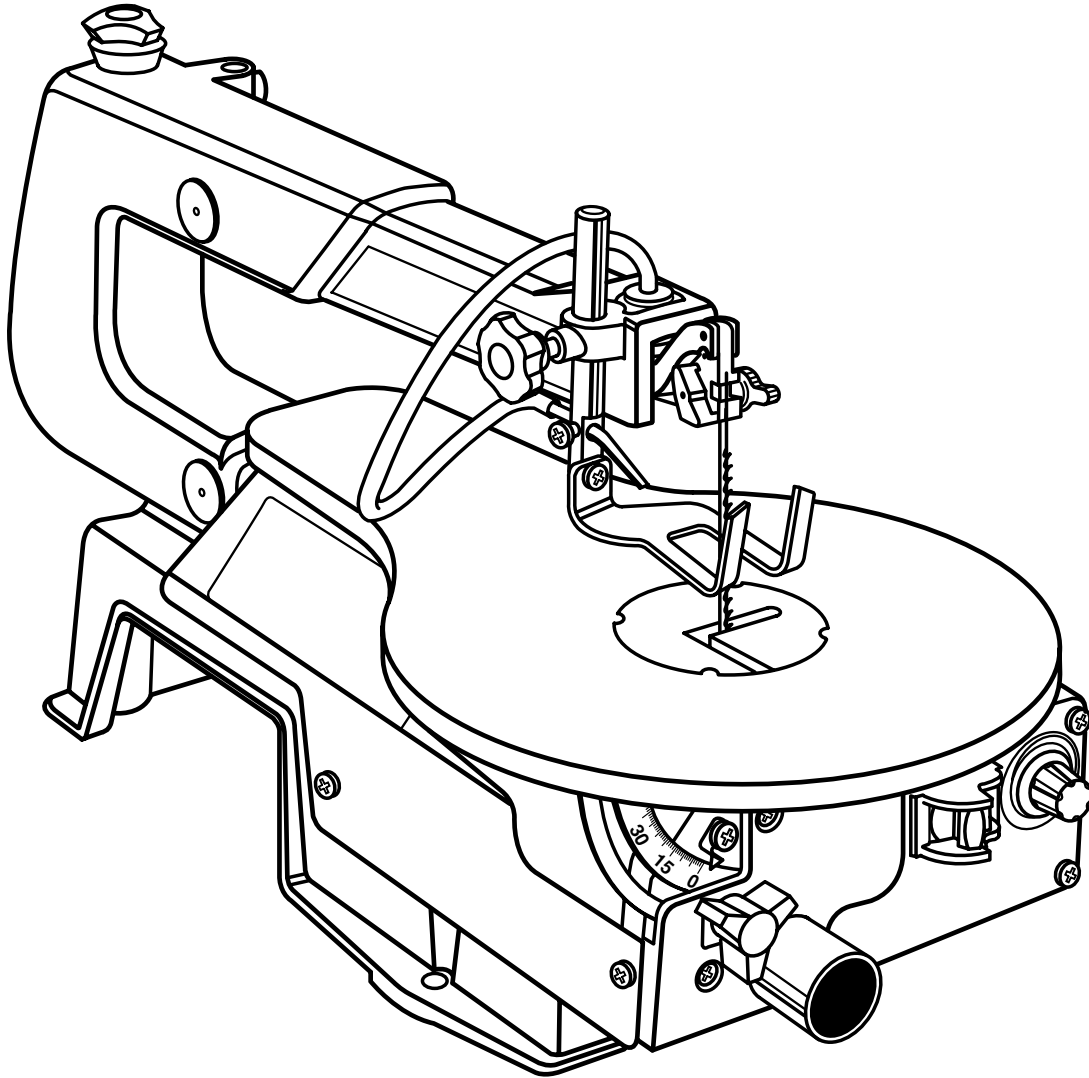


# **RYOBI® OPERATOR'S MANUAL**

## **16 in. (406 mm) Variable Speed SCROLL SAW**

### **Model SC164VS**



#### **THANK YOU FOR BUYING A RYOBI SCROLL SAW.**

Your new Scroll Saw has been engineered and manufactured to Ryobi's high standards for dependability, ease of operation, and operator safety. Properly cared for, it will give you years of rugged, trouble-free performance.



**CAUTION:** Carefully read through this entire operator's manual before using your new saw.

Pay close attention to the Rules for Safe Operation, Warnings, and Cautions. If you use your saw properly and only for what it is intended, you will enjoy years of safe, reliable service.

Please fill out and return the Warranty Registration Card so we can be of future service to you.

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

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## INTRODUCTION

Your saw has many features for making cutting operations more pleasant and enjoyable. Safety, performance, and dependability have been given top priority in the design of this saw making it easy to maintain and operate.



**WARNING:**  
KEEP HANDS AWAY FROM BLADE. FAILURE TO HEED THIS WARNING COULD RESULT IN SERIOUS INJURY.

### CAUTION:

Carefully read through this entire operator's manual before using your new saw. Pay close attention to the Rules For Safe Operation and all Safety Alert Symbols including Danger, Warning, and Caution. If you use your saw properly and only for what it is intended, you will enjoy years of safe, reliable service.

## PRODUCT SPECIFICATIONS

<b>SPECIFICATIONS:</b>	
Throat	16 in. (406 mm)
Blade Length	5 in. (127 mm) plain or pin
Motor Rating	120 volts, 60Hz, AC Only
No Load Speed	400 – 1600 Strokes Per Minute
Amperes	1.2
Net Weight	28 lbs. (14 kg.)



**Look for this symbol to point out important safety precautions. It means attention!!! Your safety is involved.**

# RULES FOR SAFE OPERATION

Safe operation of this power tool requires that you read and understand this operator's manual and all labels affixed to the tool. Safety is a combination of common sense, staying alert, and knowing how your scroll saw works.

## READ ALL INSTRUCTIONS

- **KNOW YOUR POWER TOOL.** Read the operator's manual carefully. Learn the applications and limitations as well as specific potential hazards related to this tool.
- **GUARD AGAINST ELECTRICAL SHOCK** by preventing body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.
- **KEEP GUARDS IN PLACE** and in working order. Never operate the tool with any guard or cover removed. Make sure all guards are operating properly before each use.
- **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see keys and adjusting wrenches are removed from tool before turning it on.
- **KEEP THE WORK AREA CLEAN.** Cluttered work areas and work benches invite accidents.
- **DON'T USE IN DANGEROUS ENVIRONMENTS.** Do not use power tools near gasoline or other flammable liquids, in damp or wet locations or expose them to rain. Keep work area well lighted.
- **KEEP CHILDREN AND VISITORS AWAY.** All visitors should wear safety glasses and be kept a safe distance from work area.
- **MAKE WORKSHOP CHILDPROOF** with padlocks, master switches, or by removing starter keys.
- **DON'T FORCE THE TOOL.** It will do the job better and safer at the rate for which it was designed.
- **USE THE RIGHT TOOL.** Do not force the tool or attachment to do a job for which it was not designed.
- **USE THE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. A wire gauge size (A.W.G.) of at least **16** is recommended for an extension cord 25 feet or less in length. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
- **WEAR PROPER APPAREL.** Do not wear loose clothing, neckties, or jewelry that can get caught in the tool's moving parts and cause personal injury. Nonslip footwear is recommended when working outdoors. Wear protective hair covering to contain long hair.
- **ALWAYS WEAR SAFETY GLASSES WITH SIDE SHIELDS.** Everyday eyeglasses have only impact-resistant lenses; they are **NOT** safety glasses.
- **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate the tool.
- **DO NOT OVERREACH.** Keep proper footing and balance at all times.
- **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- **DISCONNECT ALL TOOLS.** When not in use, before servicing, or when changing attachments, blades, bits, cutters, etc., all tools should be disconnected from power source.
- **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Be sure switch is off when plugging in.
- **USE RECOMMENDED ACCESSORIES.** Consult the operator's manual for recommended accessories. The use of improper accessories may cause risk of injury.
- **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the blade is unintentionally contacted.
- **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged must be properly repaired or replaced by an authorized service center to avoid risk of personal injury.
- **DIRECTION OF FEED.** Feed work into a blade or cutter against the direction or rotation of the blade or cutter only.
- **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
- **DON'T ABUSE CORD.** Never carry tool by the cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
- **PROTECT YOUR LUNGS.** Wear a face or dust mask if the cutting operation is dusty.
- **PROTECT YOUR HEARING.** Wear hearing protection during extended periods of operation.
- **BLADE COASTS AFTER TURN OFF.**
- **KEEP TOOL DRY, CLEAN, AND FREE FROM OIL AND GREASE.** Always use a clean cloth when cleaning. Never use brake fluids, gasoline, petroleum-based products, or any solvents to clean tool.
- **INSPECT TOOL CORDS AND EXTENSION CORDS PERIODICALLY** and, if damaged, have repaired by a qualified service technician. Stay constantly aware of cord location and keep it well away from the rotating wheel.
- **NEVER USE IN AN EXPLOSIVE ATMOSPHERE.** Normal sparking of the motor could ignite fumes.
- **USE ONLY OUTDOOR EXTENSION CORDS** with approved ground connection that are intended for use outdoors and so marked.
- **BE SURE THE BLADE PATH IS FREE OF NAILS.** Inspect for and remove nails from lumber before cutting.

# RULES FOR SAFE OPERATION

- **AVOID AWKWARD OPERATIONS AND HAND POSITIONS** where a sudden slip could cause your hand to move into the blade. **ALWAYS** make sure you have good balance.
- **ALLOW THE MOTOR TO COME UP TO FULL SPEED** before starting a cut to avoid binding or stalling.
- **DO NOT USE TOOL IF SWITCH DOES NOT TURN IT ON AND OFF.** Have defective switches replaced by an authorized service center.
- **REPLACEMENT PARTS.** All repairs, whether electrical or mechanical, should be made by qualified service technician at an authorized service center.
- **WHEN SERVICING** use only identical Ryobi replacement parts. Use of any other parts may create a hazard or cause product damage.
- **KEEP HANDS AWAY FROM CUTTING AREA.** Do not hand hold pieces so small that your fingers go under the blade guard. Do not reach underneath work or in blade cutting path with your hands and fingers for any reason.
- **FIRMLY CLAMP OR BOLT** your saw to a stable, level workbench or table. The most comfortable table height is approximately waist height.
- **DO NOT FEED THE MATERIAL TOO QUICKLY.** Do not force the workpiece against the blade.
- **USE ONLY CORRECT BLADES.** Use the right blade size, style and cutting speed for the material and the type of cut. Blade teeth should point down toward the table.
- **BEFORE MAKING A CUT, BE SURE ALL ADJUSTMENTS ARE SECURE.**
- **ALWAYS SUPPORT LARGE WORKPIECES** while cutting to minimize risk of blade pinching and kickback. Saw may slip, walk or slide while cutting large or heavy boards.
- **DO NOT REMOVE JAMMED CUTOFF PIECES** until blade has stopped.
- **NEVER START THE TOOL** when the blade is in contact with the workpiece.
- **NEVER TOUCH BLADE** or other moving parts during use.
- **BEFORE CHANGING THE SETUP, REMOVING COVERS, GUARDS, OR BLADES,** unplug the saw and remove the switch key.
- **KEEP BLADES CLEAN, SHARP, AND WITH SUFFICIENT SET.** Sharp blades minimize stalling and kickbacks.
- **ALWAYS TURN OFF SAW** before disconnecting it to avoid accidental starting when reconnecting to a power source.
- **DO NOT OPERATE THIS TOOL WHILE UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR ANY MEDICATION.**
- **STAY ALERT AND EXERCISE CONTROL.** Watch what you are doing and use common sense. **Do not** operate tool when you are tired. **Do not rush.**
- **MAKE SURE WORK AREA HAS AMPLE LIGHTING** to see the work and that no obstructions will interfere with safe operation **BEFORE** performing any work using your saw.
- **SAVE THESE INSTRUCTIONS.** Refer to them frequently and use them to instruct other users. If you loan someone this tool, loan them these instructions also.

## **WARNING:**

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

## SAVE THESE INSTRUCTIONS

# RULES FOR SAFE OPERATION

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and the explanations with them, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

## SYMBOL MEANING



### SAFETY ALERT SYMBOL:

Indicates danger, warning or caution. May be used in conjunction with other symbols or pictographs.



**DANGER:** Failure to obey a safety warning will result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.



**WARNING:** Failure to obey a safety warning can result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.



**CAUTION:** Failure to obey a safety warning may result in property damage or personal injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.

**Note:** Advises you of information or instructions vital to the operation or maintenance of the equipment.

## IMPORTANT

Servicing requires extreme care and knowledge and should be performed only by a qualified service technician. For service we suggest you return the tool to your nearest **RYOBI AUTHORIZED SERVICE CENTER** for repair. When servicing, use only identical Ryobi replacement parts.



### WARNING:

Do not attempt to operate this tool until you have read thoroughly and understand completely all instructions, safety rules, etc. contained in this manual. Failure to comply can result in accidents involving fire, electric shock, or serious personal injury. Save this operator's manual and review frequently for continuing safe operation and instructing others who may use this tool.



### WARNING:



The operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning tool operation, always wear safety goggles or safety glasses with side shields and a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always wear eye protection which is marked to comply with ANSI Z87.1.

## SAFETY AND INTERNATIONAL SYMBOLS

This operator's manual describes safety and international symbols and pictographs that may appear on this product. Read the operator's manual for complete safety, assembly, operating and maintenance, and repair information.



### MEANING

Do not expose to rain or use in damp locations

# ELECTRICAL

## EXTENSION CORDS

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug. When using a power tool at a considerable distance from the power source, use an extension cord heavy enough to carry the current that the tool will draw. An undersized extension cord will cause a drop in line voltage, resulting in a loss of power and causing the motor to overheat. Use the chart provided below to determine the minimum wire size required in an extension cord. Only round jacketed cords listed by Underwriter's Laboratories (UL) should be used.

Length of Extension Cord	Wire Size (A.W.G.)
Up to 25 feet	16
26-100 feet	16

When working with the tool outdoors, use an extension cord that is designed for outside use. This is indicated by the letters **WA** on the cord's jacket.

Before using an extension cord, inspect it for loose or exposed wires and cut or worn insulation. Repair or replace a damaged or worn cord immediately.

### **⚠ CAUTION:**

Keep the cord away from the cutting area and position the cord so that it will not be caught on lumber, tools, or other objects during cutting.

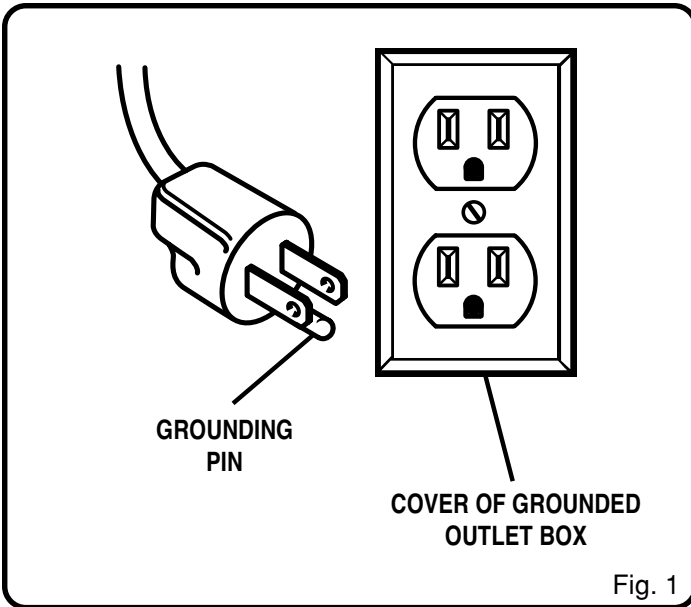


Fig. 1

## ELECTRICAL CONNECTION

Your Ryobi Scroll Saw is powered by a precision built electric motor. It should be connected to a **power supply that is 120 volts, 60Hz, AC only (normal household current)**. Do not operate this tool on direct current (DC). A substantial voltage drop will cause a loss of power and the motor will overheat. If the saw does not operate when plugged into an outlet, double check the power supply.

## GROUNDING INSTRUCTIONS

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Repair or replace a damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet like the one shown in *Figure 1*. It also has a grounding pin like the one shown.

# GLOSSARY OF TERMS FOR WOODWORKING

## **Bevel Cut**

A cutting operation made with the saw table at any angle other than 90° to the blade.

## **Compound Cut**

A compound cut is a cut made using a miter angle and a bevel angle at the same time.

## **Crosscut**

A cutting or shaping operation made across the grain or the width of the workpiece.

## **Freehand (for scroll saw)**

Performing a cut without the workpiece being guided by a fence or miter gauge. Work must be supported by the table.

## **Gum**

A sticky, sap based residue from wood products.

## **Kerf**

The material removed by the blade in a through cut or the slot produced by the blade in a non-through or partial cut.

## **Leading End**

The end of the workpiece pushed into the cutting tool first.

## **Nonferrous Metal**

Metal that does not contain iron, such as aluminum, brass or copper.

## **Push Stick**

A device used to feed the workpiece through the saw blade during narrow ripping type operations and helps keep the operator's hands well away from the blade.

## **Resaw**

A cutting operation to reduce the thickness of the workpiece to make thinner pieces.

## **Resin**

A sticky, sap base substance that has hardened.

## **Ripping**

A cutting operation along the length of the workpiece.

## **Saw Blade Path**

The area directly in line — over, under, behind, or in front of the blade. As it applies to the workpiece, that area which will be, or has been, cut by the blade.

## **Set**

The distance that the tip of the saw blade tooth is bent (or set) outward from the face of the blade.

## **SPM**

Strokes per minute. Used in reference to blade movement.

## **Through Sawing**

Any cutting operation where the blade extends completely through the thickness of the workpiece.

## **Throw-Back**

Throwing of a workpiece in a manner similar to a kickback. Usually associated with a cause other than the kerf closing, such as a workpiece not being against the fence, being dropped into the blade, or being placed inadvertently in contact with the blade.

## **Workpiece**

The item on which the cutting operation is being done. The surfaces of a workpiece are commonly referred to as faces, ends, and edges.

## **Worktable**

The surface on which the workpiece rests while performing a cutting or sanding operation.

# UNPACKING

## **⚠ WARNING:**

To prevent accidental starting or electrical shock that could cause possible serious personal injury, assemble all parts to your saw before connecting it to power supply. Saw should never be connected to power supply when you are assembling parts, making adjustments, lubricating, installing or removing blades, cleaning, or when not in use.

- Carefully lift saw from the carton and place it on a level work surface.
- Remove package of extra blades and operator's manual from the carton.

## **⚠ WARNING:**

If any parts are missing, do not operate this tool until the missing parts are replaced. Failure to do so could result in possible serious personal injury.

- Do not discard the packing materials until you have carefully inspected the saw, identified all parts, and satisfactorily operated your new saw.

**Note:** If any parts are damaged or missing, do not attempt to plug in the power cord and turn the switch on until the damaged or missing parts are obtained and are installed correctly.

Your scroll saw comes completely assembled. A package of extra blades and an operator's manual are included with your saw.

# LOOSE PARTS

Check all loose parts from the box with the list below. Assemble according to the instructions on the following pages.

- 3 mm T-Handle Hex Key
- 4 mm Hex Key
- Blade(s)
- Plastic Tubing

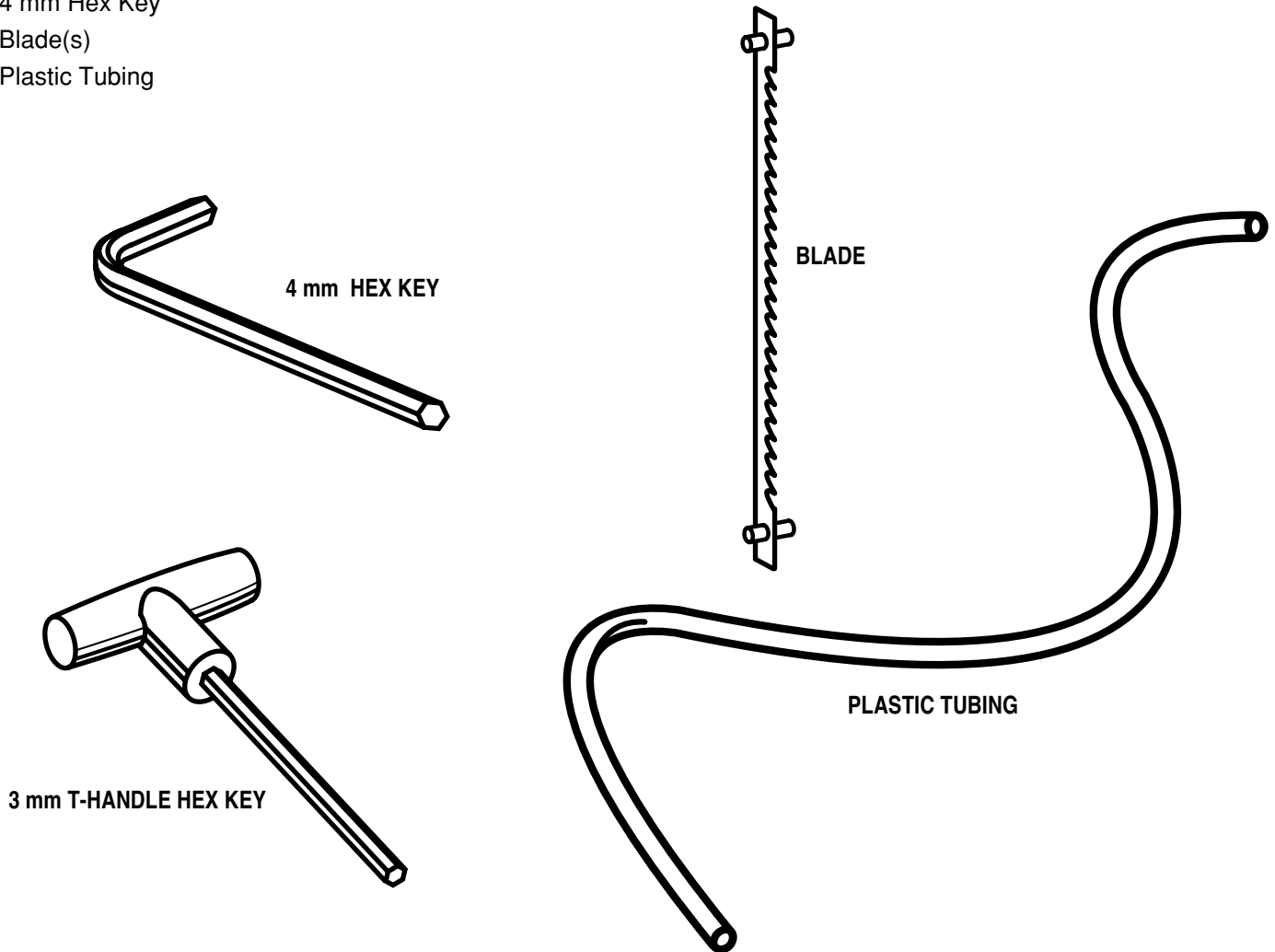
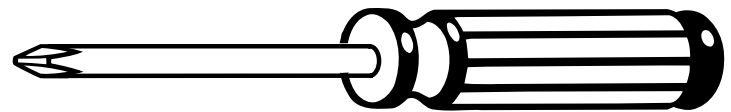
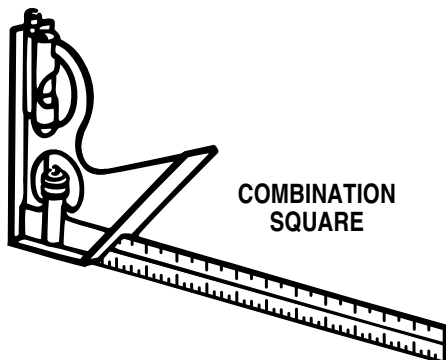


Fig. 2

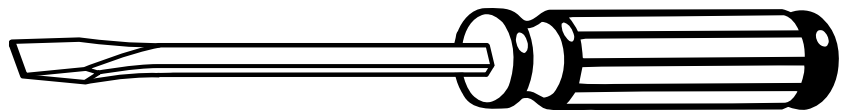
# TOOLS NEEDED

The following tools (not included) are needed for adjustments and alignment:

- Combination Square
- Phillips Screwdriver
- Slotted Screwdriver



PHILLIPS SCREWDRIVER



SLOTTED SCREWDRIVER

Fig. 3



# FEATURES

## KNOW YOUR SCROLL SAW

Before attempting to use your saw, familiarize yourself with all the operating features and safety requirements of your Ryobi scroll saw. See Figure 4.

This versatile, variable speed scroll saw is great for making toys, puzzles, games, artwork, and jewelry. It is a handy do-it-yourself tool. It cuts wood, wood composition products, plastic, and other fibrous material up to 2 in. (51 mm) thick. It also cuts nonferrous metals (aluminum, brass, copper).

### Bevel Scale

The bevel scale and indicator show you the degree the saw table is tilted.

### Blade Clamp Screws

Blade clamp screws are used when changing saw blades.

### Blade Tension Knob

Loosen or tighten the blade tension by turning the blade tension knob.

### Drop Foot

This foot should always be lowered until it just rests on top of the workpiece to prevent the workpiece from lifting, yet not so much that the workpiece drags.

### Drop Foot Lock Knob

Allows you to raise or lower the drop foot and lock it in place.

### Sawdust Blower

Keeps the line of the cut on the workpiece clean for more accurate scroll cuts. For best results, always direct air flow at the blade and the workpiece.

### Sawdust Exhaust

This feature will allow you to attach any 1-1/4 in. (32 mm) vacuum hose for easy sawdust collection.

### Saw Table with Throat Plate

Your scroll saw has an aluminum saw table with tilt control for maximum accuracy. The throat plate, inserted in the saw table, allows for blade clearance.

### Switch and Switch Key

Your scroll saw has an easy access power switch. To lock in the **OFF** position, remove the yellow switch key. Place the key in a location inaccessible to children and others not qualified to use the tool.

### Table Lock Knob

Allows you to tilt the table and lock it at the desired angle up to 45°.

### Variable Speed Knob

Turn the knob to adjust the speed from the high speed of approximately 1600 SPM (strokes per minute) to the low speed of approximately 400 SPM.

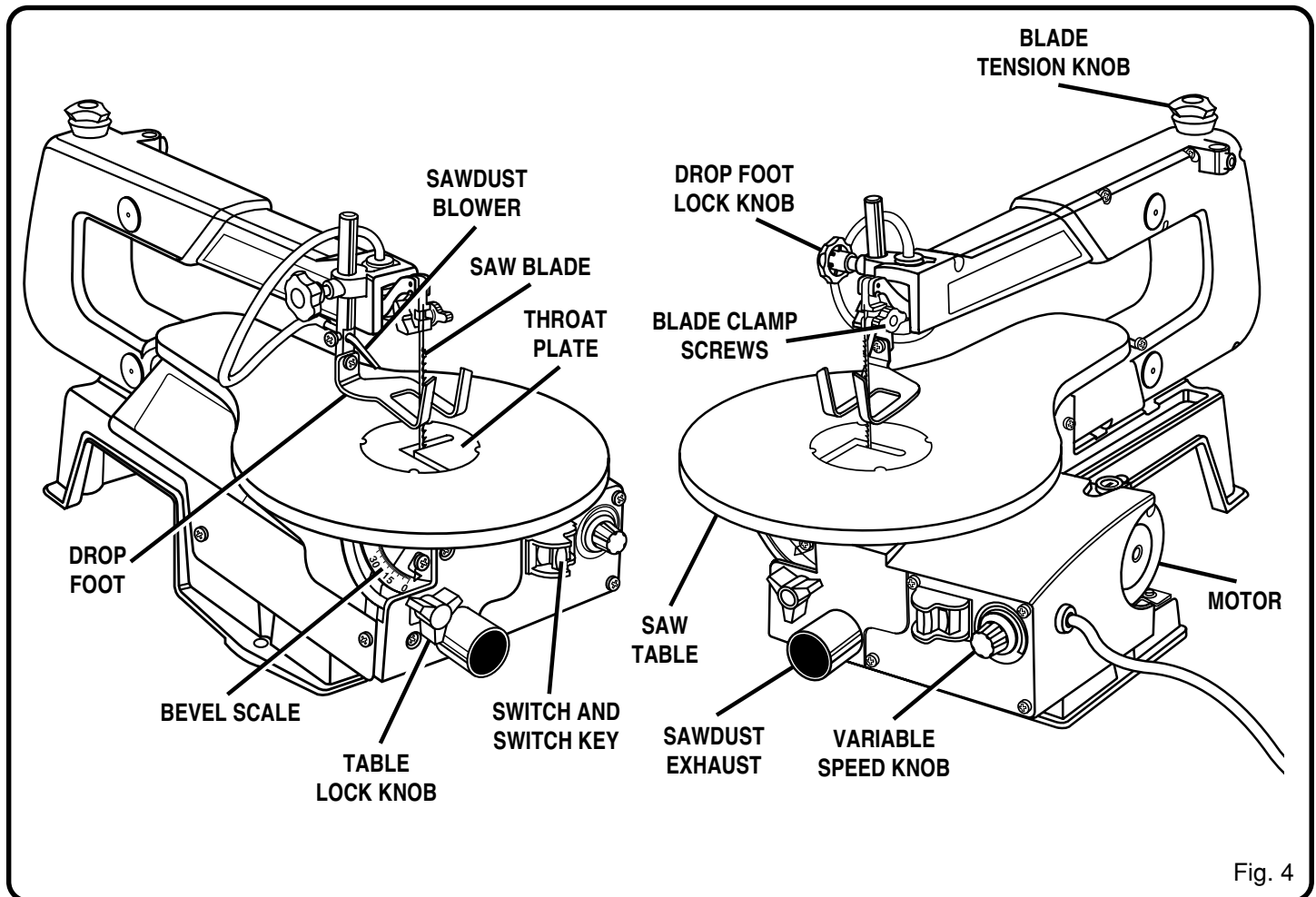


Fig. 4

# ASSEMBLY

Attach the plastic tubing to the sawdust blower and bellows tube on the top of the saw housing.

Apply a coat of paste wax to the saw table surface to allow the workpiece to slide easily across the surface. Wipe the saw table thoroughly with a dry cloth to remove excess wax.

## MOUNTING SCROLL SAW TO WORKBENCH

### **⚠ WARNING:**

To avoid serious personal injury from unexpected tool movement, always securely mount scroll saw to a workbench.

If the scroll saw is to be used in a permanent application, we recommend that you secure it in a permanent location such as a workbench. When mounting the saw to a workbench, holes should be drilled through the supporting surface of the workbench.

- Each hole in the base of the saw should be bolted securely using machine bolts, washers, and nuts (not included). Bolts should be of sufficient length to accommodate the saw base, washers, nuts, and the thickness of the workbench.
- Place scroll saw on workbench. Using the saw base as a pattern, locate and mark the holes where the scroll saw is to be mounted.
- Drill four holes through the workbench.
- Place scroll saw on workbench aligning holes in the saw base with the holes drilled in the workbench.
- Insert all four bolts (not included) and tighten securely with washers and nuts (not included).

**Note:** All bolts should be inserted from the top. Install the washers and nuts from the underside of the bench.

Supporting surface where scroll saw is mounted should be examined carefully after mounting to insure that no movement during use can result. If any tipping or walking is noted, secure workbench or supporting surface before beginning cutting operations.

### **Reducing Noise and Vibration:**

You may wish to place a foam pad or piece of carpet between the saw base and the workbench to help reduce noise and vibration.

If a foam pad or piece of carpet is used, do not overtighten the mounting bolts. Leave some cushion between the padding and the saw base to help absorb the noise and vibration.

The size of the padding material should be approximately 24 in. x 12 in. x 1/2 in. (610 mm x 305 mm x 13 mm).

## CLAMPING SCROLL SAW TO WORKBENCH

See Figure 5.

If the scroll saw is to be used in a portable application, it is recommended that you fasten it permanently to a mounting board that can easily be clamped to a workbench or other supporting surface. The mounting board should be of sufficient size to avoid tipping of saw while in use. Any good grade plywood or chipboard with a 3/4 in. (19 mm) thickness is recommended.

- Mount saw to board using holes in saw base as a template for hole pattern. Locate and mark the holes where scroll saw is to be mounted.
- Follow last three steps in previous section called **Mounting Scroll Saw to Workbench**.

If lag bolts are being used, make sure they are long enough to go through holes in the saw base and the material the saw is being mounted to.

If machine bolts are being used, make sure they are long enough to go through holes in the saw base, the material the saw is being mounted to, and the washers and nuts.

**Note:** It may be necessary to countersink washers and nuts on the bottom side of mounting board.

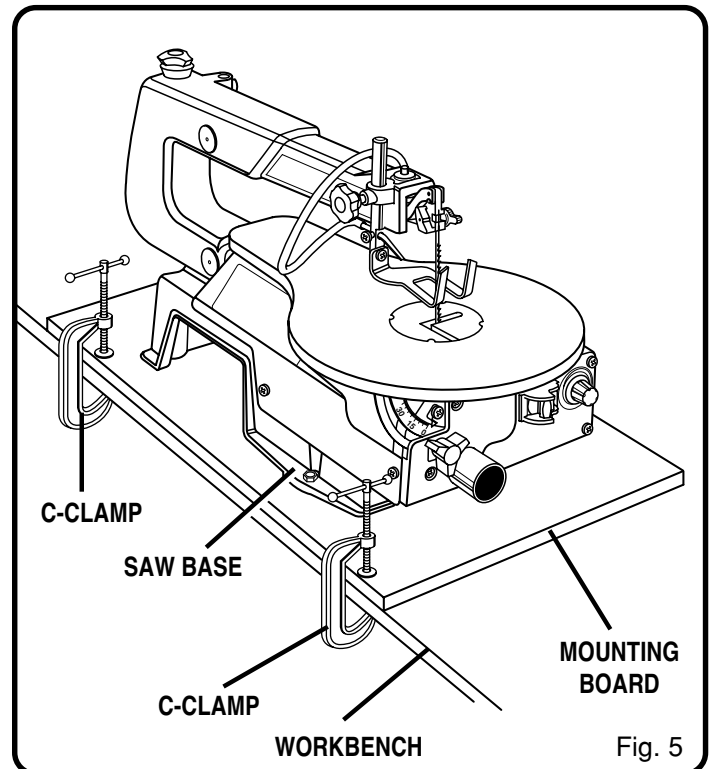


Fig. 5

# ADJUSTMENTS

## ⚠ WARNING:

To prevent accidental starting that could cause possible serious personal injury, turn off the saw and unplug the saw from the power source before making any adjustments.

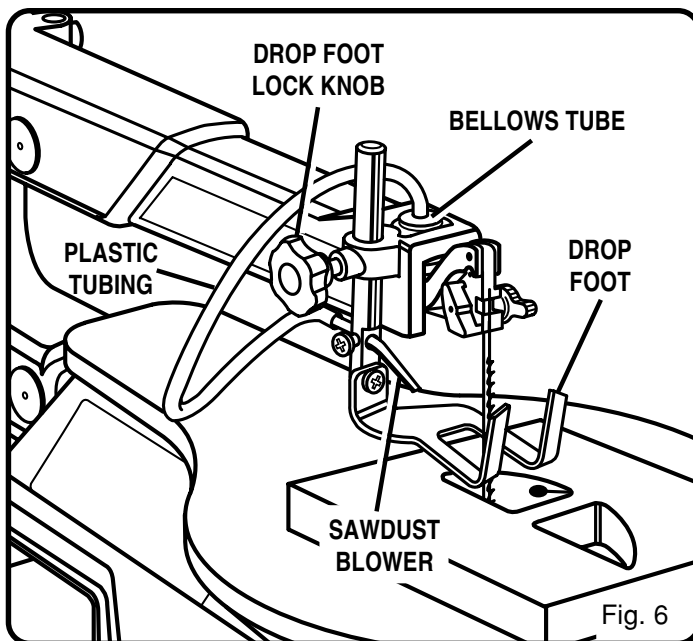
## DROP FOOT

See Figure 6.

To prevent workpiece from lifting, the drop foot should be adjusted so it just rests on the top of the workpiece. The drop foot should not be adjusted so that the workpiece drags. Always retighten the drop foot lock knob after each adjustment has been made.

- Loosen the drop foot lock knob.
- Lower or raise the drop foot to the desired position.
- Retighten the drop foot lock knob.

The tall, front part of the drop foot acts as a blade guard to prevent accidental contact with the blade.



## SAWDUST BLOWER

See Figure 6.

## ⚠ WARNING:

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

The sawdust blower is designed and preset to direct air to the most effective point on the cutting line. Be sure drop foot is properly adjusted to secure workpiece and direct air to the cutting surface.

- Plastic tubing should be connected to the bellows tube before starting the saw.

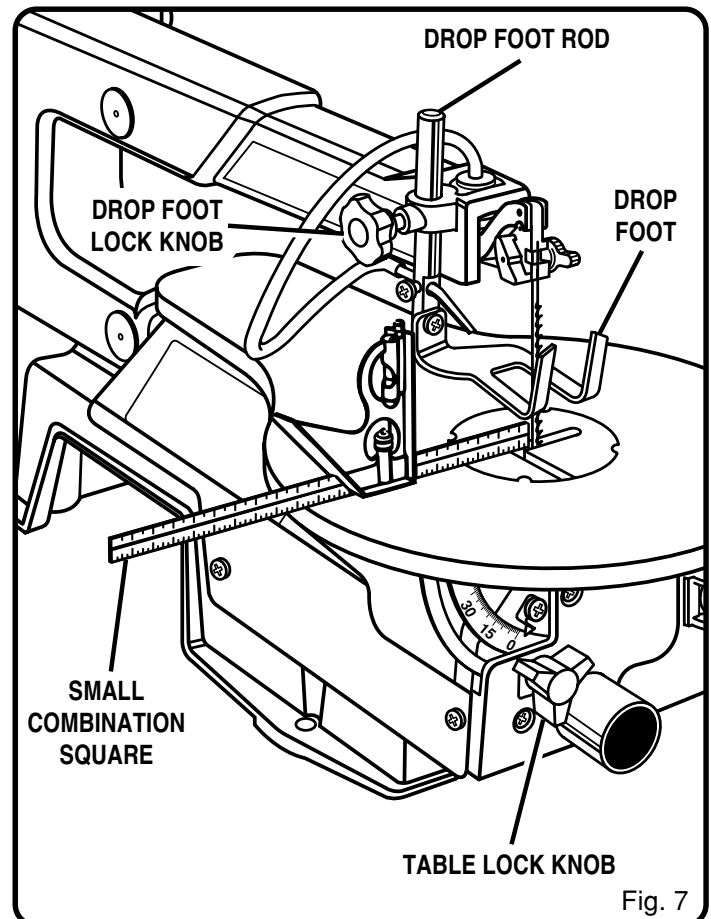
## SQUARING THE SAW TABLE TO THE BLADE

See Figure 7.

## ⚠ WARNING:

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

- Loosen the drop foot lock knob and move drop foot rod all the way up. Retighten drop foot lock knob.
- Loosen the table lock knob to tilt the saw table until it is approximately perpendicular or at right angle to the blade.
- Place a small square on the saw table next to the blade.
- Loosen the screw holding the scale indicator. See Figure 8. Move indicator to the 0° mark and securely tighten screw. Remember, the bevel scale is a convenient guide but should not be relied upon for precision. Make practice cuts on scrap material to determine if your angle settings are correct.
- Adjust the drop foot to desired position and securely retighten the drop foot lock knob.



# ADJUSTMENTS

## SETTING THE TABLE FOR HORIZONTAL OR BEVEL CUTTING

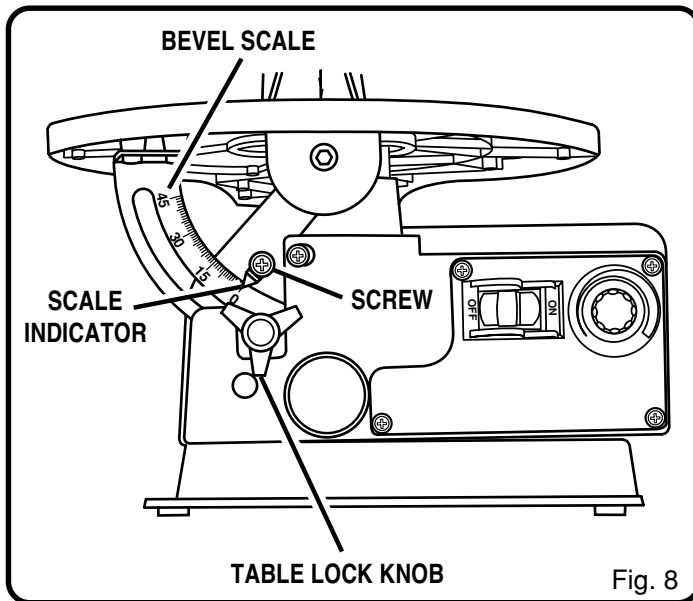
See Figure 8.

### **⚠ WARNING:**

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

A bevel scale is located under the saw table as a convenient guide for setting the approximate saw table angle for bevel cutting. When greater precision is required, make practice cuts on scrap material and adjust the saw table as necessary for your requirements.

**Note:** When cutting at angles, the drop foot should be tilted so it is parallel to the saw table and rests flat against the workpiece. To tilt the drop foot, loosen phillips screw, tilt drop foot to the proper angle, then retighten screw.



### **⚠ WARNING:**

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

## ADJUSTING DROP FOOT

- Loosen the drop foot lock knob. See Figure 4, page 9.
- Center the drop foot around the saw blade to the desired position.
- Tighten the drop foot lock knob.

## ADJUSTING BLADE TENSION

See Figure 9.

- Turn off and unplug the saw from the power source.

### **⚠ WARNING:**

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

- Turning the blade tension knob counter-clockwise decreases (or loosens) blade tension.
- Turning the blade tension knob clockwise increases (or tightens) blade tension.

**Note:** Adjustments to blade tension can be made at any time. Check tension by the sound the blade makes when plucked like a guitar string. This method of adding tension to the blade can be developed with practice and requires knowing your scroll saw.

- Pluck the back straight edge of blade while turning tension adjusting knob. Sound should be a musical note. Sound becomes less flat as tension increases. Sound decreases with too much tension.

**Note:** Be careful not to adjust blade too tight. Too much tension may cause the blade to break as soon as you start cutting. Too little tension may cause the blade to bend or break before the teeth wear out.



# ADJUSTMENTS

## INSTALLING BLADES

Scroll saw blades wear out quickly and must be replaced frequently for best cutting results. Expect to break some blades while you learn to use and adjust your saw. Blades generally stay sharp for 1/2 hour to 2 hours of cutting, depending on the type of material and speed of operation.

### Pin End Blades

See Figure 10.

#### Removing the Saw Blade:

- Turn off and unplug the saw from the power source.

#### **WARNING:**

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

- Turn blade tension knob counterclockwise to decrease (or loosen) blade tension. See Figure 4.
- Pushing up from under the saw table, remove the throat plate.
- Loosen both the upper and lower blade clamp screws.
- Pull up on the blade and push down on the saw arm to disengage the upper pin in the V-notch of the upper blade holder. Push the blade downward to disengage the lower pin in the V-notch of the lower blade holder.
- Remove the blade.

#### Replacing the Saw Blade:

- Place the new blade through the opening in the saw table with the teeth to the front of the saw and pointing down toward the saw table. The pins on the blade go under the blade holder in the V-notch of the lower blade holder.
- Pull up on the blade and press the upper arm down to position the upper end of the blade in the V-notch in the upper blade holder.
- Securely tighten the upper and lower blade clamps by tightening the blade clamp screws.
- Turn the blade tension knob clockwise until the blade has the desired amount of tension.
- Replace the throat plate.

**Note:** If the blade touches the drop foot on either side then the drop foot must be adjusted. See section on **Adjusting Drop Foot**, page 12.

### Plain End Blades

See Figure 10.

- Turn off and unplug the saw from the power source.

#### **WARNING:**

Failure to turn the saw off, remove the switch key, and unplug the saw from the power source could result in accidental starting causing possible serious injury.

#### Removing the Saw Blade:

- Turn blade tension knob counterclockwise to decrease (or loosen) blade tension. See Figure 4.
- Pushing up from under the saw table, remove the throat plate.
- Loosen both the upper and lower blade clamp screws.
- Remove the blade.

#### Replacing the Saw Blade:

- Place the new blade through the opening in the saw table with the teeth to the front of the saw and pointing down toward the saw table.
- Position blade and tighten the blade clamp screw securely.
- Press the upper arm down to position the upper end of the blade in the upper blade holder.
- Securely tighten the upper blade clamp screw.
- Turn the blade tension knob clockwise until the blade has the desired amount of tension.
- Replace the throat plate.

**Note:** If the blade touches the drop foot on either side then the drop foot must be adjusted. See section **Adjusting Drop Foot**, page 12.

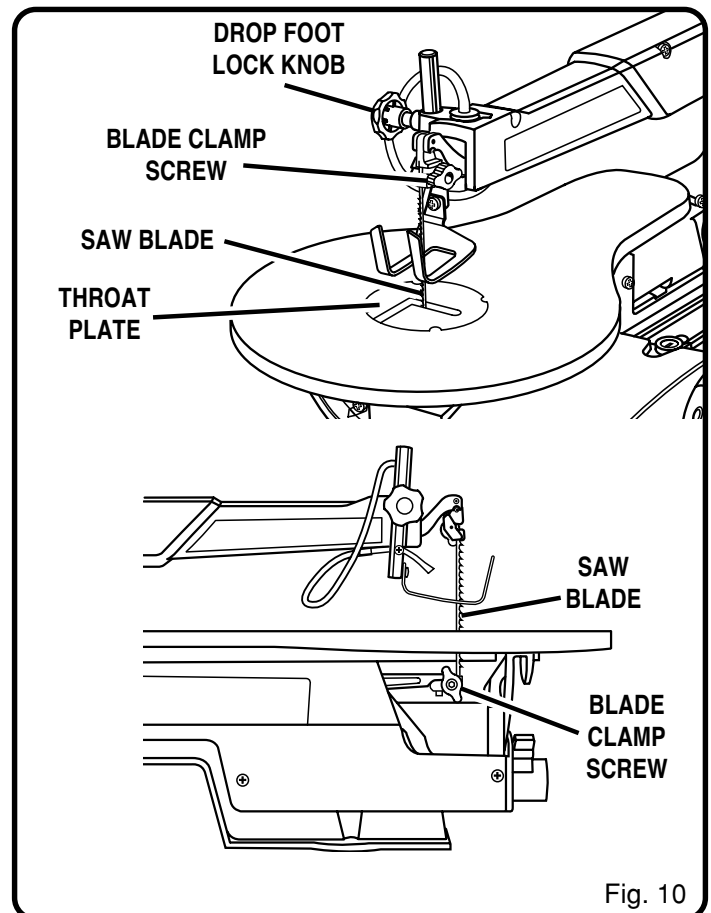


Fig. 10

# OPERATION

## BASIC OPERATION OF THE SCROLL SAW

Before starting a cut, watch the saw run. If you experience excessive vibration or unusual noise, stop immediately. Turn the saw off, remove the switch key, and unplug the saw. Do not restart until locating and correcting the problem.

**Note:** After the saw is turned **ON**, a hesitation before blade movement is normal.

## CUTTING PROCEDURES

- There is a learning curve for each person who wants to use this saw. During that period of time it is expected that some blades will break until you learn how to use and adjust the saw.
- Plan the way you will hold the workpiece from start to finish.
- Keep your hands away from the blade. Do not hand hold pieces so small your fingers will go under the blade guard.
- Hold the workpiece firmly against the saw table.
- The blade teeth cut material only on the down stroke.
- Use gentle pressure and both hands when feeding the work into the blade. Do **not** force the work.
- Guide the workpiece into the blade slowly because the teeth of the blade 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 hands in blade path.
- To get accurate cuts, compensate for the blade's tendency to follow the wood grain as you are cutting wood.
- Use extra supports (tables, saw horses, blocks, etc.) when cutting large, small or awkward workpieces.
- Never use another person as a substitute for a table extension or as additional support for a workpiece that is longer or wider than the basic saw table.
- When cutting irregularly shaped workpieces, plan your work so it will not pinch the blade. Workpieces must not twist, rock or slip while being cut.

## REMOVING JAMMED MATERIAL

When backing out the workpiece, the blade may bind in the kerf (cut). This is usually caused by sawdust clogging the kerf or when the blade comes out of the blade holders. If this happens:

- Wait until the saw has come to a full and complete stop.
- Place the switch in the **OFF** position, remove the switch key from the switch assembly. Store key in a safe place.
- Unplug the saw from the power source.
- Remove the saw's blade and the workpiece, see section on **Removing the Saw Blade**, page 13.
- Wedge the kerf open with a flat screwdriver or wooden wedge then remove the blade from the workpiece.

## ⚠ WARNING:

Before removing loose pieces from the table, turn saw off and wait for all moving parts to stop to avoid serious personal injury.

## AVOIDING INJURY

- Make sure saw is level and does not rock. Saw should always be on a firm, level surface with plenty of room for handling and properly supporting the workpiece.
- Bolt saw to the support surface to prevent slipping, walking or sliding during operations like cutting long, heavy boards.
- Turn saw off, remove switch key, and unplug cord from the power source before moving the saw.
- Do not remove jammed cutoff pieces until blade has come to a full and complete stop.
- Choose the right size and style blade for the material and type of cut you plan to do.
- Use only recommended accessories.
- With the exception of the workpiece and related support devices, clear everything off the saw table before turning the saw on.
- Properly support round materials such as dowel rods or tubing because they have a tendency to roll during a cut causing the blade to "bite". To avoid this, always use a "V" block or clamp workpiece to a miter gauge.
- Before removing loose pieces from the saw table, turn saw off and wait for all moving parts to stop.

## LOCKING THE SWITCH

See Figure 11.

- Wait until the saw has come to a full and complete stop.
- Place the switch in the **OFF** position, remove the switch key from the switch assembly. Store key in a safe place.

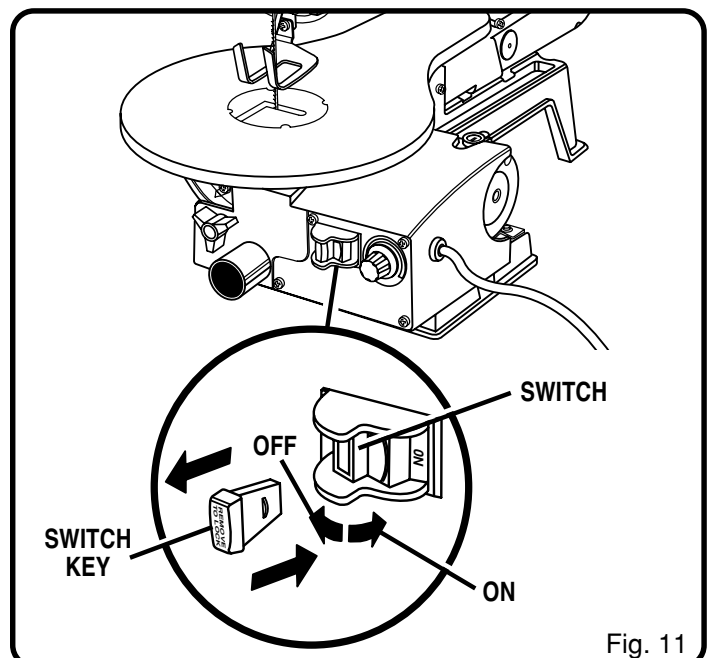


Fig. 11

# OPERATION

## CHOICE OF BLADE AND SPEED

The scroll saw accepts a wide variety of blade widths and thicknesses for cutting wood and other fibrous materials. Your saw uses 5 in. long blades of either the pin end or the plain end style. The blade width and thickness and the number of teeth per inch to use are determined by the type of material and the size of the radius being cut.

**Note:** As a general rule, always select narrow blades for intricate curve cutting and wide blades for straight and large curve cutting.

Teeth/Inch	Width	Thickness	Speed or Strokes Per Minute	Material Cut
10	.110 in. (2.8 mm)	.020 in. (0.5 mm)	1200-1600	Popular size for cutting hard and soft woods 3/16 in. (4.8 mm) up to 2 in. (51 mm) Plastics, paper, felt, bone, etc.
15	.110 in. (2.8 mm)	.020 in. (0.5 mm)	600-1200	Wood, plastics, extremely thin cuts on materials 3/32 in. (2.4 mm) to 1/2 in. (13 mm) thick.
18	.095 in. (2.4 mm)	.010 in. (0.3 mm)	400-600	For tight radius work in thin materials 3/32 in. (2.4 mm) to 1/8 in. (3 mm) wood, veneer, bone, fiber, ivory, plastic, etc.

## BLADE INFORMATION

- Scroll saw blades wear out and must be replaced frequently for best cutting results. Scroll saw blades generally stay sharp for 1/2 hour to 2 hours of cutting, depending on type of material and speed of operation.
- In cutting wood, best results are achieved when cutting wood less than one inch thick.
- When cutting wood thicker than one inch, the user must guide the workpiece very slowly into the blade and take extra care not to bend or twist the blade while cutting.
- When choosing a blade, carefully consider the following:
  - Very fine, narrow blades should be used to scroll cut in thin material 1/4 in. (6 mm) thick or less.
  - Most blade packages state the size or thickness and type of material which that blade is intended to cut. The package should also state the radius or size of curve that can be cut with that blade size.
  - Wider blades cannot cut curves as tight or as small as thinner blades.
- Blades wear faster when:
  - Cutting plywood, hardwood, and other laminates.
  - Cutting material thicker than 3/4 in. (19 mm).
  - Side pressure is applied to the blade.

## USING VARIABLE SPEED

See Figure 12.

- By turning the variable speed knob, the saw's speed may be adjusted from a high speed of approximately 1600 SPM (Strokes Per Minute) to a low speed of approximately 400 SPM.
- To increase the strokes per minute, turn the variable speed knob clockwise or to the right.
- To decrease the strokes per minute, turn the variable speed knob counterclockwise or to the left.

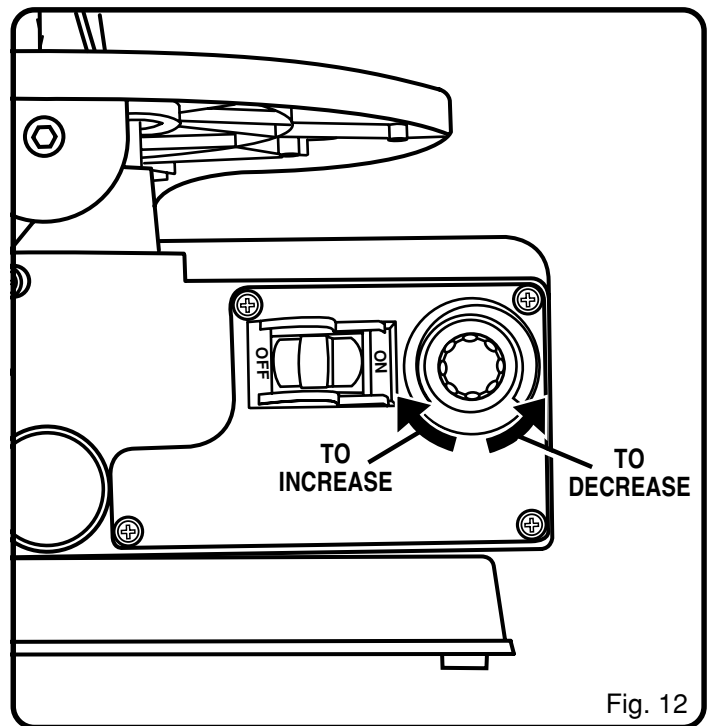


Fig. 12

# OPERATION

## **⚠ WARNING:**

To avoid possible serious injury from accidental starting, always turn the saw off, remove the switch key, and unplug the saw from power source before removing or replacing the blade.

## **SCROLL CUTTING**

For general type scroll cutting, follow the pattern lines by pushing and turning the workpiece at the same time. Do not try to turn the workpiece while engaged in the blade without pushing it – the workpiece could bind or twist the blade.

## **⚠ WARNING:**

To prevent serious personal injury, never leave the saw unattended until the blade has come to a complete stop.

## **INTERIOR SCROLL CUTTING**

See Figure 13.

- One feature of a scroll saw is that it can be used to make scroll cuts on the interior of a workpiece without breaking or cutting through the edge or perimeter of the board.
- To make interior cuts in the workpiece, remove the scroll saw blade as explained in the section on **Installing Blades** on page 13.
- Drill a 1/4 in. (6 mm) hole in the workpiece.
- Place the workpiece on the saw table with the drilled hole over the access hole in the table.
- Install blade through the hole in the workpiece; adjust the drop foot and blade tension.
- When finished making the interior scroll cuts, simply remove the blade from the blade holders as described in the section on **Installing Blades**, page 13, and remove the workpiece from the saw table.

## **STACK CUTTING**

See Figure 14.

After becoming well acquainted with your saw through practice and experience, you may wish to try stack cutting. Stack cutting may be used when several identical shapes need to be cut. Several pieces of wood may be stacked on top and secured to each other before cutting. The wood pieces may be joined together by placing double sided tape between each piece or by wrapping masking tape around the corners or ends of the stacked wood. You must attach the stacked pieces of wood to each other so they will move on the table as a single piece of material.

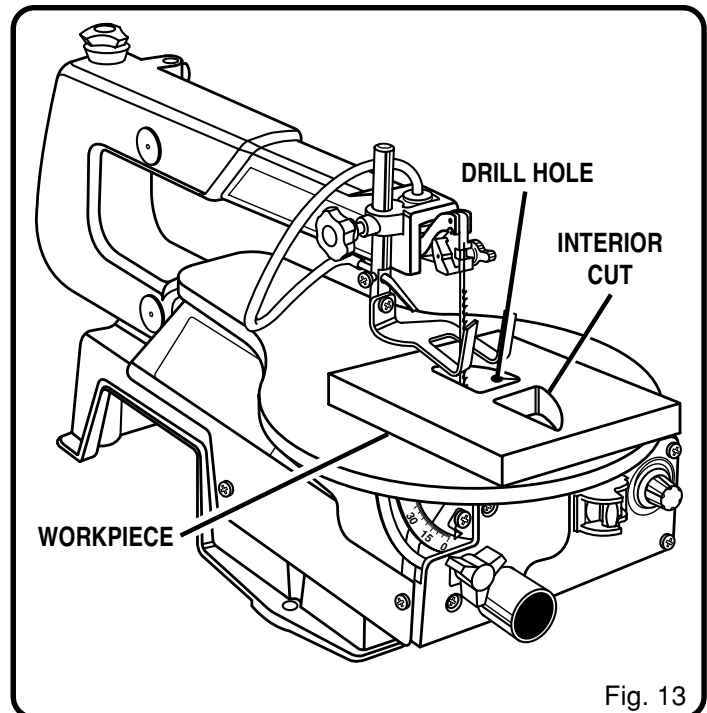


Fig. 13

## **⚠ WARNING:**

To avoid possible, serious personal injury, do not cut more than one loose piece of material at a time.

## **⚠ WARNING:**

Do not allow familiarity with your saw to make you careless. Remember that a careless fraction of a second is sufficient to inflict severe injury.

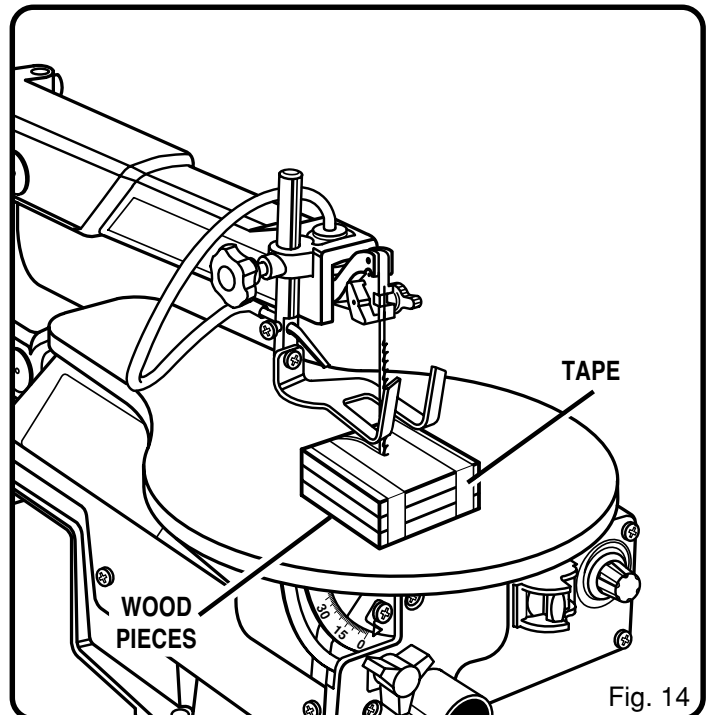


Fig. 14



# MAINTENANCE

## **⚠ WARNING:**

When servicing, use only identical Ryobi replacement parts. Use of any other part may create a hazard or cause product damage.

## GENERAL MAINTENANCE

- Keep your scroll saw clean.
- After cleaning the table top initially, apply a thin coat of automobile type (paste) wax to the table top so the wood slides easily while cutting.
- Do not allow pitch to accumulate on the saw table. Clean with gum and pitch remover.

## ARM BEARINGS

See Figure 15.

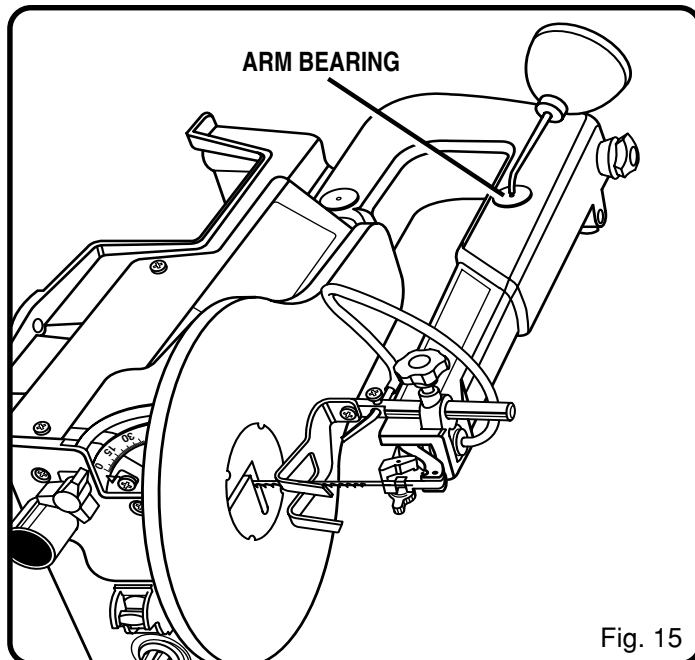
Lubricate the arm bearings after the first 10 hours of use. Oil after every 50 hours of use or whenever there is a squeak coming from the bearings.

- Carefully place the saw on its side as shown in Figure 15. Remove the rubber cap from the upper and the lower arm of the saw.
- Squirt a few drops of SAE20 oil around the shaft end and arm bearings. Let oil soak in overnight, remaining in this position.

**Note:** Lubricate the bearings on the other side of the saw in this same manner.

## **⚠ WARNING:**

If the power cord 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.

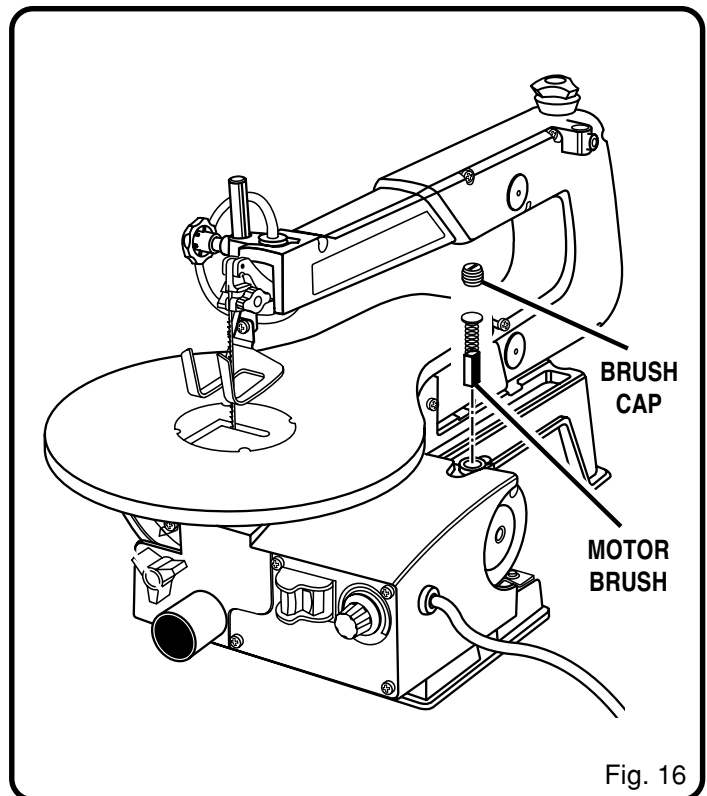


## MOTOR BRUSHES

See Figure 16.

Your saw has externally accessible motor brush assemblies that should be checked periodically for wear. When one of the two brushes becomes worn, replace both brushes.

- Unplug the saw from the power source.
- Carefully place the saw on its side exposing the underside of the saw housing.
- Using a flat blade screwdriver, remove the bottom brush assembly cap through the access hole in the base and the top brush assembly cap from the top of the motor. Gently pry the brush assemblies out using a small screwdriver, point of a nail, or paper clip.
- If one motor brush is worn down shorter than 1/4 in. (6 mm), replace both motor brushes. **Do not** replace one side without replacing the other. Make sure curvature of brush matches curvature of motor and that the motor brush moves freely in brush tube. Use the blunt end of something thin (eraser end of pencil, etc.) to push the motor brush into the tube until it stays.
- Make sure the motor brush cap is oriented correctly (straight). Tighten motor brush cap using a hand powered screwdriver only. Do not overtighten.



# MAINTENANCE

## **WARNING:**

To prevent accidental starting that could cause possible serious personal injury, turn off and unplug the saw before maintaining or lubricating your scroll saw.

## **WARNING:**

Failure to unplug your saw could result in accidental starting causing serious injury.

# TROUBLESHOOTING

## **WARNING:**

For your own safety, turn switch **OFF** and remove plug from power outlet before adjusting or aligning your scroll saw.

PROBLEM	CAUSE	SOLUTION
Motor will not run.	<ol style="list-style-type: none"><li>1. Problem with <b>ON-OFF</b> switch, power cord, or outlet.</li><li>2. Motor defective.</li></ol>	<ol style="list-style-type: none"><li>1. Have worn parts replaced before using Scroll Saw again. Have the proper outlet installed by a qualified electrician.</li><li>2. Do not attempt any repair. Have repaired by a qualified service technician.</li></ol>
Blades breaking.	<ol style="list-style-type: none"><li>1. Too much tension.</li><li>2. Feeding too quickly.</li><li>3. Wrong blade.</li><li>4. Blade twisting in wood.</li></ol>	<ol style="list-style-type: none"><li>1. Adjust tension.</li><li>2. Reduce feed rate.</li><li>3. Narrow blades for cutting thin wood or tight corners and turns, wide blades for thicker wood or wide turns.</li><li>4. Reduce side pressure on blade, check blade tension.</li></ol>
Vibration (there is always some vibration when the saw is running).	<ol style="list-style-type: none"><li>1. Improper mounting of saw.</li><li>2. Mounting surface.</li><li>3. Loose table or table resting against motor.</li><li>4. Loose motor mounting.</li></ol>	<ol style="list-style-type: none"><li>1. Check mounting.</li><li>2. Check mounting in manual.</li><li>3. Tighten table lock knob.</li><li>4. Tighten mounting screws.</li></ol>
Blade runout (blade not properly aligned with arm motion).	<ol style="list-style-type: none"><li>1. Blade holders out of line.</li></ol>	<ol style="list-style-type: none"><li>1. Realign blade.</li></ol>



