Clarke®

WOODWORKER

COMPOUND MITRE SAW

Model CMS251

OPERATION & MAINTENANCE INSTRUCTIONS

CE

Clarke®
INTERNATIONAL

DECLARATION OF CONFORMITY

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

- **98/37/EC**
- **93/68/EEC**
- **89/336/EEC**
- **BS EN 61029-1**

Product Description: **COMPOUND MITRE SAW**

Model Number: **CMS251**

Serial (Batch) No: **See machines' data plate**

Signed _____

Clarke INTERNATIONAL
Hemnall Street, Epping, Essex CM16 4LG

Thank you for purchasing this CLARKE 10 inch Compound Mitre Saw. This extremely versatile machine is designed for DIY/Hobby use and for use by tradesmen in a light industrial environment

Before operating the machine, please read this leaflet thoroughly and carefully follow all instructions. This will ensure the safety of yourself and that of others around you, and you can also look forward to the machine giving you long and satisfactory service.

GUARANTEE

This CLARKE product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt 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.

CONTENTS

Page

GENERAL SAFETY RULES FOR OPERATING MACHINERY

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. **READ and BECOME FAMILIAR** with the entire operating manual. Learn the machines' applications and limitations as well as the specific potential hazards peculiar to it.
2. **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.
3. **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.
4. **CHECK for DAMAGE** before using the machine. Any damaged part, such as a guard etc., should be checked to ensure that it will operate properly, and perform its intended function. Check for alignment of moving parts, breakage of parts, mountings, and any other condition that may affect the machines' operation. Any damage should be properly repaired or the part replaced. If in doubt, DO NOT USE the machine. Consult your local dealer.
5. **DISCONNECT the MACHINE** from the power supply before servicing and when changing accessories such as blades, etc.
6. **ALWAYS KEEP GUARDS IN PLACE** and in working order.
7. **ALWAYS WEAR SAFETY GOGGLES,** manufactured to the latest European Safety Standards. Also use a face or dust mask if the cutting operation is dusty. Everyday eyeglasses do not have impact resistant lenses, they are NOT safety glasses.
8. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
9. **ALWAYS WEAR EAR PROTECTORS/DEFENDERS.**
10. **DON'T FORCE THE MACHINE**. It will do a better and safer job at the rate for which it was designed.

11. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form the habit of checking to see that keys and adjusting wrenches are removed from the machine before switching on.
12. Do not operate machine while under the influence of **DRUGS, ALCOHOL OR ANY MEDICATION.**
13. **USE ONLY RECOMMENDED ACCESSORIES.** The use of improper accessories could be hazardous.
14. **NEVER LEAVE MACHINE RUNNING UNATTENDED**. Turn power OFF. Do not leave machine until it comes to a complete stop.
15. **ALWAYS DISCONNECT FROM THE MAINS SUPPLY** when adjusting, changing parts, or working on machine.
16. **AVOID DANGEROUS ENVIRONMENT.** Don't use power machines in damp or wet locations or expose them to rain. Keep your work area well illuminated. DO NOT USE in explosive atmosphere (around paint, flammable liquids etc.).
17. **KEEP CHILDREN AWAY**. All visitors should be kept a safe distance from the work area, especially whilst operating the unit.
19. **MAINTAIN MACHINE IN TOP CONDITION.** Keep tools sharp and clean for the best and safest performance. Follow maintenance instructions.
21. **DON'T OVERREACH**. Keep your proper footing and balance at all times. For best footing, wear rubber soled footwear. Keep floor clear of oil, scrap wood, etc.
22. **WEAR PROPER APPAREL**. Loose clothing or jewellery may get caught in moving parts. Wear protective hair covering to contain long hair.
23. **MAKE WORKSHOP CHILDPROOF.** Cover the saw adequately when not in use, to prevent children from damaging themselves by tampering with it.
24. **NEVER STAND ON THE MACHINE.** Serious injury could occur if the machine is tipped or if a cutting tool is accidentally contacted. Do not store materials above or near a machine, such that it is necessary to stand on the machine to reach them.
25. **HANDLE WITH EXTREME CARE** whenever transporting or installing machinery, and always use a lifting tool.
26. **AVOID ACCIDENTAL STARTING.** Ensure the switch is OFF before plugging in to mains.
27. **ALWAYS CONCENTRATE ON THE JOB IN HAND,** no matter how trivial it may seem. Accidents are frequently caused by carelessness due to familiarity.

ADDITIONAL SAFETY INSTRUCTIONS for MITRE SAWS

1. Wear safety goggles as protection against flying wood chips and saw dust. In many cases, a full face shield is even better protection. A dust mask is also recommended to keep saw dust out of your lungs.
2. Use a solid wood workbench which will not move under load.
3. This saw is designed for use by DIY/Hobbyists, or tradesmen in a light commercial environment **ONLY**.
4. Clear the work table of all objects except the workpiece (tools, scraps, rulers etc.) before switching on the saw.
5. Keep your fingers well away from the blade.
6. Switch off the saw, and make sure the blade has come to a complete stop before clearing sawdust or off-cuts from the table.
7. Make sure there are no nails or foreign objects in the part of the workpiece to be sawn.
8. Set up the machine and make all adjustments with the power OFF, and disconnected from the supply.
9. DO NOT operate the machine with the guards removed. They must all be in place and securely fastened when performing any operation
10. Use ONLY approved replacement saw blades. Contact your local CLARKE dealer for advice. The use of inferior blades may increase the risk of injury.
11. DO NOT saw any material that does not have a flat surface on which to bear.
12. Do Not force the blade, lower it gently into the work.
13. Ensure you have complete control of the Cutting Head at all times. When a cut is completed, return it to its uppermost position gently. DO NOT allow it to snap back heavily under spring pressure.
14. Always clamp the work to the table...DO NOT perform freehand operations.
15. Ensure that the portion of the workpiece being cut bears firmly against the back fence.
16. Provide adequate support for long workpieces.
17. Never use solvents for cleaning plastic parts as this could cause damage to the material. A soft damp cloth only is required.

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 IS DOUBLE INSULATED

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

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

Connect BLUE cord to the terminal marked with "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.

Fuse Rating

The fuse in the plug must be replaced with one of the same rating -**13amps** and this replacement must be ASTA approved to BS1362.

Cable Extension

If a cable extension is needed, it is essential to ensure that the size of the conductors is at least the same size as those of the power cable supplied.

PRINCIPAL PARTS OF THE SAW

Fig.1

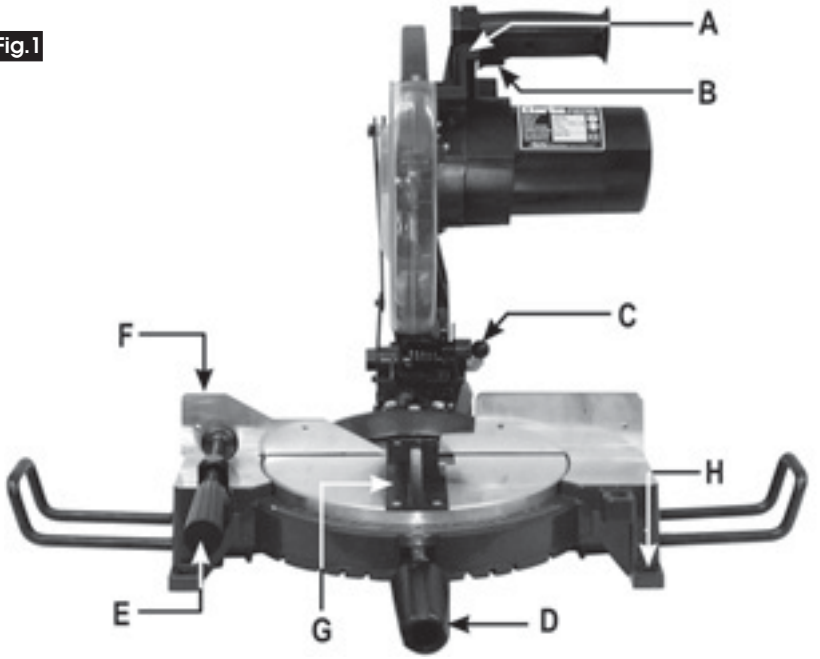
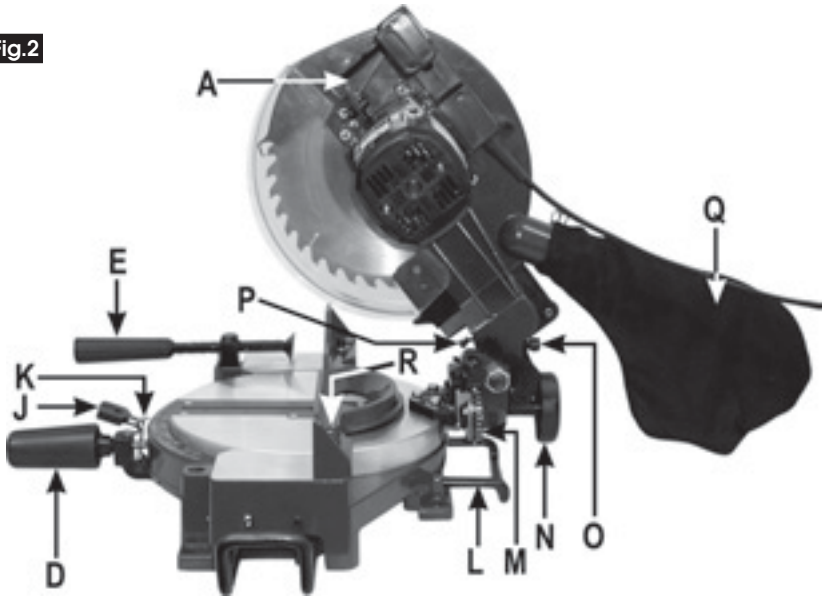


Fig.2



LEGEND

A Cutting Head Release Lever
B Trigger Switch (ON/OFF)
C Cutting Head Locking Pin
D Table Locking Knob
E Work Clamp
F Back Fence
G Table Insert
H Front Mounting Hole
J Table Release Lever
K Pointer
L Stabiliser
M Bevel Scale
N Bevel Locking Knob
O Head Return Spring Tension Adjuster
P Cutting Head Stop Screw
Q Dust Bag

FEATURES (Ref. Figs. 1 and 2)

As its' name implies, the machine is a Bevel/Mitre Saw, capable of straight cross cutting, and cutting bevels and mitres, or a combination of the two.

The main arm, or Cutting Head, carries the motor and the tungsten carbide saw blade. It is allowed to swivel to produce mitre cuts and tilt to the left to produce bevel cuts.

The maximum sizes of wood that may be cut in any of these processes is given on page 17.

A dust extraction port is provided at the rear of the machine to which the dust bag (Q), is attached. If required, a vacuum extraction device may be used which will provide fast and efficient removal of sawdust. The extraction device may be used continuously or intermittently depending upon your requirements.

The Cutting Head is locked in its lower position for transit purposes. To release it, pull out the Head Locking Pin, (C). It may be necessary to apply slight downward pressure to the head in order to do so, and allow the head to rise to its upper position gently, under control.

The head will lock in its upper position, and is prevented from being lowered until the Head Release Lever (A) is moved sideways.

ASSEMBLY and INSTALLATION. Re: Figs 1 & 2

On receipt inspect the machine to ensure that all parts are accounted for and that no damage was incurred during transit. Any deficiency or damage should be reported to your CLARKE dealer immediately.

The main body of the saw is fully assembled and adjusted at the factory. It is necessary only to fit the accessories supplied as follows:

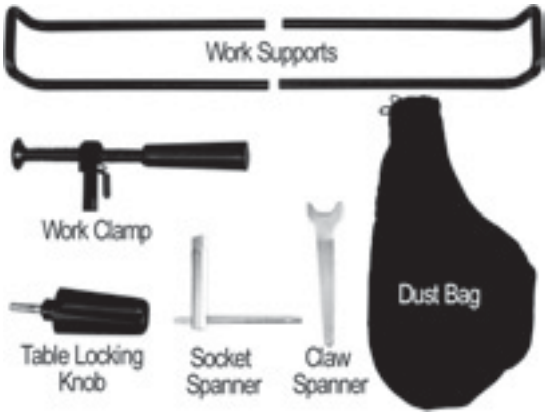


Fig.3

1. Mount the machine on a firm solid base that will not move under load. Ensure there is an appropriate electrical supply, and adequate lighting, so that you will not be working in your own shadow.
2. Four holes are provided in the base, one of which is shown at H, so that the machine may be bolted permanently to a workbench for added stability.

   Alternatively it may be bolted to a piece of plywood with a thickness of 5/8" minimum. If this method is preferred, the plywood support should be clamped to a solid base or workbench whenever the saw is being used.
3. The Work Clamp may be slipped into one of the sockets provided for the purpose, as shown at 'E'.
4. Slide the Work Supports into their mountings, one on either side of the base.
5. Screw the Table Locking Knob into the Locking Mechanism as shown at D.

   To move the table, first ensure the Locking Knob is slackened off completely, i.e. turned anticlockwise one or two turns, then, whilst grasping the Locking Knob, depress the Table Release Lever, and keep depressed whilst turning the table.

   Release the Locking Lever and Knob at the desired position, as indicated on the scale, and lock in position by screwing the Locking Knob IN until it is firm.

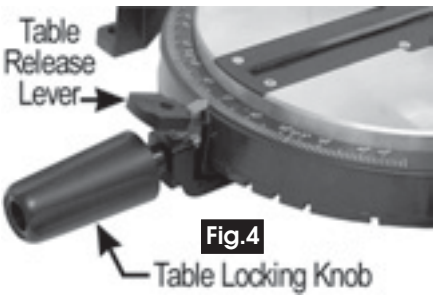


Fig.4

6. Attach the dust bag to the dust extraction outlet with its spring clip.
7. Finally, pull out the rear stabiliser for added stability, if mounted loosely.

OPERATION.

A. Cross Cutting (at 90°) Ref: Figs 1 & 2

First, set the work in place. Clamp it firmly against the table and back fence. Check the security of the Bevel Locking Knob (N) and tighten if necessary, also ensure the table is locked using the Table Locking Knob (D).

NOTE: If the workpiece is not entirely straight, ensure that the portion at either side of the intended cut rests firmly against the table and back fence.

It is important to ensure that one end of the workpiece is completely free to move i.e. NOT clamped or held in any way. This will normally be the off-cut or shorter end.

When satisfied, make a final check to ensure that all safety precautions are being complied with, then pull the Trigger - B, to start the motor.

Allow the blade to reach full speed. If any unusual sounds or vibrations occur, release the trigger immediately and investigate the cause. When satisfied, move the Head Release Lever (A), sideways with the thumb of your right hand, and gently lower the head so that the blade comes into contact with the workpiece. Do not force the blade, a light pressure is all that is required.

You will notice that to provide maximum safety, the blade is not exposed at any time, and the guard rises automatically as the blade is lowered.

Nevertheless, NEVER treat the machine with indifference, and NEVER be casual with your approach.

To switch off, release the Trigger whilst still maintaining full control of the head.

NOTE: The Head should rise under spring pressure, gently. If the movement is too rapid or conversely, too sluggish, spring tension needs to be adjusted. Refer to 'Adjustments' on page 16.

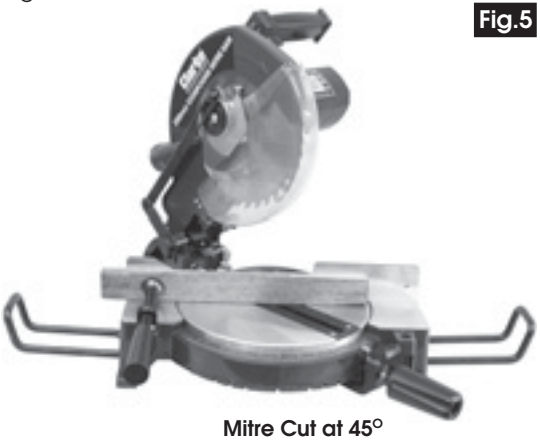
B. Mitre Cutting

This is a cross cutting operation, except that the saw blade is set at an angle to the work, but remains perpendicular to the table. The head is mounted on the table which is free to rotate by up to 45°, to the left and right.

To set the required mitre angle, rotate the table (and hence the Cutting Head) using the procedure described on page10, to the desired position, lining up the angle on the scale, with the pointer (K). Lock the Table in position by screwing in the Locking Knob firmly.

The procedure for cutting is the same as that for cross cutting. For convenience, positive stops are provided at various angles. These are: Zero (90°), 15°, 22.5°, 30° and 45°

Fig.5

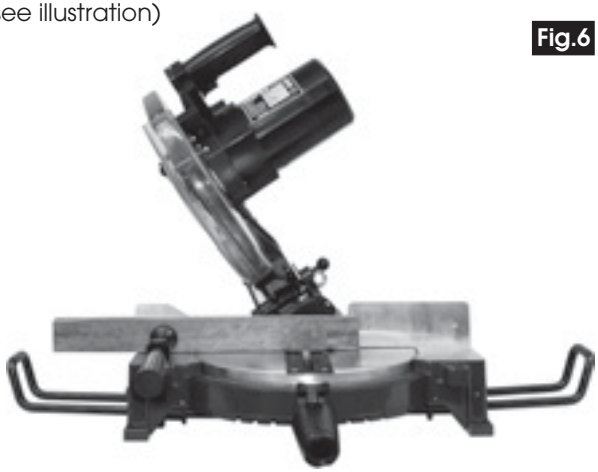


Mitre Cut at 45°

C. Straight Bevel Cutting

As with Mitre Cutting, this is a cross cutting operation, except that the blade is not perpendicular to the table (see illustration)

Fig.6



Ensure the table is set so that the table pointer lines up with the zero on the scale on the bed.

Slacken off the Bevel Locking Knob (N), and swing the Head to the side.

Set the head to the required angle according to the scale (M).

Lock the head in position by retightening the Bevel Locking Knob.

The 45° adjuster is factory set so that when the Head is tilted to its fullest extent the blade will cut 45° bevel.

The procedure for cutting is the same as that for cross cutting.

If the angle is critical, use a small angle gauge on the table to check the angle of the blade to table. Assistance will be required to carry out this task.

D. Compound Mitre and Bevel Cutting.

Having determined the angles you require, first set the Bevel angle, using the procedure described above, and then the Mitre angle.

The procedure for cutting is the same as that for cross cutting.

Fig.7

MAINTENANCE

1. General

User maintenance is limited to changing the saw blade when necessary, renewing the motors' carbon brushes, maintaining adjustments, and ensuring that after use, any sawdust or wood chips are cleaned away, with a low pressure air line or brush, paying particular attention to the motor air vents which should be kept clear at all times.

Should the motor not function normally, it is possible that it has become clogged with saw dust, in which case, it will be necessary to disassemble the motor in order to clean the various components. Contact your CLARKE dealer for advice.

2. Changing the Saw Blade

IMPORTANT: Exercise extreme care when handling the saw blade. The tips are extremely sharp, and careless handling could result in severe personal injury.

1. With the machine disconnected from the mains supply, and the Cutting Head in the raised position, remove the Blade Guard Arm Link Pin, arrowed in Fig. 8, and retain.

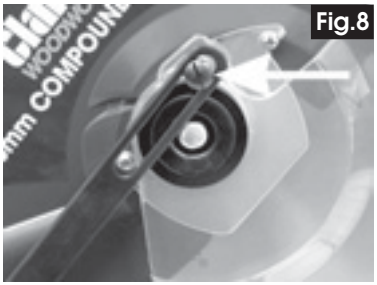


Fig.8

2. Slacken the Blade Guard Bracket securing screw, shown at 'A' in Fig. 9, and REMOVE the screw 'B'. (Leave Screw 'A' in place.)

   This will allow the Lower Blade Guard to be removed completely.

   Take great care from this point, not to come into contact with the saw blade teeth.

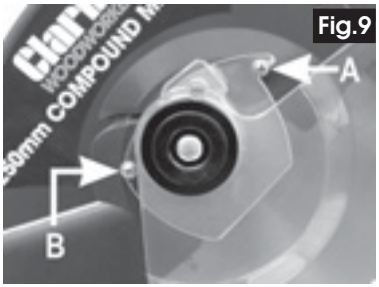


Fig.9

3. Remove the two screws securing the left hand lower plastic guard, arrowed in Fig. 10, and remove the guard.

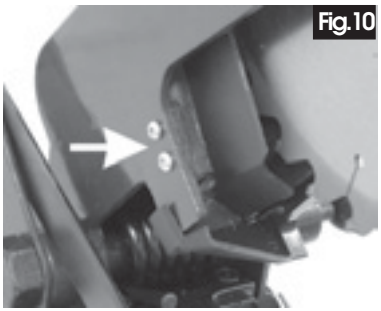


Fig.10

4. Remove the screw securing the upper plastic guard, arrowed in Fig.11, and pull away the guard.


Fig.11

5. Unscrew and remove the Blade securing screw using the claw and box spanners provided, taking great care to avoid damaging your hand on the saw blade teeth.

IMPORTANT: The securing screw has a LEFT HAND THREAD, i.e. turn it CLOCKWISE to undo.


Fig.12

6. Remove the outer flange followed by the blade. If necessary give the blade a gentle tap to dislodge it from the inner flange.

7. Reassemble in reverse order, ensuring the tips of the blade point downwards at the front, as shown in Fig. 13.

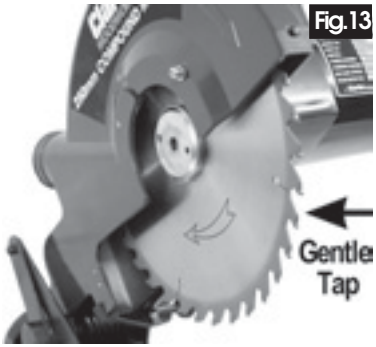


Fig.13

Hints and Tips.

1. When replacing the upper plastic blade guard (para 4 above), take care not to overtighten the securing screw.
2. To replace the Lower Blade Guard Bracket (para.2 above), centralise the guard about the blade, then position the bracket so that screw `A' engages with the slotted hole in the bracket. Tighten screw (A). Using the screw as a pivot move the bracket until the other screw hole, in the Upper Blade Guard, and the hole in the bracket are aligned. Enter the screw and tighten.

3. Renewing Motor Brushes

Eventually, the motors' carbon brushes will need replacing. This task may be carried out quickly and easily as follows.

1. Remove the two cross head screws, securing the motors' end cover, and pull off the cover.

2. Disconnect the spade connector, shown in Fig. 15, then pull out the brush carrier, complete with brush, as shown in Fig. 14.

   The cable is located on a plastic peg, shown in Fig. 15 and will simply pull away as you remove the brush.

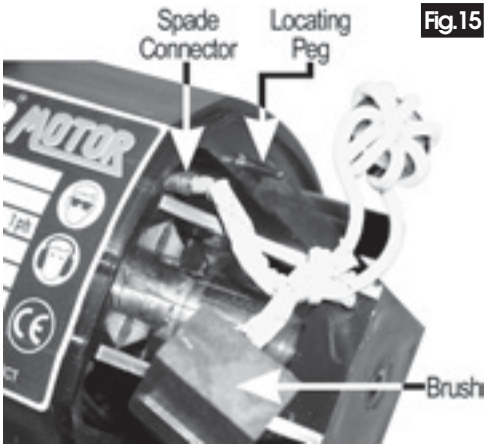
Fig.14

4. Replace in reverse order.

   To locate the brush carrier, (which houses the brush), correctly, position the brush so that it bears on the commutator then push down gently and evenly on the brush carrier so that the carrier can be pushed on to its runners, with the brush sitting snugly on the commutator.

   Ensure the spade connector is secure and the cable is mounted on the locating peg before replacing the end cover.

Fig.15



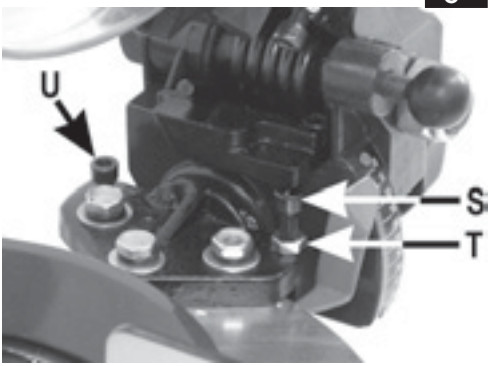
ADJUSTMENTS Ref: Fig 16

It may be necessary from time to time, to check various settings and make appropriate adjustments.

a. Squareness of Blade

It is most important to check that the blade is exactly perpendicular to the table. To do this, place a small square on the table and bring it up to the blade, checking to see if it is square. If an adjustment is required, first slacken the Bevel Locking Knob, then slacken off the adjuster locknut T, screw the adjuster (S) in or out, as the case may be until the blade is exactly square, keeping light pressure on the head to keep it in contact with the adjuster screw. When completely satisfied, lock the adjuster with the lock nut, and with the head resting against the stop, tighten the Bevel Locking Knob.

Fig.16



NOTE: It simplifies matters if assistance is used during this process.

Check the position of the pointer in relation to the scale. If necessary zero the pointer by slackening off the pointer securing screw, moving the pointer accordingly and retighten the securing screw.

b. 45° Bevel Stop

Slacken off the Bevel Locking Knob, and tilt the Head to its maximum. Lower the Blade and with a small 45° gauge between the bed and blade, check for trueness of angle.

If an adjustment is required, slacken the locknut which secures the adjuster shown at U in Fig.16. and is found beneath the table. Turn the adjuster in or out as the case may be, using an appropriate Hex. wrench, to acquire the correct angle. When satisfied, lock the adjuster with the locknut.

c. Squareness of Backfence

Place a square flat on the table with its base resting on the Backfence. If it is not square with the edge of the slot in the table, slacken off the two backfence securing screws R, Fig.2, using an appropriate Hex. wrench, sufficient to be able to move the fence until it is square. When satisfied, tighten the securing screws.

d. Cutting Head Spring Tension

To increase the Cutting Head spring tension, screw the adjuster (O, Fig.2), 'IN' using an appropriate Hex. wrench, until the required tension is achieved.

SPECIFICATIONS

Motor:	**230V 50Hz 1phase.**
Running Current	**6.5Amps**
Power Rating:	**1400 Watts**
Speed:	**3900RPM**
Fuse Rating	**13Amps**
Dimensions: (Head Lowered)	**445x490x365mm**
Dimensions: (Head Raised)	**445x490x520mm**
Blade size (Fitted):	**250mm, 36T, 16mm Bore**
Noise level (Lw)	**101.9dB(A) at 1M**
Vibration Level	**<2.5m/s² (Normal Load)**
Weight (packed/unpacked)	**17.2/15kg**
Part Number	**6500768**

Please note that the details and specifications contained herein, are correct at the time of going to print. However, CLARKE International reserve the right to change specifications at any time without prior notice. Always consult the machine's data plate

ACCESSORIES

Replacement Saw Blades		Part Number
Tungsten Carbide Tipped	24 Tooth	6490110
	40 Tooth	6490120
	60 Tooth	6490130

MAXIMUM CUTTING SIZES

Type of Cut	Depth	Thickness
Cross (90°)	70mm	120mm
Mitre (at 45°)	70mm	90mm
Bevel (at 45°)	40mm	120mm
Compound (at 2x 45°)	40mm	90mm

PARTS LIST

No.	Desciption	Parts List
1	Stabiliser	TMCCMS25101
2	M6 Round Hd Screw	TMCCMS2512
5	Back Fence	TMCCMS25105
6	Work Support	TMCCMS25106
7	M5 hex screw	TMCCMS25107
10	Bracket	TMCCMS25110
11	Base	TMCCMS25111
12	M5 screw	TMCCMS25112
13	M8 Self Locking Nut	TMCCMS25113
15	M8x25 hex skt hd screw	TMCCMS25115
16	Crank	TMCCMS25116
17	Table Locking Knob	TMCCMS2517
20	Spring Plate w/handle	TMCCMS25120
21	Pointer	TMCCMS25121
24	M4x8 cross head screw	TMCCMS25124
25	Plate	TMCCMS25125
26	Work Clamp Screw	TMCCMS25126
27	Locating Block	TMCCMS25127
28	Work Clamp plate	TMCCMS25128
29	Table	TMCCMS25129
30	Table insert	TMCCMS25130
31	M4x8 flat head screw	TMCCMS25131
32	Pointer	TMCCMS25132
33	Trunnion	TMCCMS25133
34	Spring Brg Block	TMCCMS25134
35	Head Mtg Bracket	TMCCMS25135
36	Locating Pin Head	TMCCMS25136
37	Locating Pin	TMCCMS25137
38	Dust Cover	TMCCMS25138
39	Clamping Pin	TMCCMS25139

No.	Desciption	Parts List
40	M16 Self Locking Nut	TMCCMS25140
41	Head	TMCCMS25141
42	Sleeve	TMCCMS25142
43	Spring	TMCCMS25143
44	Arm	TMCCMS25144
45	Bolt	TMCCMS25145
46	Link Arm	TMCCMS25146
47	M6 square-neck screw	TMCCMS25147
48	Spring Retaining Cover	TMCCMS25148
49	Blade Guard	TMCCMS25149
50	Spring	TMCCMS25150
51	Plate	TMCCMS25151
52	Lower Plastic Guard	TMCCMS25152
55	Head Clamping Knob	TMCCMS25155
56	Dust Bag	TMCCMS25156
57	Dust Bag Clamp	TMCCMS25157
58	Screw	TMCCMS25158
59	Spring	TMCCMS25159
60	Bracket	TMCCMS25160
61	Head Release Lever	TMCCMS25161
63	Upper Plastic Guard	TMCCMS25163
64	Screw	TMCCMS25164
67	Motor Mtg. Screw	TMCCMS25167
68	Motor	TMCCMS25168
69	L.H. Lower Plastic Gd.	TMCCMS25169
70	Inner Flange	TMCCMS25170
71	Outer Flange	TMCCMS25171
72	Blade Securing Nut	TMCCMS25172
80	Blade	see Accessories

PARTS & SERVICE CONTACTS

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

PARTS DIAGRAM