



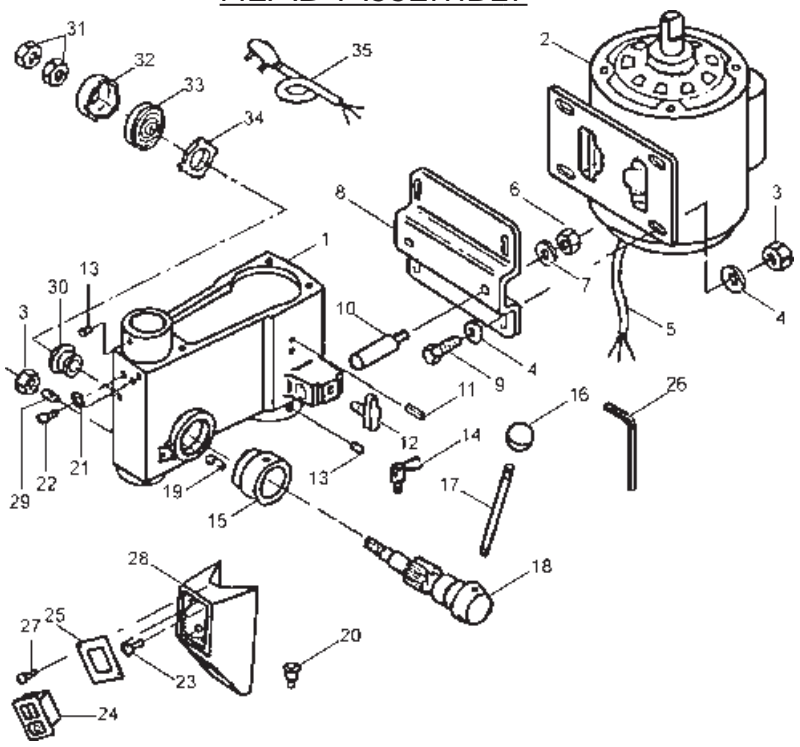
Item	Description	Part No	Item	Description	Part No.
1	Knob	DD16105008	15	Rubber Bushing	DD20105012
2	Pan Head Screw M5	3040656	16	Retaining Ring	DDGB8941-86
3	Motor Pulley	DD13205005	17	Bearing 60203	BRG60203
4	Hex Skt Screw M6	3040487	18	Spacer	DD13302023
5	Pulley Cover	DD13205000	19	Pulley Insert	DD13202022
6	Bearing 80201	BRG80201	20	Spindle Pulley	DD13205006
7	Spindle Shaft JT33	DD13203001A	21	Retaining Ring	DDGB8941-86
8	Chuck JT33	DDJ2613	22	Vee Belt K30	DD13205007
9	Chuck Key	DD13303010	23	Cable Clamp	DD16102014
10	Quill Tube	DD13203002A	24	Pan Head Screw M5	3040410
11	Bearing 60201	BRG60201	25	Foam Washer	DD13105009
12	Quill Gasket	DD13303006	26	Microswitch	DDXN-5
13	Circlip	DDGB8941-88	27	Chuck Guard	DD16108001
14	Screw M6	3040650	28	Mains lead	DD13202029

BASE ASSEMBLY



Item	Description	Part No
1	Column	DD13201002
2	Hex. Head Screw M8	3040501
3	Base	DD13201001
4	Table Tilt Locking Screw	3040510
5	Table Support w/Scale	DD13201004A
6	Clamp Handle	DD16101013
7	Table	DD13201014

HEAD ASSEMBLY



Item	Description	Part No	Item	Description	Part No.
1	Head w/Pointer and Trim	DD13202001	19	Stop Pin	DD13304010
2	Motor Assembly	DDYYG71L4(W)	20	Connector	DD13302019
3	Hex. Nut M8	3040601	21	Lockwasher	DDGB8621-87
4	Washer	DDGB972-85	22	Pan Head Screw M5x6	3040485
5	Motor cable	DD13202016	23	Pan Head Screw M5x12	3040656
6	Hex. Nut M10	3040602	24	NV Switch Assembly	DDKJD6
7	Lockwassher	DDGB93-87	25	Cover Switch Plate	DD13202009A
8	Motor Bracket	DD13202007	26	Hex. Wrench	DDGB5356-86
9	Hex. Screw M8	7101107	27	Self tapping Screw	DDGB845-85
10	Motor Brkt Support	DD13202002	28	Switch Box	DD13202008
11	Roll Pin	DDGB879-86	29	Set Screw	DD13202021
12	Belt Tension Lock. Screw	DD13102005	30	Spring Seat	DD13204006
13	Head Lock Set Screw M8	DDGB80-85	31	Hex Nut	3040603
14	Depth Locking Screw	DD16104012	32	Quill Spring Cap	DD13104008
15	Depth Stop Ring w/Scale	DD13304003	33	Quill Spring	DD13104009
16	Knob	DD132040011	34	Spring retainer	DD13104007
17	Feed Handle	DD13202005	35	Power cable	DD13302015L
18	Feed Shaft	DD13304000			

SPECIFICATIONS

Motor	230VAC, 50Hz, 1 Phase
Power Rating	300Watts
Current Rating	1.3Amps
Speed	1400RPM
Fuse Rating	13Amps
No. of Speeds	5
Chuck Capacity	13mm
Spindle Taper	JT33
Table Type	Square - Dry
Table Dimensions	198 x 193mm
Table T- Slot Dimensions	16x135mm
Max. Spindle Travel	60mm
Max. Dist. Chuck to Table	290mm
Column Dia.	59.5mm
Quill Collar Dia.	54mm
Dist. Column to Chuck Centre	126mm
Overall Dimensions	720x295x480mm
Base Size	210x340mm
Belt Type	K30 - 787
Weight	29kg

OPTIONAL ACCESSORIES

Drill Press Vices, from 3" to 6", Cross Vices (Cast Iron), and Table Clamps are available from your CLARKE dealer

SPARE PARTS & SERVICING

For Spare Parts and Service, please contact your nearest dealer, or CLARKE International, on one of the following numbers.

PARTS & SERVICE TEL: 020 8988 7400
PARTS & SERVICE FAX: 020 8558 3622
or e-mail as follows:
PARTS: Parts@clarkeinternational.com
SERVICE: Service@clarkeinternational.com