Clarke CSS400C Variable Speed Scroll Saw Instruction Manual

Contents

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INTRODUCTION

Thank you for purchasing this CLARKE Variable Speed Scroll Saw. 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.

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

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment.

IN THE BOX

1 x Scroll Saw	1 x Spanner for Flexible Drive Collet Nut
1 x Flexible Drive	1 x Blade 133mm x 2.5mm x 15 t.p.i
1 x Blade Guard Assembly	1 x Blade 133mm x 2.5mm x 18 t.p.i.
1 x T-handled 3 mm Hex Key	2 x Collets for Flexible Drive; (1 x 3.2 mm, 1 x 2.4 mm)
1 x 2.5 mm Hexagon Key	2 x ‘Pin-less’ Blade Clamp Adaptors
1 x Locking Pin for Flexible Drive	1 x 64 Piece Accessory Kit for the Flexible Drive

GENERAL SAFETY INSTRUCTIONS

1. **WORK AREA**
    1. Keep the work area clean and well lit. Cluttered and dark areas invite accidents.
    2. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
    3. Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.
2. **ELECTRICAL SAFETY**
    1. Power tool plugs must match the outlet. Never modify the plug in any way. Do not use adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce the risk of electric shock.
    2. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
    3. Do not abuse the cable. Never use the cord for carrying, pulling or unplugging the power tool. Keep the cable away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
    4. When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cable suitable for outdoor use reduces the risk of electric shock…
3. **PERSONAL SAFETY**
    1. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in personal injury.
    2. Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
    3. Avoid accidental starting. Ensure the switch is in the off position before plugging in. Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
    4. Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
    5. Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
    6. Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.
4. **POWER TOOL USE AND CARE**
    1. Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate which it was designed.
    2. Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
    3. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
    4. Store idle tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
    5. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any

other condition that may affect the power tools operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.

6. Keep cutting tools sharp and clean. Well maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
7. Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from intended could result in a hazardous situation.

5. **SERVICE**
    1. Have your power tool serviced by qualified service personnel using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

SCROLL SAW SAFETY INSTRUCTIONS

1. Wear safety goggles as protection against flying wood chips and saw dust. In many cases, a full face shield offers even better protection.
2. A dust mask is recommended to keep saw dust out of your lungs.
3. The scroll saw must be bolted securely to a stand or workbench. If the saw has a tendency to move during certain operations, bolt the stand or workbench to the floor.
4. A solid wood workbench is stronger and more stable than a workbench with a plywood table.
5. This scroll saw is for indoor use only.
6. Do not cut pieces of material which are too small to be held by hand.
7. Clear the work table of all objects except the workpiece (tools, scraps, rulers etc.) before turning the saw on.
8. Make sure the blades' teeth are pointing down, toward the table, and that the blade tension is correct.
9. When cutting a large piece of material, support it at the height of the table.
10. Do not feed the workpiece through the blade too fast. Feed only as fast as the blade will cut.
11. Keep your fingers away from the blade. Use a push stick as you near the end of the cut.
12. Take care when cutting a workpiece which is irregular in cross section. Mouldings for example must lie flat, and not 'rock' on the table while being cut. A suitable support must be used.
13. Switch off the saw, and make sure the blade has come to a complete stop before clearing sawdust or off-cuts from the table.
14. Make sure there are no nails or foreign objects in the part of the workpiece to be sawn.
15. Be extra cautious with very large or small, or irregularly shaped workpieces.
16. Set up the machine and make all adjustments with the power OFF, and disconnected from the supply.
17. DO NOT operate the machine with the covers off. They must all be in place and securely fastened when performing any operation
18. Be sure to use the correct blade size and type.
19. Use ONLY approved replacement saw blades. Contact your local CLARKE dealer for advice. The use of inferior blades may increase the risk of injury.

ELECTRICAL CONNECTIONS

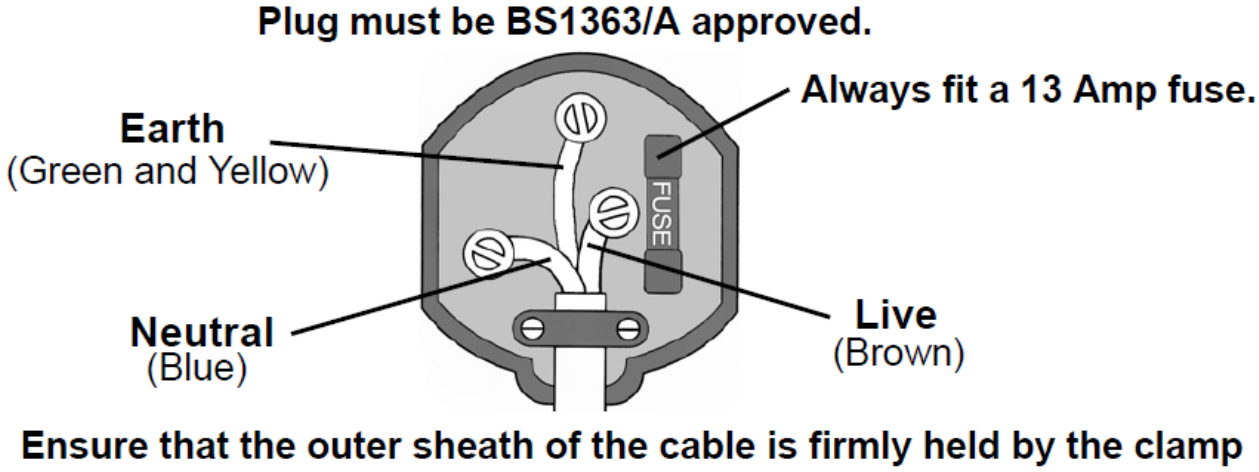
WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.

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

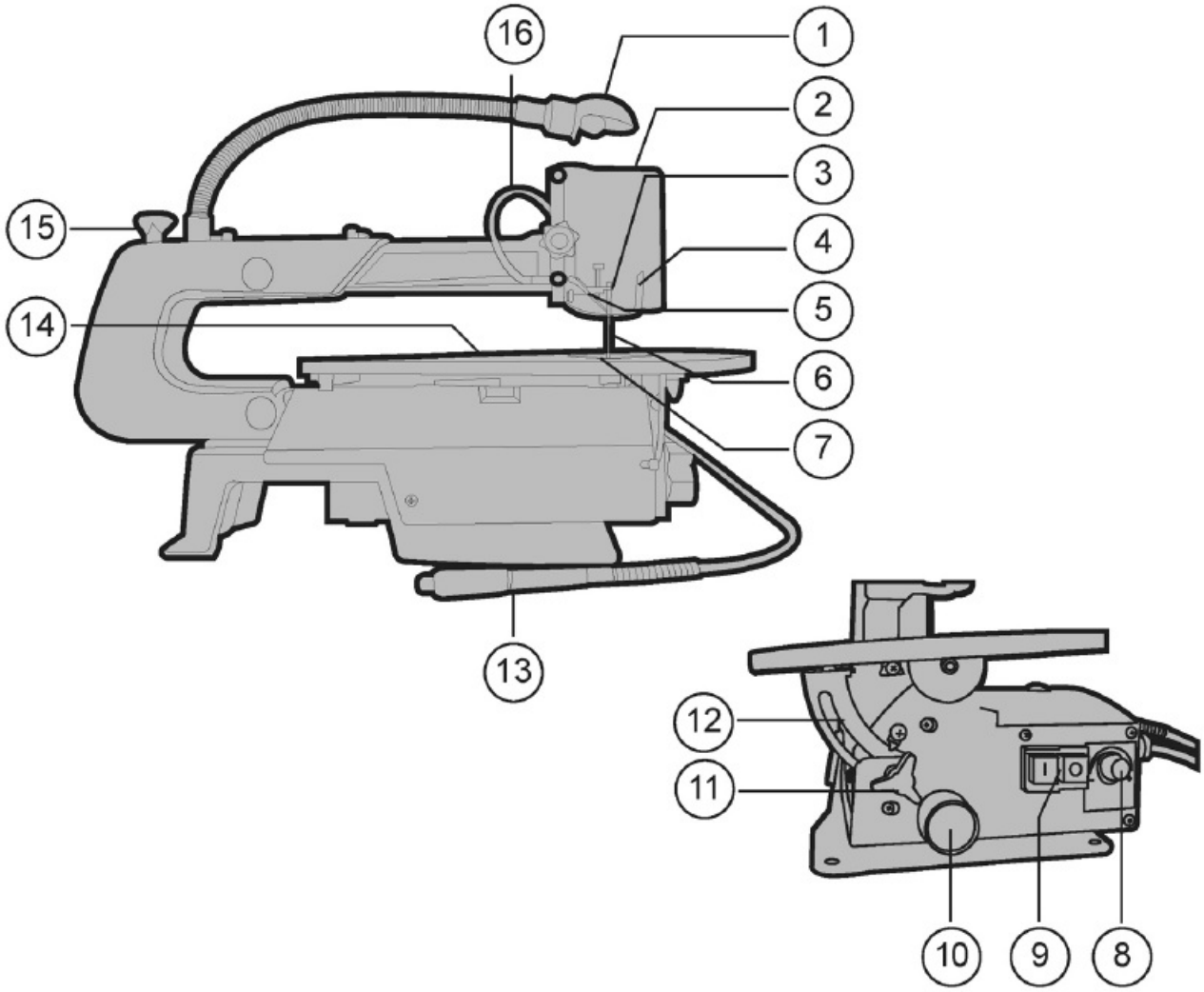
If the colours of the wires in the power cable of this product do not correspond with the markings on the terminals of your plug, proceed as follows.

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



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.

OVERVIEW



No	DESCRIPTION	No	DESCRIPTION
1	Adjustable lamp	9	On/Off switch
2	Blade guard	10	Dust extraction outlet
3	Top blade holder	11	Table tilt lock knob
4	Workpiece pressure plate	12	Angle adjustment scale
5	Sawdust blower nozzle	13	Flexible shaft
6	Blade	14	Saw table
7	Table insert	15	Blade tension knob
8	Blade speed regulator	16	Hose (sawdust blower)

MOUNTING THE SCROLL SAW

WARNING: DO NOT PLUG SAW INTO MAINS UNTIL THE SAW HAS BEEN FIRMLY MOUNTED TO WORK SURFACE.

BOLTING THE SCROLL SAW ONTO A WORKBENCH

1. It is recommended that this tool is securely mounted onto a robust workbench. Fixings are not provided. Be

sure to use equipment of at least the following size:

- 4 x Hex bolts M8
- 4 x Hex nuts M8
- 4 x Flat washer Ø 8 mm
- Rubber mat

2. We recommend that a rubber fine rib matt 420 x 250 x 3 mm (minimum) 13 mm (maximum) is fixed between the workbench and scroll saw to help minimise vibrations and noise. This mat is not supplied.
    - Suitable rubber matting of various thicknesses is available from your Clarke dealer.

      NOTE: Do not over-tighten the screws. Leave enough give for the rubber mat to absorb any vibration.

BEFORE USE

CHOOSING THE RIGHT BLADE

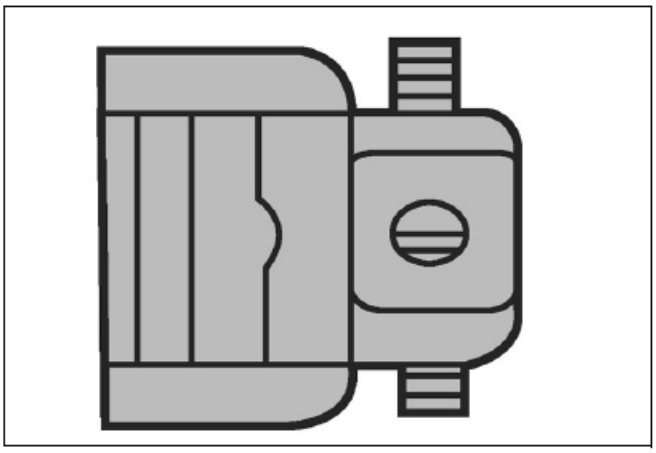
NOTE: As a rule, select narrow blades for intricate curve cutting and wide blades for straight and large curve cutting. Scroll saw blades wear out and must be replaced frequently for optimum cutting results.

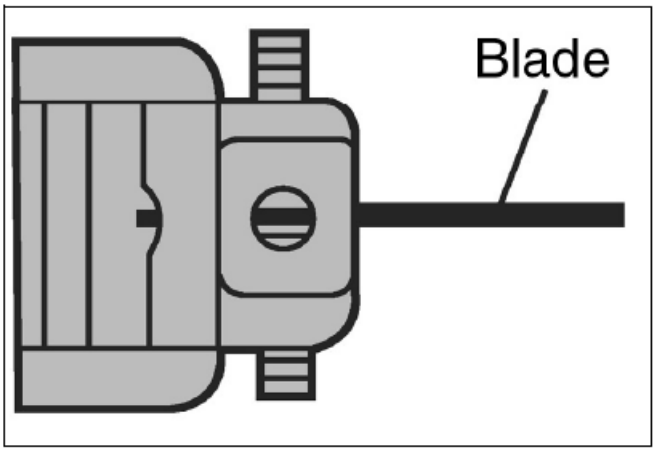
Scroll saw blades generally become dull after 1/2 hour to 2 hours of cutting, depending on the type of material and speed of operation. Best results are achieved with pieces less than one inch (25 mm) thick. When cutting workpieces thicker than one inch (25 mm), you must guide the blade into the workpiece very slowly and take extra care not to bend or twist the blade while cutting.

PINLESS BLADE ADAPTOR

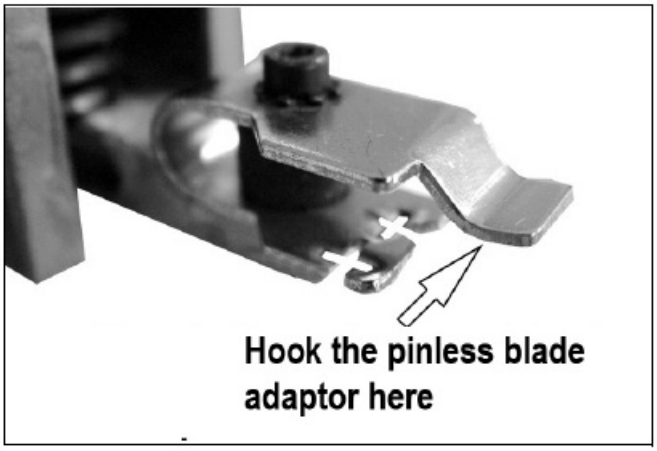
The pinless blade adaptor allows you to use blades that don't have locating pins at each end of the blade.

1. Adjust one set screw on each adaptor until it covers approximately half the hole when viewed from above.





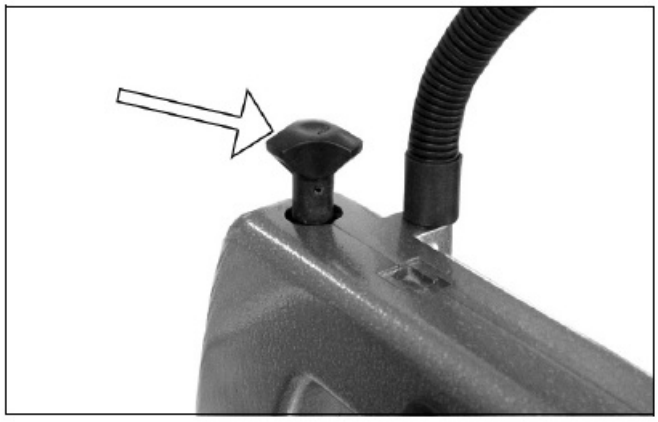
2. Loosen the other set screw just enough to slide an adaptor onto each end of the blade.
3. Place the blade and adaptors into the gauge on top of the machine to set the blade to the proper length.



CUTTING AT RIGHT ANGLES TO THE UPPER ARM WHEN USING PINLESS BLADES

- Cutting from the side of the saw will be necessary when your workpiece exceeds 405mm in length. With the blade positioned for side cutting the table must always remain in the 0° bevel position.
    1. Remove both set screws from each blade adaptor, thread them into the opposite holes in the blade adaptor perpendicular to the adjustment pin.

BLADE TENSION



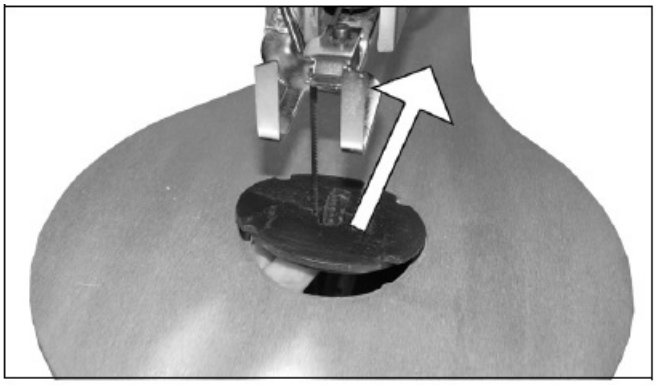
- Turning the blade tension knob counterclockwise decreases (slackens) blade tension.
- Turning the blade tension knob clockwise increases (or tightens) blade tension.
    1. Pluck the back straight edge of the blade while turning the tension adjusting knob.
- The sound becomes higher pitched as tension increases.

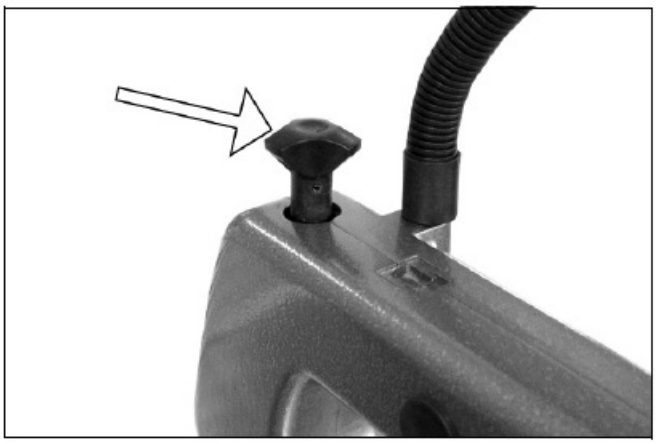
  NOTE: Do not over-tension the blade. This will help to prolong the life of the saw blade.

  NOTE: Too little tension may cause the blade to bend or break.

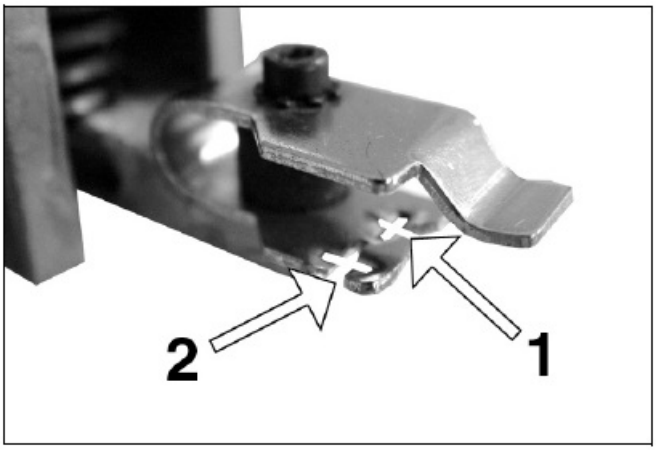
INSTALLING BLADES

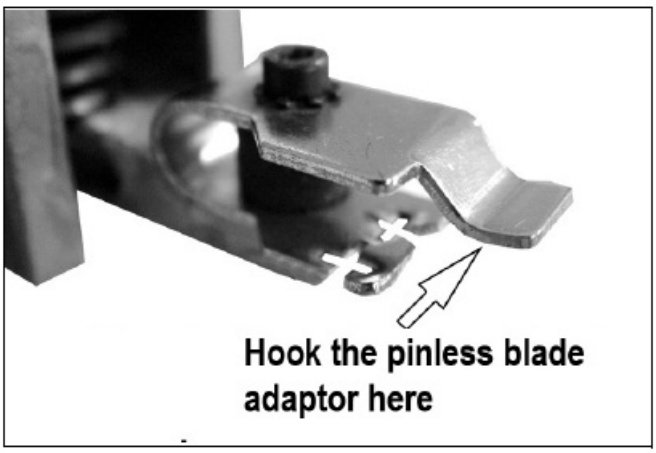
1. Unplug the saw from the power source.
2. Remove the table insert





3. Turn the blade tension knob anticlockwise to remove the tension from the saw blade.
4. The following replacement blades are available from your Clarke Dealer. 15TPI (Part No: AWNCSS400C035A) 18TPI (Part No AWNCSS400C035B)
5. Press down the upper arm and hook the blade to the blade holder. The blade holder has two slots.
    - Use slot 1 to cut in line with the upper arm.
    - Use slot 2 to cut at right angles to the upper arm.
    - If you are using pinless blades hook the blade adaptor to the front of the blade holder.

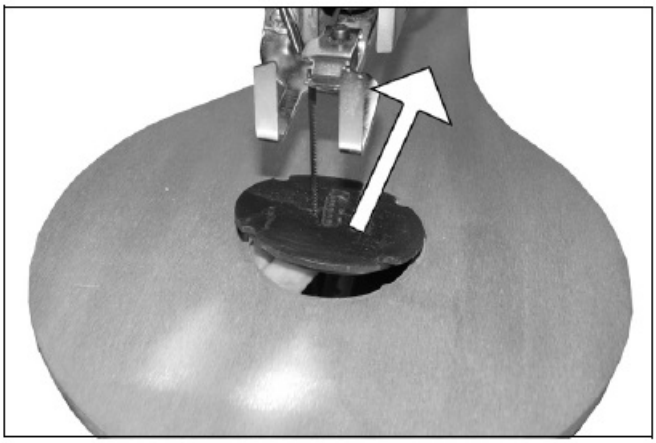


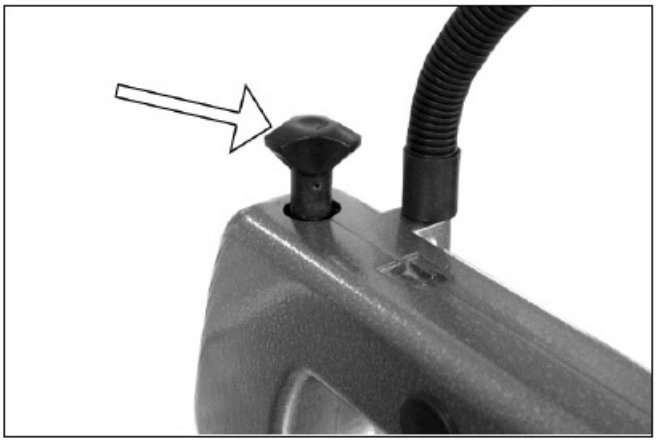


6. Re-tension the blade.
7. Replace the table insert.

REMOVING BLADES

1. Turn off the saw and unplug it from the power source.
2. Remove the table insert.

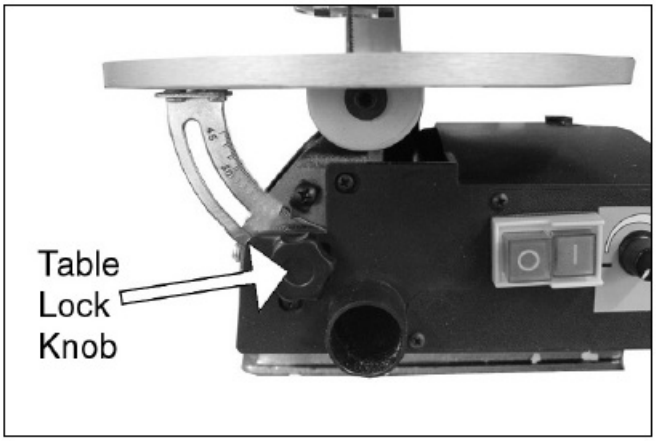




3. Turn the blade tension knob anticlockwise to remove the tension from the saw blade.
4. Press down on the top blade holder and remove the blade.
5. Remove the blade from the lower blade holder.
6. Lift the blade up and out.

TILTING THE SAW TABLE

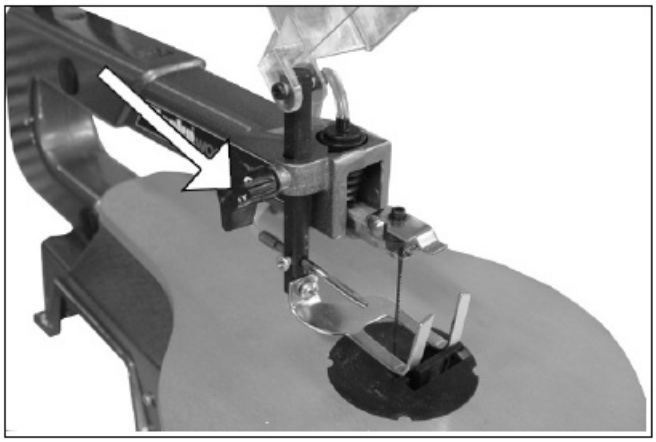
1. Undo the table lock knob.
2. Tilt the table to the required angle then tighten the table lock knob to secure.
   IMPORTANT: For precision work you should first carry out a trial cut and then re-adjust the tilt angle as required. For precise work always double check the angle of the saw table with a protractor or similar angle measure.

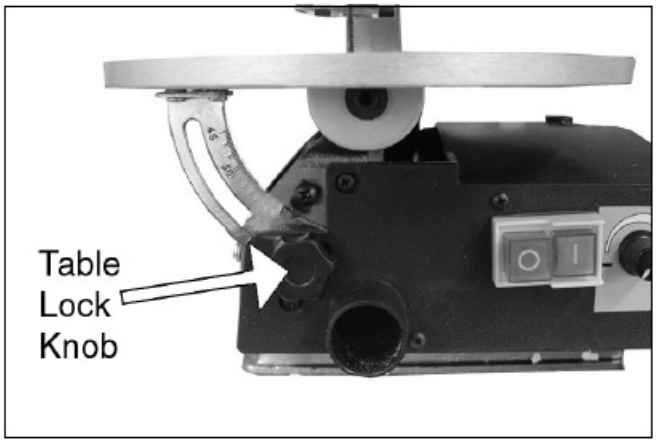


SQUARING THE SAW TABLE TO THE BLADE

WARNING: TO AVOID ACCIDENTAL STARTING WHICH COULD RESULT IN SERIOUS INJURY, TURN THE SAW OFF, AND UNPLUG THE SAW FROM THE POWER SOURCE.

1. Loosen the pressure plate adjustment knob.
2. Raise the pressure plate and lock it in the raised position.



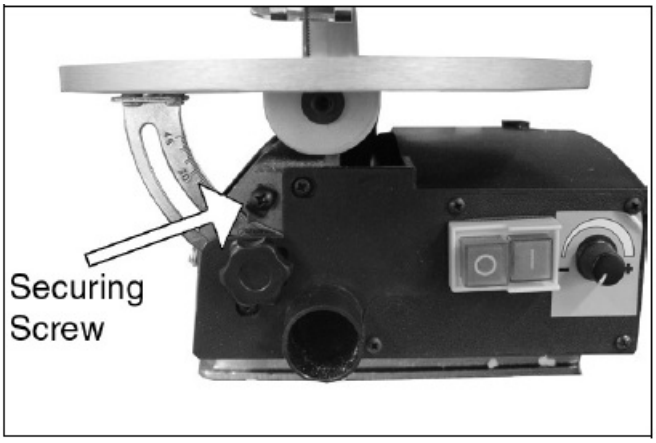


3. Loosen the table lock knob and tilt the table until it is approximately at right angles to the blade.
4. Place a small square on the saw table next to blade and lock the table at 90° to square.
5. Retighten the table lock knob.

SETTING THE SCALE INDICATOR

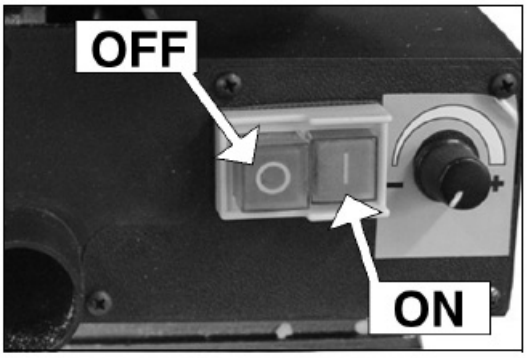
6. Loosen the securing screw holding the scale indicator. Move the indicator to the 0° mark and securely tighten the screw.
    - Remember, the scale is a guide only and should not be relied upon for precision.
    - Make practice cuts on scrap material to ensure your angle settings are correct.

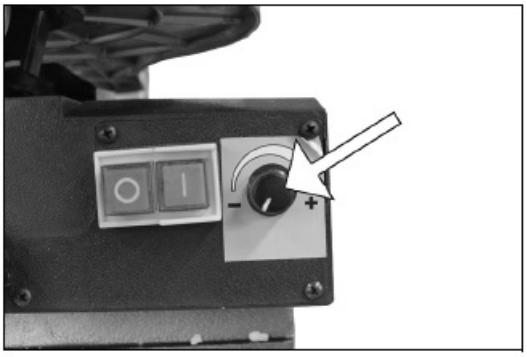
7. Lower the pressure plate so it just rests on top of the workpiece and secure in place.



ON / OFF SWITCH

To start the saw, press the ON button
(I). To stop, press the OFF button (O).
NOTE: The machine is equipped with a magnetic switch to prevent it being switched on again accidentally after a power failure.





SPEED SETTING

The speed regulator allows you to set the blade speed appropriate to the material to be cut. The speed may be adjusted from 550 to 1,600 SPM (Strokes Per Minute).

- To increase the strokes per minute, turn the speed selector clockwise.
- To decrease the strokes per minute, turn the speed selector counterclockwise.

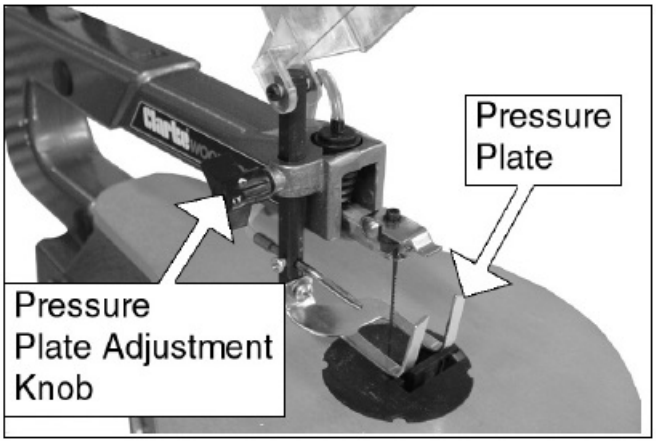
USING THE BUILT IN LIGHT
The built in light will come on automatically whenever the bench grinder is switched on. The arm can bend to set the light in a suitable position.

CHANGING THE LIGHT BULB
Remove the bulb by twisting it anticlockwise.

- Replace with an identical bulb available from the Clarke Parts Department, part number AWNCSS400C026.

SAWDUST BLOWER

The sawdust blower is designed and preset to direct air to the most effective point on the cutting line. Make sure the pressure plate is adjusted to secure the workpiece and direct air at the cutting surface.



OPERATION

Before starting a cut, turn the saw on and listen to the sound it makes. If you notice excessive vibration or an unusual noise, stop the saw immediately and unplug it. Do not restart the saw until you have corrected the problem.

- It is expected that some blades will break until you learn how to use and adjust the saw correctly. Plan the way you will hold the workpiece from start to finish.
- Hold the workpiece firmly against the saw table.
- Use gentle pressure and both hands when feeding the workpiece into the blade. Do not force the cut.
- Guide the blade into the workpiece slowly because the teeth are very small and can only remove material on the down stroke.
- Avoid awkward operations and hand positions where a sudden slip could cause serious injury from contact with the blade. Never place your hands in the blade path.
- When cutting irregularly shaped workpieces, plan your cut so the workpiece will not pinch the blade.
- **WARNING**: BEFORE REMOVING OFFCUTS FROM THE TABLE, TURN THE SAW OFF AND WAIT FOR THE BLADE TO COME TO A FULL STOP TO AVOID SERIOUS PERSONAL INJURY.

CARRYING OUT INTERNAL CUTS

One feature of a scroll saw is that it can be used to make scroll cuts within a workpiece without breaking or cutting through the edge or perimeter of the workpiece.

1. To carry out internal cuts in a workpiece, firstly remove the blade.
2. Drill a 6.3 mm (1/4”) hole inside the boundary of the aperture to be cut from the workpiece.
3. Place the workpiece on the saw table with the drilled hole above the blade access hole.
4. Install the blade through the hole in the workpiece and adjust the blade tension.

5. When you have completed the internal cuts, remove the blade from the blade holders and take the workpiece off the table.

STACK CUTTING

Stack cutting may be used when several identical shapes need to be cut. Several workpieces may be stacked one on top of the other and secured to each other before cutting. Pieces of wood may be joined together by placing double sided tape between each piece or by wrapping tape around the corners or ends of the stacked wood. The stacked pieces must be attached to each other in such a way that they can be handled on the table as a single workpiece.
WARNING: TO AVOID SERIOUS PERSONAL INJURY, DO NOT CUT SEVERAL WORKPIECES AT A TIME UNLESS THEY ARE PROPERLY ATTACHED TO EACH OTHER.

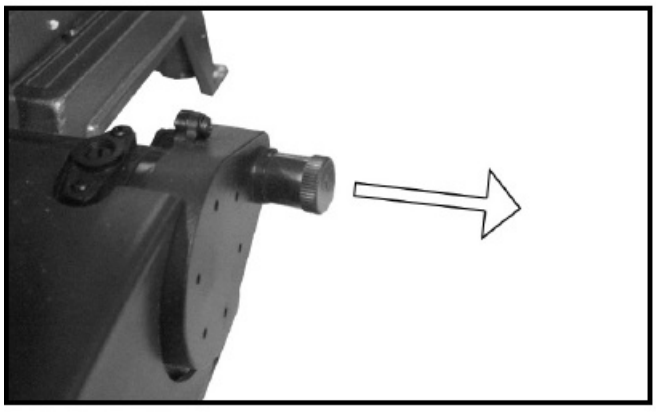
WHAT TO DO IF THE SAW BLADE JAMS IN THE WORKPIECE
When withdrawing the workpiece, the blade may bind in the kerf (cut). This is usually caused by sawdust clogging the kerf or by the blade coming out of the blade holders. If this happens:

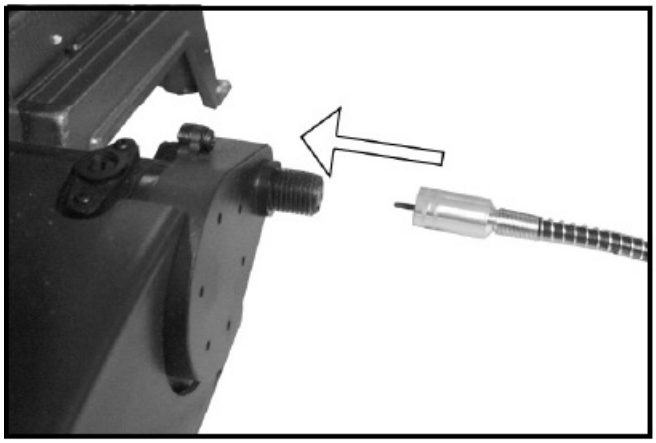
1. Place the switch in the OFF position.
2. Wait until the saw has stopped and unplug it from the power source.
3. Remove the blade and the workpiece. Wedge the kerf open with a small flat screwdriver or wooden wedge then remove the blade from the workpiece.

FLEXIBLE DRIVE

INSTALLING THE FLEXIBLE DRIVE SHAFT

1. Disconnect from mains supply and ensure machine is switched off.
2. Remove the cover from flexible shaft drive aperture.

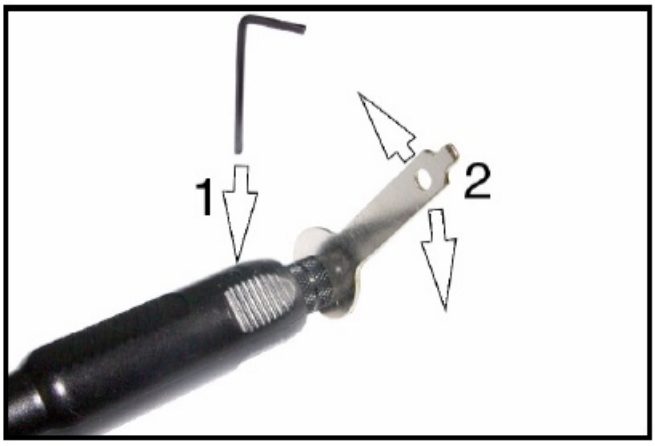




3. Insert the flexible drive shaft into the aperture and tighten fully.

   CAUTION: ALWAYS DISCONNECT THE FLEXIBLE DRIVE SHAFT AND ANY ACCESSORY ATTACHED TO IT AFTER USE. IF YOU DO NOT THE ACCESSORY WILL SPIN WHEN THE SCROLL SAW IS TURNED ON AND MAY BE HAZARDOUS.

FITTING ACCESSORIES TO THE FLEXIBLE SHAFT



1. Insert the spindle lock into the hole situated in the handle of the flexible shaft.
2. Turn the collet nut until the spindle lock engages and prevents the shaft rotating.
3. Insert the required accessory and tighten the collet with the wrench provided.
4. Remove the spindle lock.

OPERATING THE FLEXIBLE SHAFT

WARNING: TO AVOID RISK OF INJURY PLEASE ENSURE THE BLADE GUARD IS ASSEMBLED AND POSITIONED OVER THE SAW BLADE WHEN USING THE FLEXIBLE SHAFT.

1. Always allow the tool to operate as it was designed. Never force the flexible shaft.
2. Secure the workpiece to prevent movement.
3. Hold the tool tightly and keep it a safe distance from other persons. Always point the bit away from your body.
4. Slow speed is best for polishing operations, delicate woodcarving, or working on fragile model parts. High speed is suitable for operation on hardwoods, metals and glass, such as: carving, routing, shaping, cutting and drilling.
5. Do not put the flexible shaft down until the bit stops rotating.
6. Always disconnect the flexible drive shaft and any accessory attached to it after use.

64 Piece Accessory Kit for the Flexible Drive

MAINTENANCE

WARNING: TURN OFF AND UNPLUG THE SAW BEFORE CARRYING OUT ANY MAINTENANCE WORK ON YOUR SCROLL SAW.

GENERAL MAINTENANCE

1. Keep your scroll saw clean.
2. Do not allow pitch to accumulate on the saw table. Clean it with gum and pitch remover.

POWER CABLE

WARNING: IF THE POWER CABLE IS WORN, CUT, OR DAMAGED IN ANY WAY, HAVE IT REPLACED IMMEDIATELY BY A QUALIFIED SERVICE TECHNICIAN. FAILURE TO DO SO COULD RESULT IN SERIOUS PERSONAL INJURY.

CLEANING

1. Never use water or chemical cleaners to clean your scroll saw. Wipe clean with a dry cloth.
2. Always store your scroll saw in a dry place. Keep all working controls free of dust

LUBRICATION

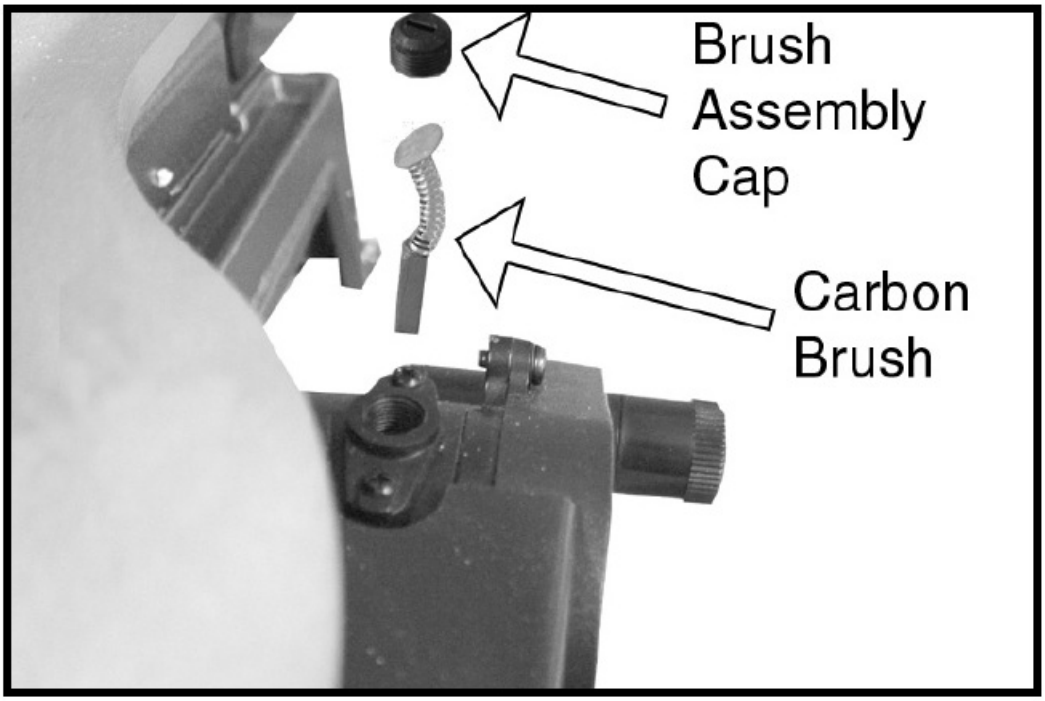
Lubricate the arm bearings with oil after 10 hours of use. Re-oil after every 50 hours of use or whenever there is a squeak coming from the bearings as follows:

1. Turn saw on its side.
2. Prise off the rubber caps covering the pivot shafts.
3. Squirt a small amount of SAE 20 oil around the shaft end and bronze bearing.
4. Let the oil soak in overnight in this condition. Next day repeat the above procedure for the opposite side of the saw.

REPLACING CARBON BRUSHES

WARNING: TURN OFF AND UNPLUG THE SAW BEFORE CARRYING OUT ANY MAINTENANCE WORK ON YOUR SCROLL SAW.

Your saw has externally accessible carbon brushes that should be checked periodically for wear.

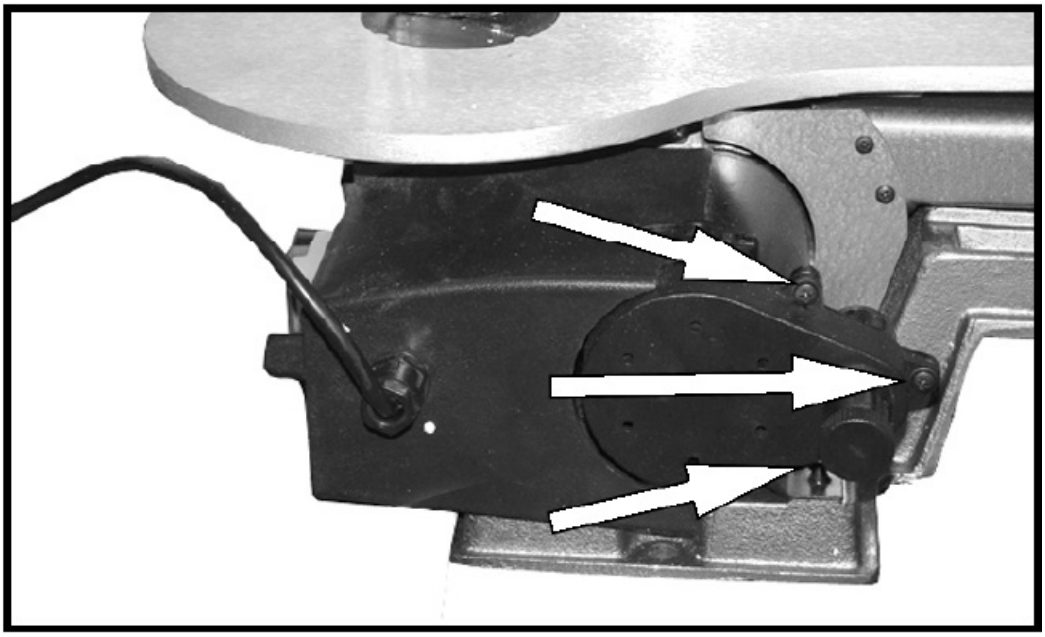


1. Using a flat blade screwdriver, remove the top brush assembly cap from the top of the motor.
2. Gently pry the brush assembly out using a small screwdriver.
3. The second carbon brush can be accessed through the access port on the bottom of the motor. Remove this in the same way.
    - If either of the brushes are shorter than 1/4 in. (6 mm), replace both brushes as a pair.
4. Make sure the brush cap is positioned correctly (straight). Tighten the carbon brush cap using a hand screwdriver only. Do not overtighten.

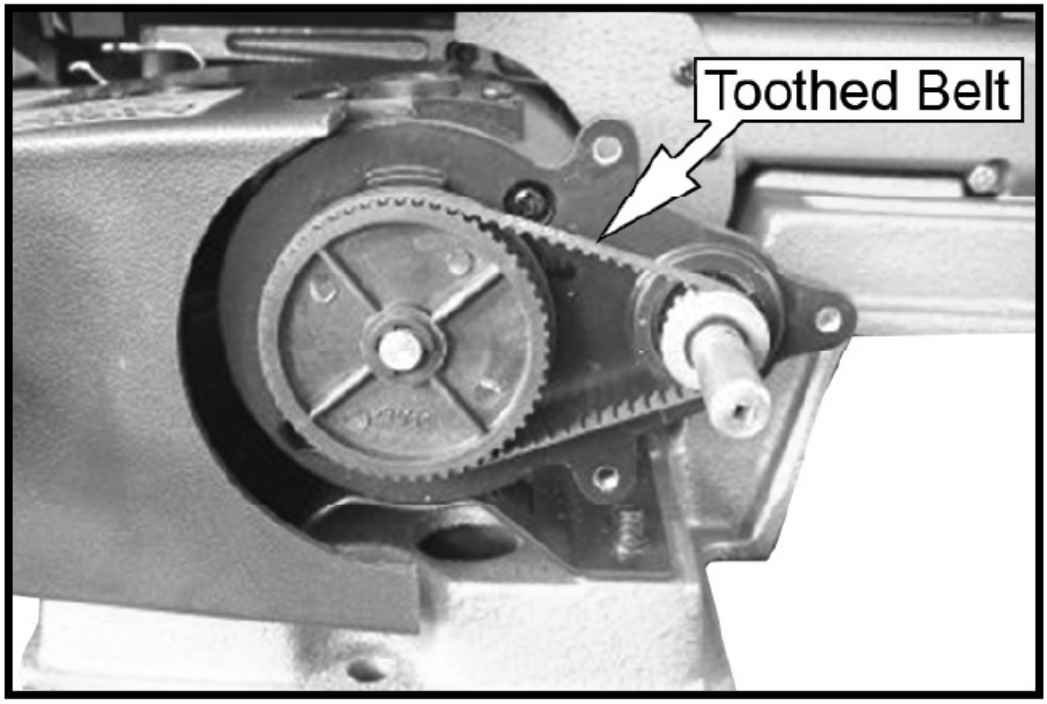
REPLACING THE FLEXIBLE SHAFT DRIVE BELT

Replacement belts are available from your Clarke dealer Part number AWNCSS400C095.

1. Remove the 3 screws securing the belt cover.
2. Pull the cover away from the machine.



3. Remove the old worn belt and discard it safely.
4. Place the new belt over the small gear then the larger gear you may need to rotate the larger gear by hand to do this.
5. Replace the cover and screws.



SPECIFICATIONS

Model Number	CSS400C
Rated Voltage (V)	230 V
Input Power	90 W
Throat Depth	406 mm
Max. Cut	50 mm
Stroke	15 mm
Speed	550 – 1600 strokes per minute
Table Size	415 x 255 mm
Table Tilt	0-45o
Sound Power (Lwa dB)	87.4 dB
Dimensions (L x W x H)	610 x 320 x 360 mm
Weight	12.5 kg

PARTS AND SERVICING

All servicing and repairs should be carried out by your nearest Clarke dealer.

For Parts & Servicing, 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

Documents / Resources

	Clarke CSS400C Variable Speed Scroll Saw [pdf] Instruction Manual CSS400C Variable Speed Scroll Saw, CSS400C, Variable Speed Scroll Saw