

909[®]

NINE ZERO NINE

INSTRUCTION MANUAL
LS1620



125W 50mm VARIABLE SPEED SCROLL SAW WITH WORKLIGHT



Black	Magenta	Code: LS1620		
Cyan	Yellow	Date: 110224	Edition: 08	Op: DCR
用本处所有显示的颜色打印包装资料。Print artwork using ALL inks shown here.				

CONTENTS

Introduction	3
Environmental protection	3
Description of symbols	3
Specifications	3
General safety instructions	4
Additional safety rules for scroll saws	5
Accessories	6
Unpacking	6
Assembly	6
Know your product	7
Mounting the saw to a workbench	8
Blades	8
Selecting the correct blade	8
Removing blades	8
Installing blades	9
Setting the table for horizontal or bevel cutting	11
Aligning the degree scale pointer	11
Turning on and off	12
Sawdust blower	12
Flexible worklight	12
Mitre gauge	12
Adjusting the speed	12
Selecting the correct speed	13
Scroll saw operation	13
Oiling the arm bearings	13
Cleaning	14
General inspection	14
Repairs	14

Warranty Power Tools

For full details please visit us at www.909.com

Introduction

Your new 909 power tool will more than satisfy your expectations. It has been manufactured under stringent 909 Quality Standards to meet superior performance criteria.

You will find your new tool easy and safe to operate, and, with proper care, it will give you many years of dependable service.

CAUTION. Carefully read through this entire Instruction Manual before using your new 909 Power Tool. Take special care to heed the Cautions and Warnings.

Your 909 power tool has many features that will make your job faster and easier. Safety, performance, and dependability have been given top priority in the development of this tool, making it easy to maintain and operate.

Environmental protection



Recycle unwanted materials instead of disposing of them as waste. All tools, hoses and packaging should be sorted, taken to the local recycling centre and disposed of in an environmentally safe way.

Description of symbols

The rating plate on your tool may show symbols. These represent important information about the product or instructions on its use.



Wear hearing protection.
Wear eye protection.
Wear breathing protection.



Conforms to relevant standards for electromagnetic compatibility.



For safe operation read instruction manual.

Specifications

Nominal voltage:	230–240Vac ~ 50Hz
Power:	S2 5 min 125W
Speed:	550–1600 SPM
Maximum Depth of cut:	50mm
Stroke length:	20mm
Blade Type:	Pinned or Plain
Blade length:	Pinned: 128mm between pins Flat: 127mm
Blade change:	Pinned: Tool-free Plain: Hex Key Clamp
Bevel angle:	0° to 45° left
Throat depth:	405mm
Light:	12Volt 10W

General safety rules

WARNING. Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1) Work area safety

- a) **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- b) **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.
- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way.** Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

- f) **To reduce the risk of electric shock, the manufacturer recommends the use of a residual current device with a rated residual current of 30mA or less at all times.**

3) Personal safety

- a) **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 serious personal injury.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d) **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.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **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.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

4) Power tool use and care

- a) **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 for which it was designed.
- b) **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.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power 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.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- h) **This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge,** unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

i) **Children should be supervised to ensure that they do not play with the appliance.**

5) Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

Additional safety rules for scroll saws

- Do not alter or misuse the tool. These tools are precision built. Any alteration or modification not specified is misuse and may result in dangerous conditions.
- For your own safety, do not operate your scroll saw until it is completely assembled and installed according to the instructions and until you have read and understood all of the instructions.
- Your scroll saw must be bolted securely to a stand or work bench. In addition, if there is any tendency for the scroll saw to tip over or move during certain operations, such as cutting long, heavy boards, bolt your scroll saw stand or workbench to the floor.
- This scroll saw is intended for indoor use only.
- To avoid being pulled into the blade, do not wear loose fitting gloves, loose clothing, neck ties or jewellery. Tie back long hair and roll long sleeves above elbows.
- Do not cut pieces too small to hold by hand. When making a small cutout always secure the workpiece to a scrap piece of plywood with double sided tape. This way the work is supported and your fingers are away from the blade.
- Never turn your scroll saw on before clearing the table of all objects (tools, scraps of wood, etc.) except for the workpiece.
- Avoid awkward hand positions where a sudden slip could cause a hand to move into the blade.
- Always adjust the drop foot to just clear the workpiece to protect the operator, keep blade breakage to a minimum and provide maximum support for the blade.
- Always adjust blade tension correctly.

- The scroll saw should cut on the down stroke. Always make sure blade teeth are oriented downward towards the table.
- When cutting a large piece of material make sure it is supported at table height.
- Hold the work firmly against the table.
- Do not feed the material too fast while cutting. Only feed the material fast enough so that the blade will cut.
- Use caution when cutting off material which is irregular in cross section as it could pinch the blade before the cut is completed. A piece of moulding, for example, must lay flat on the table and not be permitted to rock whilst being cut.
- Use caution when cutting off round material such as dowel rods or tubing. They have a tendency to roll while being cut causing the blade to bite.
- Never leave the scroll saw running unattended. Always turn the saw off, make sure that it has come to a complete stop, and then remove plug from the power supply before leaving the work area.
- Do not perform layout, assembly or setup work on the table while the cutting tool is operating.
- Turn saw off and remove plug from power supply outlet before installing or removing blades.

WARNING. We recommend the use of a residual current device with a residual current rating of 30mA or less.

Wear safety goggles

Wear ear protection

Wear a breathing mask

Accessories

The 909 LS1620 Scroll Saw is supplied with the following accessories as standard:

- 15 TPI saw blade
- 18 TPI saw blade
- Plain blade adaptors
- Hex key
- Instruction manual

Unpacking

Due to modern mass production techniques, it is unlikely that your 909 Power Tool is faulty or that a part is missing. If you find anything wrong, do not operate the tool until the parts have been replaced or the fault has been rectified. Failure to do so could result in serious personal injury.

The scroll saw you have purchased is ideal for numerous projects including making toys, puzzles, games, artwork and jewellery, and due to its cutting capacity is a handy do-it-yourself tool. It cuts wood up to 50mm thick as well as plastics.

Assembly

The 909 LS1620 scroll saw is packed with some minor assembly work required to fit the front guard assembly.

Know your product

Before using the tool, familiarise yourself with all the operating features and safety requirements. Use the tool and accessories only for the applications intended. All other applications are expressly ruled out.

1. On/off switch
2. Variable speed dial
3. Sawdust blower
4. Flexible light
5. Drop foot
6. Drop foot locking knob
7. Table
8. Table insert
9. Blade tension knob
10. Plain blade adapters
11. Plain blade setting holder
12. Blade
13. Bevel adjustment scale
14. Table lock lever
15. Blade storage tray
16. Front guard
17. Mitre Gauge
18. Dust Extraction Port



Mounting the saw to a workbench

It is recommended that the scroll saw is secured to a work bench to gain maximum stability and reduce noise and vibration.

1. Using the base of the scroll saw as a template mark the holes on the workbench through the holes in the casting.

2. Drill the holes through the workbench using an 8mm drill bit.

3. Bolt the saw to the workbench using bolts, washers and nuts.



Note. The fasteners are not supplied with the machine.

Note. A soft foam pad or carpet (not supplied) can be placed between the scroll saw and the work bench to further reduce noise and vibration.

Blades

The scroll saw accepts 128 mm pin type and flat blades.

A set of flat adaptors are supplied, along with a setting fixture on the top of the scroll saw arm

Selecting the correct blade

1. The scroll saw accepts a wide variety of blade widths and thicknesses for cutting wood and other wood-based materials.
2. The blade width, thickness, and number of teeth per inch will be determined by the material and size of the radius being cut.
3. Select a blade that allows at least three teeth to be in contact with the workpiece at all times.
4. Very fine, narrow blades should be used for curve cutting in thin wood (6 mm or less).
5. To cut thicker wood, use wider blades with fewer teeth per inch.

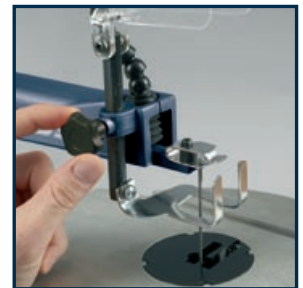
6. When cutting wood thicker than 25 mm, guide the workpiece into the blade slowly and take care not to bend or twist the blade whilst cutting.
7. Most blade packages state the size or thickness of wood which that blade is intended to cut, and the radius (size of curve) which can be cut with that blade.
8. Wider blades cannot cut curves as tight or small as thinner blades.
9. Blades wear faster when:
 - a. Cutting plywood which is very abrasive
 - b. Cutting wood that is thicker than 19 mm
 - c. Cutting hardwood
 - d. Side pressure is applied to the blade
10. This saw uses either pin-type or flat blades of 128 mm length.

Removing blades

CAUTION. Always ensure that the saw is switched off and unplugged from the mains supply before removing or installing a blade.

Note. It is suggested to lift the front guard and foot assy to provide more access to the table insert and lower blade attachment.

1. Loosen the blade tension knob (9) by turning in an anti-clockwise direction to reduce the blade tension.
2. Remove the table insert (8) by raising it with a screwdriver and passing the blade through the blade slot.



- Gently apply a small pressure to the moving top saw arm.
For pinned blades, unhook the pinned blade from the arm holder and withdraw the blade through the small slot.
For plain blades mounted in the blade adaptors, lift and unhook the adaptor from the top saw arm.



- Remove the blade from the bottom arm attachment the same as performed for the top arm.



Installing blades

CAUTION. Always ensure that the saw is switched off and unplugged from the mains supply before removing or installing a blade.

- Rotate the tension knob in an anti clockwise direction to reduce the tension on the blade.
- Remove the table insert (8) by raising it with a screwdriver and sliding the insert off the blade through the exit slot.



- In order to cut effectively and avoid uncontrollable lifting of the workpiece, the teeth of the scroll saw blade must always point in a downward direction.

- For pinned blades, pass the blade through the centre hole in the table, pass the blade through the bottom arm slot with the pin on the underside of the arm attachment.



Apply a slight upward pressure on the blade to ensure the blade is locked in place.

- With the lower pinned blade securely attached to the lower arm, keeping a slight upward pressure on the blade, insert the blade through the upper arm locating slot with the pin above the locating plate on the arm.



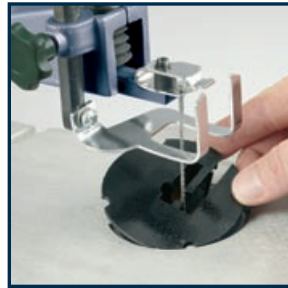
Note. A slight downward pressure on the top moving arm may be required to allow the blade to enter the slot with the pin above the locating plate

- Increase the tension on the blade by turning the rear tension knob in a clockwise direction.

The tension of the blade should then be adjusted when the cutting operation is undertaken. Higher tensions will be required for tight curves etc. to reduce blade deflection.



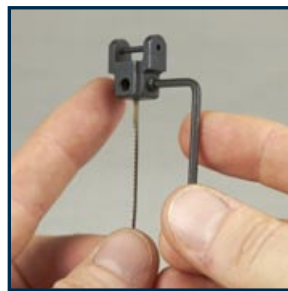
Over tensioning will reduce blade life. Blade should be tensioned so the blade is straight, and deflection during use is kept to a minimum. Over tension will load the motor excessively and will prematurely break the blade.



7. Replace the table insert and reset the foot and guard height.

Setting a plain blade in the adaptors.

1. Fit the plain blade into one of the adaptors so the small grub screws align with the sides of the blade and the teeth of the blade are in the same direction as the single hole in the front of the adaptor.
2. With the blade inserted so as to enter just past the grub screws, tighten the grub screws on to the blade so it is clamped centrally in position
3. Fit the second adaptor on the other end of the blade with the same orientation as the first and then locate the two adaptors and the blade into the holder on top of the machine arm as shown in the picture. The second adaptor has not been tightened so it can slide on the blade so as the adaptors can locate.
4. Loosen the grub screws on the first adaptor and centrally locate the blade between the adaptors by sliding the blade one way or another.



5. When central, lock the grub screws of both adaptors on to the blade.
6. Prepare the scroll saw as per points 1—3 for installing the blade.
7. With the teeth of the blade downward and towards the front of the saw, pass the adaptor and end of blade through the hole in the table and locate the pin on the adaptor over the wide hook on the front of the lower arm.
8. Apply a slight upward pressure on the blade to ensure the blade is locked in place.
9. With the lower blade adaptor securely attached to the lower arm, keeping a slight upward pressure on the blade, hook the top blade adaptor over the wide front hook section of the top arm.



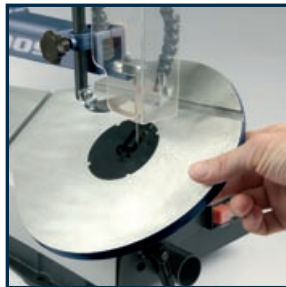
- Note.** A slight downward pressure on the top moving arm may be required to allow the blade adaptor to locate.
10. Proceed to tension the blade as per point 6 as detailed in the pinned section of installing the blades
 11. Replace the table insert and reset the foot and guard height.



Setting the table for horizontal or bevel cutting

CAUTION. Always ensure that the saw is switched off and unplugged from the mains supply before making any adjustments.

1. Loosen the table lock lever (14) to allow the saw table to be tilted to the left. The table can be locked at any angle from a 0° horizontal cutting position up to a 45° angle to the left for bevel cutting.
3. A bevel adjustment scale (13) is positioned under the work table to assist in setting the appropriate table angle for bevel cutting. When greater precision is required, make a practice cut first and then adjust the table as necessary for your requirements.



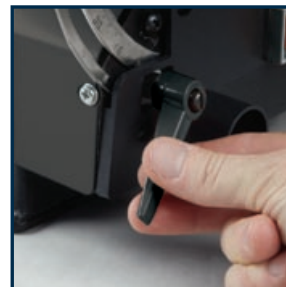
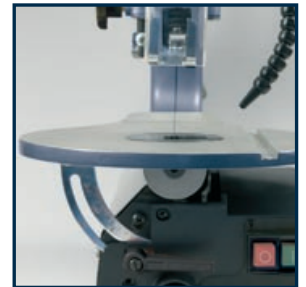
Note. When bevel cutting, the drop foot (5) can be tilted so it's parallel to the table and rests flat against the workpiece. To tilt the drop foot, loosen the screw at the front of the drop foot assembly and then tilt the foot so that it's parallel to the table, re-tighten the screw to secure the drop foot in place.



The bevel locking lever is a spring loaded lever which can be orientated at various positions. To adjust the angle of the lever so as not to make contact with the dust extraction port, or the underside of a tilted table, PULL the lever outwards and rotate to the desired position, and release.

Aligning the degree scale pointer

1. Loosen the table lock lever (14) and move the table (7) to position the table at a right angle to the blade.
2. Place a small square on the table next to the blade to check if the table is at a 90° angle to the blade. If adjustment is needed, change the bevel angle until the table is at approximately 90° to the blade and securely tighten the table lock lever (14).
3. Loosen the Phillips head screw holding the degree scale pointer and move the pointer to the 0° position. Securely tighten the screw.



Note. The degree scale is a convenient guide but should not be relied upon for precision. Always make a practice cut in scrap wood to determine if your angle settings are correct.

Turning on and off

1. To turn on the scroll saw press the green On (I) button (1).
2. To turn off the scroll saw press the red Off (O) button (1).



Sawdust blower

Your scroll saw features a sawdust blower (3) to help keep the work area clean for more accurate scroll cuts. The blower tube is fully adjustable and can be directed as required.



Flexible worklight

The flexible light will illuminate the work area for greater visibility of the cutting line.

1. The light will illuminate when ever the saw is turned on by pushing the green button (1). The light cannot be operated without the saw running



Mitre gauge

The table of the saw is provided with a guide slot for the operation of a mitre gauge.

The gauge can be set between 0° and 45°, left or right

1. To adjust, loosen the locking screw and rotate the gauge to the desired angle. Lock the screw at the correct angle.



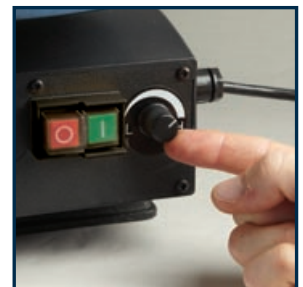
Note. Always take a trial cut to ensure the angle is the correct angle required as the scale is only a guide.

The mitre gauge is particularly suited for cutting angles which are required to be straight. However, it should be noted that the cutting action of the blade will not provide a perfectly flat surface and should be considered on two mating surfaces.

Adjusting the speed

The speed can be adjusted to suit the workpiece being cut. The variable speed dial (2) is located on the lower front panel of the saw, next to the On/Off buttons, for convenient adjustment of the speed.

1. Turn the saw on.
2. Turn the dial in a clockwise direction for a faster speed and in an anti-clockwise direction to reduce the speed.



3. Determine the optimum speed by making a trial cut in a scrap piece of material.

Note. Using the correct speed for the job increases the life of the saw blade.

Selecting the correct speed

The below table shows the suggested blade and speed to be used for different materials and applications.

Scroll saw operation

1. Ensure that the table insert is in place and flush with the table.
2. Start saw.
3. Adjust the speed to suit the workpiece being cut.
4. To begin the cut guide the wood into the moving saw blade, the blade teeth cut only on the down stroke.
5. The saw will not cut wood by itself, you allow the saw to cut wood by guiding the wood into the blade as it moves.
6. The drop foot (5) should always be lowered until it just rests on top of the workpiece to prevent your workpiece from lifting during operation but not so much that the workpiece drags. To lower or raise the drop foot loosen the drop foot locking knob (6) and position the drop foot so it rests on top of the work piece. Retighten the drop foot locking knob.
7. Ensure that you feed the wood into the blade slowly because the teeth of the blade are very small and they can only remove wood when they are on the down stroke.

8. The blade will flex backwards when applying feed pressure. Too much feed pressure will cause blade breakage.
9. Best results are achieved when cutting wood less than 25 mm thick.
10. When cutting wood thicker than 25 mm, the user must feed the wood into the blade very slowly, increase blade tension and take extra care not to bend or twist the blade while cutting in order to maximise blade life.
11. Teeth on scroll saw blades wear quickly and as a result must be replaced frequently for best cutting results. Scroll saw blades generally stay sharp for 30 minutes to 2 hours of cutting.
12. Once finished, turn off the saw and unplug the tool from the power point to prevent unauthorised use.

Oiling the arm bearings

The saws arm bearings should be lubricated after every 50 hours of use. Ensure plug is removed from the mains power supply.

1. Turn the saw on its side.
2. Squirt a generous amount of SAE 20 oil around the shaft end and bronze bearings.
3. Let the oil soak in overnight in this position.
4. Next day repeat the above procedure for the opposite side of the saw.



Blade Teeth per Inch	Width	Thickness	Strokes per Minute	Material and Application
6 - 10	2.8mm	0.5mm	1200–1600	Hard and soft woods from 5mm to 50mm thick plastics, paper, felt
10 - 15	2.8mm	0.5mm	600–1200	Wood, plastics, extremely thin cuts in materials 2.5mm to 13mm thick
15 - 18	2.4mm	0.3mm	550–600	Tight radius work in thin materials 2.5mm to 3mm thick. Wood, veneer, fiber, plastic.

Cleaning

1. Keep the tool's air vents unclogged and clean at all times.
2. Remove dust and dirt regularly. Cleaning is best done with a brush or a rag.
3. Re-lubricate all moving parts at regular intervals.
4. Never use caustic agents to clean plastic parts.

CAUTION. Do not use cleaning agents to clean the plastic parts of the tool. A mild detergent on a damp cloth is recommended. Water must never come into contact with the saw.

General inspection

Regularly check that all the fixing screws are tight. They may vibrate loose over time.

Repairs

Only an authorised service centre should replace the cordset or effect other repairs. If the cordset is damaged or worn, have it repaired or replaced by an authorised service centre.

909[®]
NINE ZERO NINE