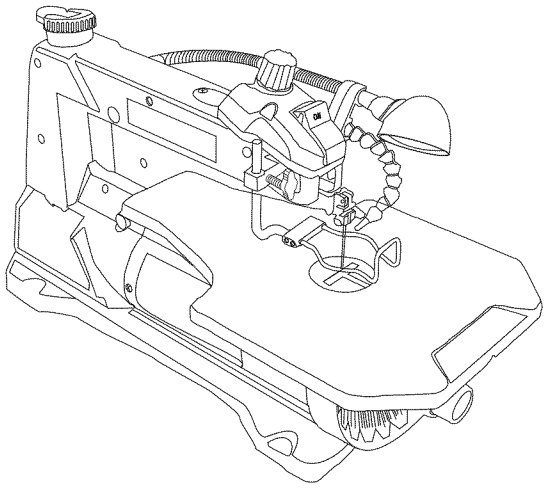
TRADESMAN®

16 in. SCROLL SAW

OPERATOR'S MANUAL



Item #174173

Model # VS4000W

C US

CAUTION – FOR YOUR SAFETY

READ YOUR OPERATOR'S MANUAL COMPLETELY AND CAREFULLY BEFORE ATTEMPTING TO SET-UP OR OPERATE YOUR NEW POWER TOOL.
ALL OPERATORS OF THIS EQUIPMENT SHOULD READ AND UNDERSTAND ALL SAFETY RULES PRINTED ON THE MACHINE AND IN THIS OPERATOR'S MANUAL BEFORE USE.

Your new power tool is a well built, carefully inspected, versatile machine, capable of providing many years of dependable service. Your power tool comes complete in one carton with a minimum of assembly and setup required. When unpacking, check all packages and packing materials for loose parts before discarding.

NOTICE: On the nameplate of your machine you will find the serial number and MFG date code of your unit. Please record these numbers on this manual cover for future service reference.

SERIAL # _____ MFG. DATE # _____ PURCHASE DATE: _____.

TRADESMAN E. WINDSOR, CT 06088 PRINTED IN CHINA

www.tradesman-rexon.com

1-800-243-5114

TABLE OF CONTENTS

PRODUCT SPECIFICATIONS

MOTOR		TABLE	
HP (Maximum developed)	1/9	Size	12-3/16 in. x 18-7/8 in.
Amps	1.4	Tilt	45 in. Left ; Right
Voltage	120	SAWDUST BLOWER	Yes
Hz	60	WORK LIGHT	Yes
Speed (no load)	400~1600 SPM		
Speed Control	Electric		
BLADE			
Type	Pin-end or Plain-end		
Depth of Throat	16 in.		
Blade Stroke	11/16 in.		
Depth of 45° Cut	1-1/16 in. Left ; 3/4 in. Right		
Depth of 90° Cut	2-1/8 in.		

WARRANTY

Refer to the warranty card included for your power tool warranty information.

PROPOSITION 65 WARNING

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

- Lead -based paints
- Crystalline silica from bricks, cement and other masonry products
- Arsenic and chromium from chemically treated lumber

Your risk of exposure 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 with approved safety equipment such as dust masks that are specially designed to filter microscopic particles.

POWER TOOL SAFETY

GENERAL SAFETY INSTRUCTIONS

Read and understand all the instructions below before using the power tool. These safety instructions are not meant to cover every possible condition that could occur. As with any power tool, common sense, vigilance and due care must be used.

1. READ and become familiar with the entire Operator's Manual. LEARN the tool's application, limitations and possible hazards.
2. KEEP GUARDS IN PLACE and in working order.
3. REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
4. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
5. DO NOT USE IN DANGEROUS ENVIRONMENTS. Do not use power tools in damp or wet locations or expose them to rain. Keep work area well lit.
6. KEEP CHILDREN AWAY. All visitors should be kept a safe distance away from work area.
7. MAKE WORKSHOP CHILD-PROOF with padlocks, master switches or by removing starter keys.
8. DO NOT FORCE THE TOOL. It will do the job better and safer at the rate for which it was designed.
9. USE THE RIGHT TOOL. Do not force tool or attachment to do a job for which it was not designed.
10. USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, use one heavy enough to carry the current your product will draw. An undersized cord will result in a drop in line voltage and in loss of power that will cause the tool to overheat. The table on page 5 shows the correct size tool to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
11. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry that may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
12. ALWAYS WEAR EYE PROTECTION. Any scroll saw can throw foreign objects into the eyes that could cause permanent eye damage. ALWAYS wear safety goggles (not glasses) that comply with ANSI Safety Standard Z87.1 Everyday eyeglasses have only impact–resistance lenses. They ARE NOT safety glasses. Safety goggles are available at your local Lowe's store. **NOTE:** Glasses or goggles not in compliance with ANSI Z87.1 could cause serious injury.
13. WEAR A FACE MASK OR DUST MASK. Sawing operation produces dust.
14. SECURE WORK. Use clamps or a vise to hold work when practical. It is safer than using your hand and frees both hands to operate tool.
15. DISCONNECT TOOLS before servicing; when changing accessories such as blades, bits, cutters and the like.
16. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in OFF position before plugging in.
17. USE RECOMMENDED ACCESSORIES. Consult the Operator's Manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
18. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
19. CHECK FOR 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 should be properly repaired or replaced.
20. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER "OFF". Do not leave tool until it comes to a complete stop.
21. DO NOT OVERREACH. Keep proper footing and balance at all times.
22. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
23. DIRECTION OF FEED. Feed work into a blade or cutter against the direction or rotation of the blade or cutter.
24. DO NOT OPERATE the tool if you are under the influence of any drugs, alcohol or medication that could affect your ability to use the tool properly.
25. DUST generated from certain materials can be hazardous to your health. Always operate the saw in well-ventilated areas and provide for proper dust removal. Use dust collection systems whenever possible.

SCROLL SAW SAFETY

1. READ AND UNDERSTAND all safety instructions and operating procedures throughout the manual.

2. DO NOT OPERATE the scroll saw until it is completely assembled and installed according to the instructions.

3. SHOULD any part of scroll saw be missing, damaged, or fail in any way, or any electrical component fail to perform properly, shut off the switch and remove the plug from the power outlet. Replace missing, damaged or failed parts before resuming operation.

4. IF YOU ARE NOT thoroughly familiar with the operation of a scroll saw, obtain advice from your supervisor, instructor or other qualified person.

5. SERIOUS INJURY could occur if the tool tips over or you accidentally hit the cutting tool. Do not store anything above or near the tool.

6. AVOID INJURY from unexpected saw movement. Place the saw on a firm, level surface where the saw does not rock, bolt or clamp the saw to its support.

7. YOUR SCROLL SAW MUST BE SECURELY FASTENED to a stand or workbench. If there is any tendency for the stand or workbench to move during operation, the stand or workbench MUST be fastened to the floor.

8. THIS SCROLL SAW is intended for indoor use only.

9. TENSION THE BLADE PROPERLY before starting the saw. Recheck and adjust tension as needed.

10. BLADE TEETH MUST POINT downward, toward the table.

11. TABLE MUST BE CLEARED of all debris before operating saw. Do not perform lay out, set up or assemble work on the table when the saw is in operation.

12. TO PREVENT INJURIES, avoid awkward hand or finger positions, where a sudden slip could cause a hand to move into the blade when operating the saw.

13. HOLD WORK PIECE FIRMLY against the table top.

14. NEVER CUT MATERIAL that is too small to be held safely.

15. DO NOT USE dull or bent blades.

16. TURN THE SAW OFF AND UNPLUG THE CORD if the blade binds in the saw kerf while being backed out of the work piece, usually caused by sawdust clogging the kerf. If this happens, turn off the scroll saw and unplug the power cord. Wedge open the kerf and back the blade out of the work piece.

17. DO NOT feed the material too fast while cutting. Only feed the work piece at the rate the saw will cut.

18. TURN THE POWER OFF, remove the switch key and make sure the scroll saw comes to a complete stop before installing or removing an accessory and before leaving the work area.

19. DO NOT START the saw with a work piece pressing against the blade. Slowly feed the work piece into the moving blade.

20. WHEN CUTTING a large work piece, make sure the material is supported at table height.

21. EXERCISE CAUTION when cutting work pieces that are round or irregularly shaped, work pieces can pinch the blade.

22. ALWAYS release blade tension before loosening the blade holder screw.

23. MAKE CERTAIN table tilting lock is tightened before starting the machine.

24. NEVER REACH under the scroll saw table when motor is running.

25. CHECK FOR DAMAGED PARTS before each use. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting or any other conditions that may affect operation. Parts that are damaged should be properly repaired or replaced before using the tool.

26. THINK SAFETY.

ELECTRICAL REQUIREMENTS AND SAFETY

GROUNDING INSTRUCTIONS

IN THE EVENT OF A MALFUNCTION OR BREAKDOWN, grounding provides a path of least resistance for electric currents and reduces the risk of electric shock. This tool is equipped with an electric cord that has an equipment-grounding conductor and a grounding plug. The plug MUST be plugged into a matching receptacle 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 receptacle, have the proper receptacle installed by a qualified electrician.

IMPROPER CONNECTION of the equipment-grounding conductor can result in risk of electric shock. The conductor with green insulation (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 person if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

USE ONLY 3-WIRE EXTENSION CORDS THAT HAVE 3-PRONGED GROUNDING PLUGS AND 3-POLE RECEPTACLES THAT ACCEPT THE TOOL'S PLUG. REPAIR OR REPLACE DAMAGED OR WORN CORDS IMMEDIATELY.

GUIDELINES FOR EXTENSION CORDS

USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, 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 cause overheating. The table on the right shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Make sure your extension cord is properly wired and in good condition. Always replace a damaged extension cord or have it repaired by a qualified technician before using it. Protect your extension cords from sharp objects, excessive heat and damp or wet areas.

Use a separate electrical circuit for your tools. This circuit must not be less than # 12 wire and should be protected with a 15 Amp time delay fuse. Before connecting the motor to the power line, make sure the switch is in the OFF position and the electric current is rated the same as the current stamped on the motor nameplate. Running at a lower voltage will damage the motor. This tool is intended for use on a circuit that has a receptacle like the one illustrated in Fig. 1.

Fig. 1 shows a 3-pronged electrical plug and receptacle that has a grounding conductor. If a properly grounded receptacle is not available, an adapter (Fig. 2) can be used to temporarily connect this plug to a 2-contact grounded receptacle. The temporary adapter should be used only until a properly grounded receptacle can be installed by a qualified technician. The adapter (Fig. 2) has a rigid lug extending from it that MUST be connected to a permanent earth ground, such as a properly grounded receptacle box. The Canadian Electrical Code prohibits the use of the adapters.

CAUTION

In all cases, make certain the receptacle is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

Fig. 1

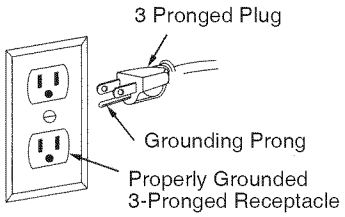
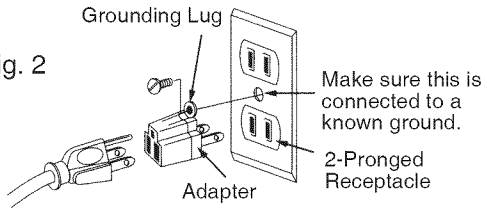


Fig. 2



CAUTION

This tool must be grounded while in use to protect the operator from electrical shock.

MINIMUM GAUGE FOR EXTENSION CORDS (AWG)					
(When using 120 volts only)					
Ampere Rating		Total length of Cord			
More Than	Not More Than	25ft.	50ft.	100ft.	150ft.
0	6	18ft.	16ft.	16ft.	14ft.
6	10	18ft.	16ft.	14ft.	12ft.
10	12	16ft.	16ft.	14ft.	12ft.
12	16	14ft.	12ft.	Not Recommended	

PRE ASSEMBLY

ACCESSORIES AND ATTACHMENTS

CAUTION

- To avoid injury, do not attempt to modify this tool or create accessories not recommended for use with this tool. Any alteration or modification is considered misuse and could result in a hazardous condition leading to possible serious injury.
- Use only the accessories recommended for this scroll saw. Follow instructions that accompany accessories. Use of improper accessories may cause hazards.

ACCESSORIES

Pin-end Saw Blades
Plain-end Saw Blades

Do not use any accessory unless you have completely read the instructions or Operator's Manual for that accessory.

CARTON CONTENTS

UNPACKING AND CHECKING CONTENTS

CAUTION

- To avoid injury, if any part is missing or damaged, do not operate until the missing or damaged part is replaced, and assembly is complete.
- To avoid fire and toxic reaction, never use gasoline, naphtha, acetone, lacquer, thinner, or similar highly volatile solvents to clean the scroll saw.

Carefully unpack the scroll saw and all its parts, and compare against the illustration on page 7.

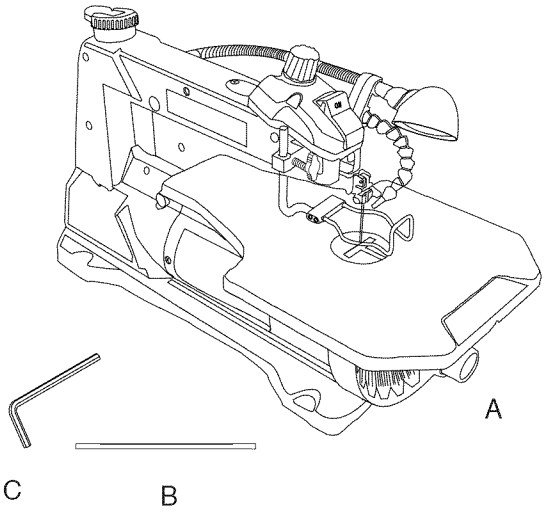
1. Remove the scroll saw from the carton by lifting the saw by the back of the upper frame.
2. Place the saw on a secure surface and examine it carefully.

CAUTION

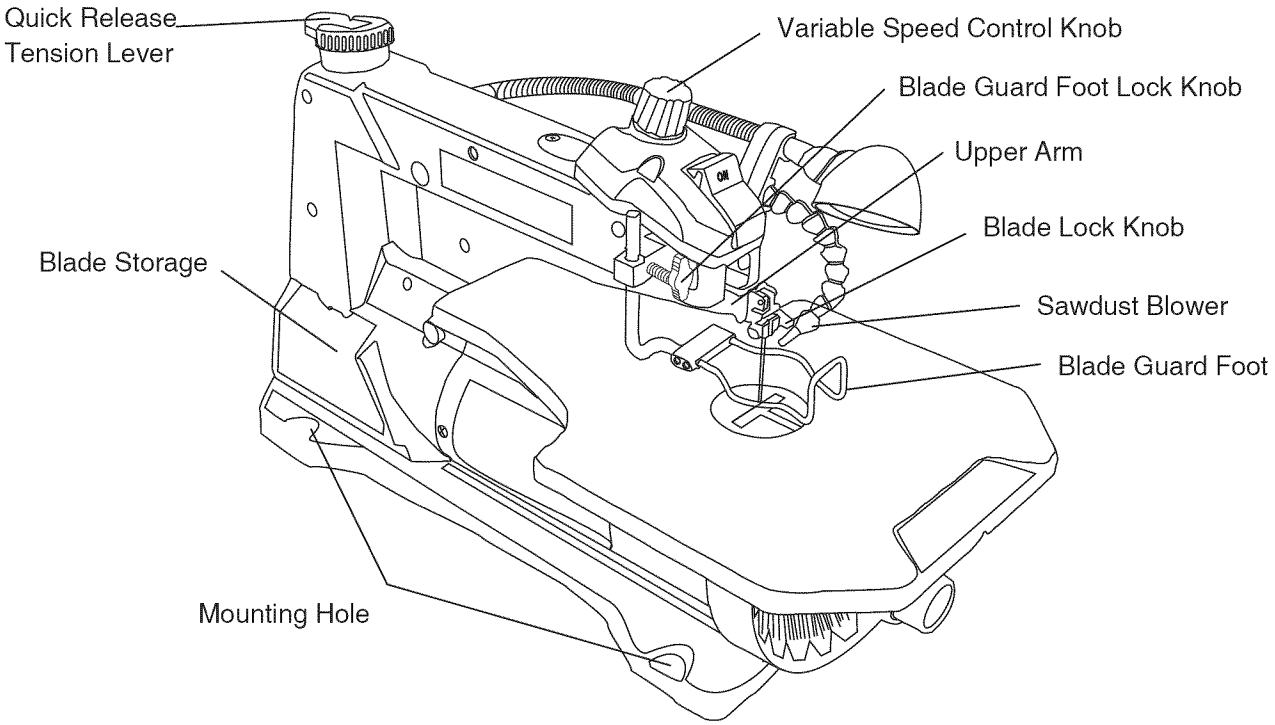
Do not lift this saw by the arm that holds the blade, this may result in damage to the tool.

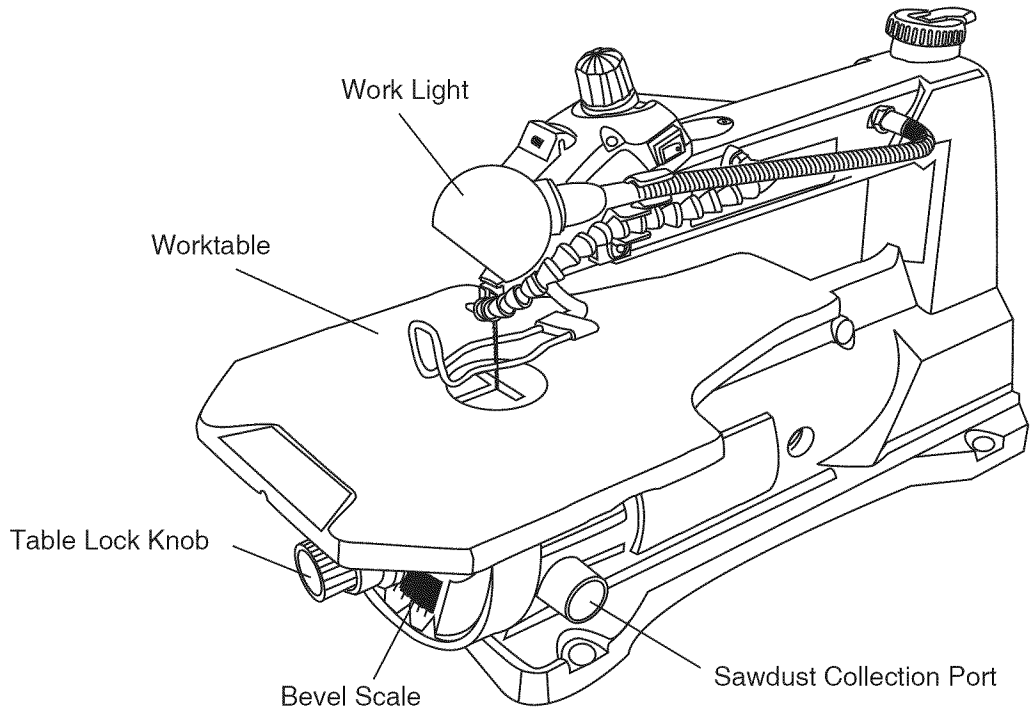
TABLE OF PARTS

ITEM	DESCRIPTION	QUANTITY
A	Scroll Saw Assembly	1
B	Blade	1
C	Hex Wrench	1



KNOW YOUR SCROLL SAW





GLOSSARY OF TERMS

SCROLL SAW TERMS

BEVEL SCALE – Represents the degree of table angle, from 0° to 45°, when the table is tilted for bevel cutting.

BLADE GUARD FOOT – Guards the blade and keeps your work piece from rising. Helps protect fingers from blade contact.

BLADE GUARD FOOT LOCK KNOB – Allows you to raise or lower the foot, and lock it at the desired height.

BLADE HOLDERS – Retains and positions the blades.

BLADE STORAGE – Provides convenient easy access to extra blades or wrenches.

QUICK RELEASE TENSION LEVER – Quickly loosens and retightens the blade to its original tension. The tension lever quickly sets and resets the blade tension when performing interior cutting operations or changing blades.

SAWDUST BLOWER – Keeps sawdust from covering the line of sight for more accurate cuts. The best results occur when the blower tube is directed towards the blade and work piece.

SAWDUST COLLECTION PORT – Allows vacuum hose or attachments to be used to remove the sawdust from under the table and base.

TABLE LOCK KNOB – Securely locks the table at the angle desired for bevel cutting.

VARIABLE SPEED ON/OFF CONTROL KNOB – Variable switch dial allows greater versatility when cutting a variety of materials. Pull the control knob out to turn the scroll saw on. Adjust the speed to the desired setting, between 400 to 1600 strokes per minute (SPM), by turning the control knob clockwise or counter clockwise. Push the control knob in to turn the scroll saw off.

WOODWORKING TERMS

KERF – The slot cut by the blade.

LEADING EDGE – The front edge of the work piece that is guided into the blade.

SAW BLADE PATH – Area or line of sight of the work piece moving in line toward the saw blade edge.

BLADE TOOTH SET – The total width the blade will cut based on the distance from the outside point of one bent tooth to the outside point of the next bent tooth.

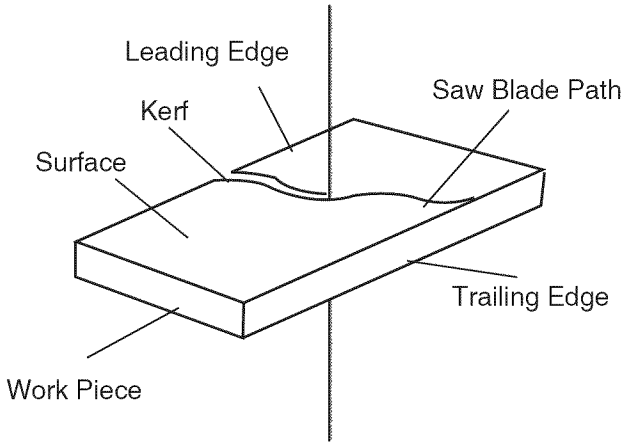
TRAILING EDGE – The end of the work piece edge last cut by the saw blade.

SURFACE – Top of work piece being cut.

WORKPIECE – Material on which the cutting operation is being performed.

FEED – Rate of speed of the material to be cut into the blade.

DEFLECTION – Slight movement of blade in the horizontal direction while the blade is moving inline during cutting operation. This may be caused by the blade following the grain or the path of least resistance.



ASSEMBLY AND ADJUSTMENTS

Estimated Assembly Time 10~15 minutes

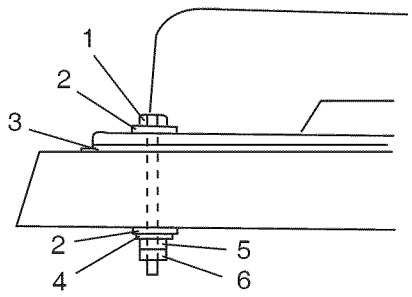
CAUTION

To avoid injury, do not connect this scroll saw to the power outlet until it is completely assembled and adjusted, and you have read and understood the entire instruction manual.

MOUNTING SCROLL SAW TO WORK SURFACE (FIG. 1)

1. If mounting the scroll saw to a workbench, a solid wood bench is preferred over a plywood board to reduce noise and vibration.
2. The hardware to mount this saw is NOT supplied with the saw. The hardware shown in Fig. B should be used:

Fig. 1

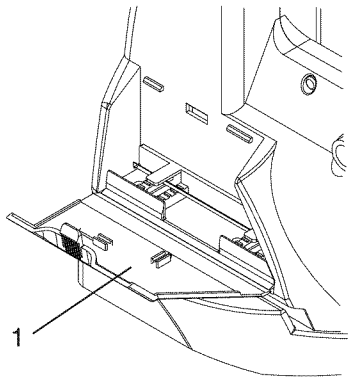


1. (3) Hex Head Bolts; length as required
2. (6) Flat Washers
3. Foam Pad or Carpet (optional)
4. (3) Lock Washers
5. (3) Hex Nuts
6. (3) Jam Nuts

BLADE STORAGE (FIG. 2)

The blade storage (1) is located on the left rear side of the scroll saw body. Pull out the blade storage to open. The blade storage can conveniently store your hex wrenches, and both Pin-end and Plain-end blades.

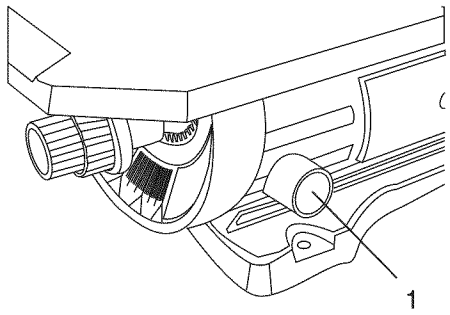
Fig. 2



SAWDUST COLLECTION PORT (FIG. 3)

This scroll saw will accept a hose or vacuum accessory (not provided) to be connected to the port (1) on the right side of base. If excessive sawdust buildup occurs inside the base, use a wet /dry vacuum cleaner or manually remove sawdust by removing the screws on the right side of saw. Reattach the metal plate and screws before starting the saw. This will keep your saw cutting efficiently.

Fig. 3



BLADE REMOVAL AND INSTALLATION

PLAIN-END BLADE REMOVAL AND INSTALLATION

This scroll saw accepts 5 inch Plain-end or Pin-end blades to cut a wide variety of materials.

Plain-end type blades are recommended whenever fine, accurate and intricate work is being performed on 3/4 in. or thinner material. It will take slightly longer to assemble the blade and blade tension, but you will also be able to use finer blades for cutting a thinner kerf.

CAUTION

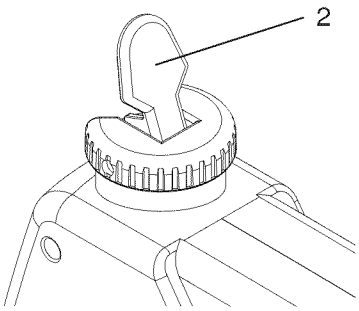
To avoid injury from accidental starting, always turn the switch off and remove plug from power outlet before removing or replacing the blade.

ASSEMBLY

PLAIN-END BLADE REMOVAL (FIG. 4, 5, 6)

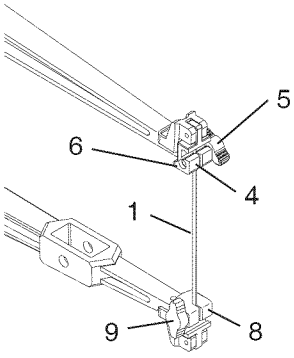
1. To remove blade (1), loosen the blade tension by lifting the quick release tension lever (2).

Fig. 4



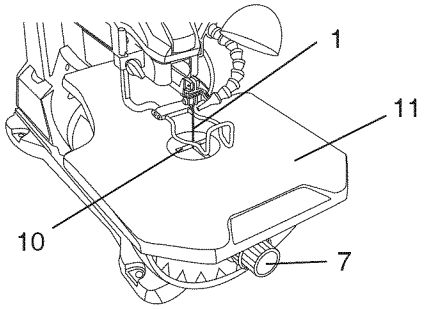
2. Loosen upper blade holder (4) by turning the quick release knob (5) counterclockwise.
   Note: The hex set screw (6) on the left side is used for fine adjustments and is only adjusted if the blade is not perpendicular to the table.

Fig. 5



3. Tilt the table 0° and tighten the bevel knob (7). Loosen the lower blade holder knob (9) under the table on the left side of the lower blade holder (8) by turning it counterclockwise. (Fig. 5, 6)
4. Remove blade (1) from upper (4) and lower blade holders (8) by pulling forward and lifting the blade through the access hole (10) in the table (11). (Fig. 5, 6)

Fig. 6

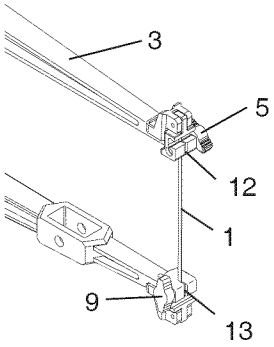


PLAIN-END BLADE INSTALLATION (FIG. 6, 7, 8)

CAUTION
In order to avoid uncontrollable lifting of the work piece, the teeth of the blade should ALWAYS point downward.

1. Install the blade (1) through the access hole (10) in the table (11) with teeth pointing down. (Fig. 6)
2. Insert the new blade (1) into the lower blade holder slot (13), then tighten the lower blade holder knob (9). (Fig. 7)

Fig. 7

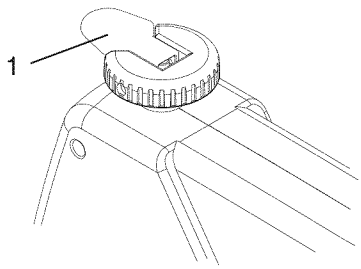


3. Tilt the table to 0° bevel setting and lock the bevel knob (7). (Fig. 6)
4. Insert the other end of the blade into the upper blade holder slot (12) and then tighten the quick release knob (2). (Fig. 7)
   NOTE: Apply slight downward pressure against the upper arm (3) when installing the blade into the upper blade holder. (Fig. 7)

5. Tighten the tension on the blade (1) by turning the quick release lever (2) clockwise. Push the lock lever downward. Check the tension on the blade. If too loose, turn lever clockwise. Do not make it too tight or blade will break easily when used. (Fig. 8)

   NOTE: The quick release lever handle must always be down to make the tension adjustments. Release the quick release lever upward only during blade changing operations. If the blade is over-tightened, the lever will be difficult to lower.

Fig. 8



ASSEMBLY

PIN-END BLADE REMOVAL AND INSTALLATION

CAUTION
To prevent personal injury, always turn the saw off and disconnect the plug from the power outlet before changing blades or making adjustments.

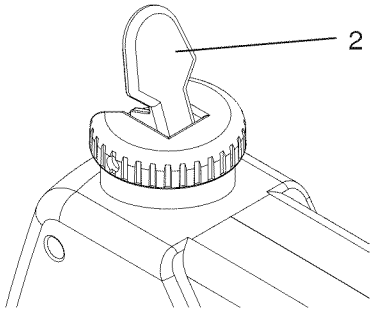
Pin-end type blades are thicker for stability and faster assembly. These blades are used whenever faster cutting on a variety of materials and ¾-inch thickness or greater are required. Use whenever less precision or thicker kerf cutting is acceptable.

NOTE: When installing Pin-end blades, the set screws located on the upper and lower blade holders should not be over or under tightened. The slot must be slightly wider than the thickness of the blade. After the blade is installed, the blade tension mechanism will keep the Pin-end in place.

PIN-END BLADE REMOVAL (FIG. 9, 10)

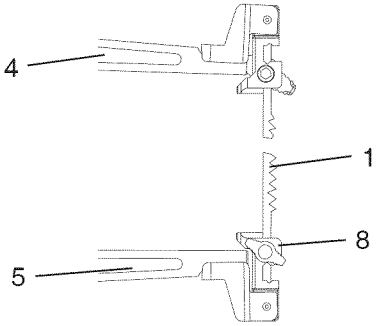
1. To remove the blade (1), loosen the tension by lifting the quick release tension lever (2). (Fig. 9)

Fig. 9



2. Remove the blade (1) from the upper (4) and lower (5) blade holder by pulling forward to release. Lift the blade through the access hole. (Fig. 10)

Fig. 10



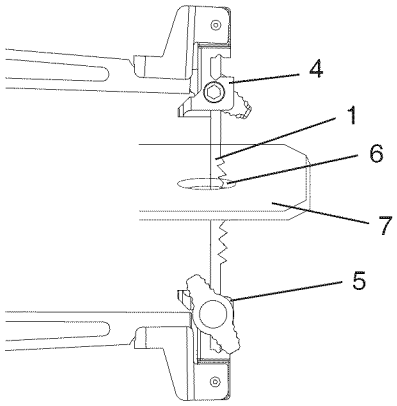
3. Tilt the table to a 45° angle, and lock the bevel lock knob to view lower blade holder (8). (Fig. 10)
   NOTE: Apply slight downward pressure on the upper arm when removing blade from upper blade holder.

PIN-END BLADE INSTALLATION (FIG. 11, 12)

CAUTION: In order to avoid uncontrollable lifting of the work piece, the teeth of blade should always point downward.

1. Install the blade (1) by inserting one end of it through the access hole (6) or throat plate in the table. Hook the lower blade pin in the pin recess in the lower blade holder (5) and then the upper blade pin in the upper blade holder (4). (Fig. 11)

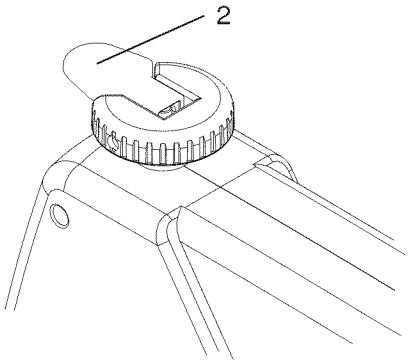
Fig. 11



2. Make sure the pins are properly located in the upper (4) and the lower (5) blade holders. Move the table (7) to the 0° bevel position by unlocking the bevel lock knob.

3. To tension the blade (1), lower the quick release tension lever (2). Check the tension on the blade. If tension is too tight, turn the lever counterclockwise. If tension is too loose, turn the lever clockwise (Fig. 12).
   NOTE: If the blade is over tensioned, the lever will be difficult to lower and could result in damage to the blade holder or arm assembly.

Fig. 12



ADJUSTMENT

BLADE GUARD FOOT ADJUSTMENT (FIG. 13, 14)

When cutting at angles, the table guard foot (1) should be adjusted so it is parallel to the table and rests flat above the work piece.

1. To adjust, loosen the screw (2), and tilt the foot so it is parallel to the table. Tighten the screw.
2. Loosen the knob (3) to raise or lower the foot until it just rests on top of the work piece. Tighten knob.

NOTE: To remove the blade guard foot (1), loosen the hex screw (2). Use a hex wrench to turn the screw counterclockwise.

Fig. 13

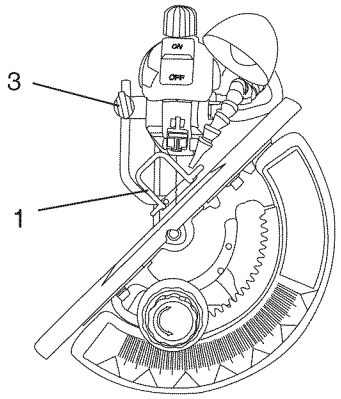
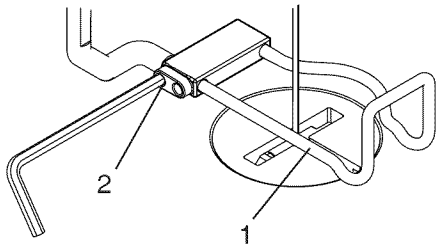


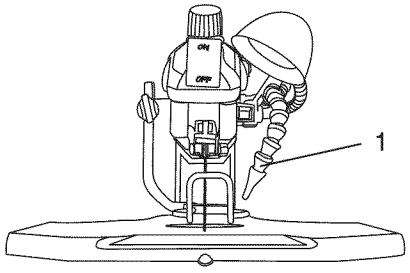
Fig. 14



SAWDUST BLOWER (FIG. 15)

The sawdust blower (1) should be positioned to point to the blade and work piece to blow sawdust out of the line-of sight when cutting. It is not designed to blow all of the sawdust off the table.

Fig. 15



BLADE SELECTION (FIG. 16)

CAUTION

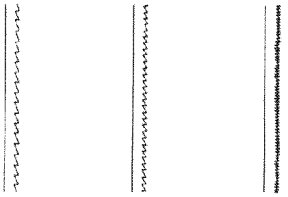
To avoid injury from accidental starting, always turn the switch off and unplug the scroll saw before moving, replacing the blade or making adjustments.

This scroll saw accepts 5 inch length blades with a wide variety of blade thickness and widths. The type of material and cutting operations (size of radius or curve) will determine the number of teeth per inch. As a rule, always select the narrowest blades for intricate curve cutting and the widest blades for straight and large curve cutting operations.

The following table represents suggestions for various materials. When purchasing blades, refer to the back of the package for the best use of blades and speeds on various materials.

Use this table as an example, but practice and your own personal preference will determine the best selection method.

Fig. 16



TEETH/ INCH TPI	BLADE WIDTH INCH	BLADE THICKNESS INCH	BLADE/ SPM	MATERIAL CUT
9.5-15	0.110	0.018	400-1200	Medium turns on 1/4 in. to 1-3/4 in. wood, soft metal, hardwood
15-28	.055-.110	.010-.018	800-1800	Small turns on 1/8 in. to 1-1/2 in. wood, soft metal, hardwood
30-48	.024-.041	.012-.019	Varies	Non-ferrous metals/hardwoods using very slow speeds

Note: When using blades, sometimes speed must change to compensate for smaller curves or smaller diameters. Thinner blades will have more possibilities for blade deflection when cutting angles that are not perpendicular to the table. Read BASIC SCROLL SAW OPERATION for more suggestions.

NOTE: The blade must be installed with the teeth pointing downward, as shown in Fig. 16, to prevent the work piece from being pulled upward by the saw blade action.

OPERATION

VARIABLE SPEED CONTROL ON/OFF SWITCH

CAUTION

For your own safety, always turn the saw off when the scroll saw is not in use. Also, in the case of power failure (all of your lights go out) turn the saw off. Remove the plug from the power outlet to avoid accidental starting. The variable speed control allows greater versatility to cut a variety of materials such as wood, plastics, non-ferrous metals, etc. Depending upon the hardness and thickness of the material, the speed should be reduced to allow the blade teeth to remove cut material from the kerf.

REPLACING THE BULB

1. Use only a 10 watt maximum, candelabra base bulb. Turn the light switch off and unplug the saw.
2. Remove old bulb. Place new bulb into socket.

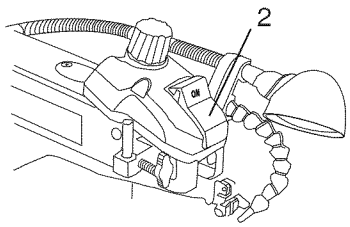
ON/OFF SWITCH (FIG. 17)

1. To turn power on or off, push the power switch.

VARIABLE SPEED SWITCH

1. Your saw is equipped with a variable speed dial. The blade stroke rate may be adjusted by simply rotating the dial. To increase speed, rotate dial clockwise. To reduce speed, rotate dial counterclockwise.

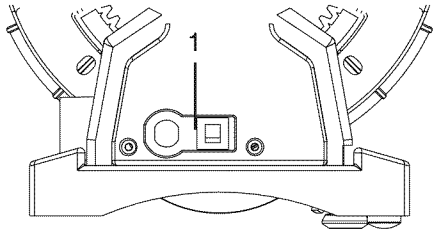
Fig. 17



OVERLOAD BREAKER (FIG. 17, 18)

When the motor becomes too hot during operation, the overload breaker (1) will cause the motor to stop automatically to prevent damage. Push the toggle switch in (2) to turn saw off. Do not restart until the motor has had time to cool. Push the breaker switch (1) in, and switch the toggle switch to on to start the saw.

FIG. 18



RECOMMENDATIONS FOR CUTTING

1. When feeding the work piece into the blade, do not force the leading edge of the work piece into the blade because the blade will deflect, reducing the accuracy of the cut and possibly breaking the blade. Allow the saw to cut material by guiding the work piece into the blade as it cuts.
2. The blade teeth cuts material ONLY on the down stroke.
3. You must guide the wood into the blade slowly. The teeth of the blade are very small and they can only remove wood when they are on the down stroke.
4. There is a learning curve for each person who wants to use this saw. During this period of time, some blades will break until you learn how to use the saw and receive the greatest benefit from the blades.
5. The best results are achieved when cutting wood less than one inch thick.
6. When cutting wood thicker than one inch, the user must guide the wood very slowly into the blade and take extra care not to bend or twist the blade while cutting.
7. The teeth on the scroll saw blades wear out and must be replaced frequently for best cutting results. Scroll saw blades generally stay sharp for 1/2 to 2 hours of cutting.
8. To get accurate cuts, be prepared to compensate for the blade's tendency to follow the wood grain as you are cutting.
9. This scroll saw is intended to cut wood or wood products. Precious and non-ferrous perform well on scroll saws that have very slow speed capability, and should be lubricated with machine oil or beeswax.
10. When choosing a blade to use with your scroll saw, consider very fine, narrow blades to scroll cut in thin wood 1/4 in. thick or less. Use wider blades for thicker materials; however this will reduce your ability to cut tight curves.
11. This saw uses 5 inch long Pin or Plain-end type blades.
12. Blades wear faster when cutting plywood or particle board, that is abrasive. Angle cutting in hardwoods reduces the blade set faster due to blade deflection.

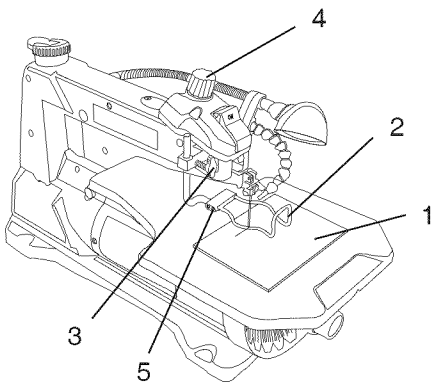
OPERATION

FREEHAND CUTTING (FIG. 19)

CAUTION
To avoid injury from an accidental start, make sure the switch is in the OFF position, and the plug is not connected to the power outlet.

1. Lay out desired design, or secure design to the work piece (1).
2. Raise the blade guard assembly (2) by loosening the height adjustment knob (3).
3. Position the work piece against the blade (3) and place the blade guard foot against the top surface of the work piece.
4. Secure the blade guard assembly (2) by tightening the height adjustment knob (3).
5. Remove the work piece from the blade prior to turning the scroll saw on. Pull the speed control knob (4) out and set the desired speed by turning the control knob clockwise or counterclockwise.
   CAUTION: In order to avoid uncontrollable lifting of the work piece and to reduce blade breakage, do not pull the control knob on while the work piece is against the blade.
6. When turning the scroll saw on, position the work piece against scrap wood prior to touching the leading edge of the work piece against the blade.
7. Slowly feed the work piece into the blade by guiding and pressing the work piece down against the table.
   CAUTION: Do not force the leading edge of the work piece into the blade. The blade will deflect, reducing accuracy of cut, and may break.
8. When the cut is complete, move the trailing edge of the work piece beyond the blade guard foot. Push the control knob in to turn the scroll saw off.

Fig. 19

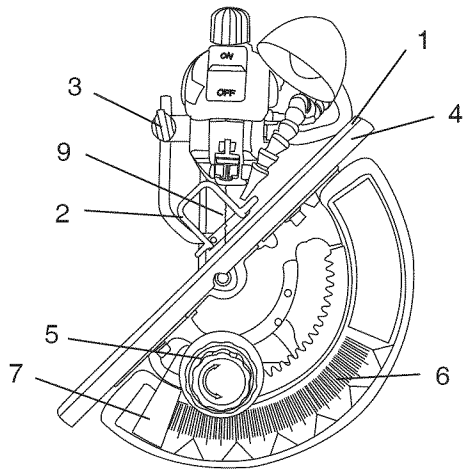


ANGLE CUTTING (FIG. 20)

CAUTION
To avoid injury from an accidental start, make sure the switch is in the OFF position, and the plug is not connected to the power outlet before moving, replacing blade or making adjustments.

1. Lay out or secure design to work piece (1).
2. Move the blade guard assembly (2) to the highest position by loosening the height adjustment knob (3) and retightening.
3. Tilt the table (4) to the desired angle by loosening the table lock knob (5). Move the table to the proper angle, using the degree scale (6) and the pointer (7).
4. Tighten the table lock knob (5).
5. Loosen the blade guard screw (5) (Fig. 19). Tilt the blade guard to the same angle as the table (4). Retighten the blade guard screw.
6. Position the work piece on the left and right side of the blade (9). Lower the blade guard foot against the surface by loosening the height adjustment knob (3).
7. Follow items 4-8 under FREEHAND CUTTING OPERATION.

Fig. 20



OPERATION

RIP OR STRAIGHT LINE CUTTING (FIG. 21)

CAUTION

To avoid injury from accidental starting, make sure the switch is in the OFF position and the plug is not connected to the power outlet before moving, replacing blade or making adjustments.

Required Tools

QUANTITY	DESCRIPTION
2	Small C-clamps
1	Ruler or Measuring Tape
1	12-inch Straight Scrap of Wood (Thickness to match workpiece)

1. Raise the blade guard foot (1) by loosening the height adjustment knob (2) on the right side of the upper arm. Measure from the tip of the blade (3) to the desired distance. Position the straight edge (4) parallel to the blade at that distance.
2. Clamp the straight edge to the table (5).
3. Recheck your measurements, using the work piece to be cut, and make sure the scrap wood is secure.
4. Position the work piece against the blade and place the blade guard foot (1) against the top surface of the work piece.
5. Secure the blade guard foot in place by tightening the height adjustment knob.
6. Remove the work piece from the blade prior to turning the scroll saw on. Pull the speed knob control out. Set the desired speed by turning the control knob clockwise or counterclockwise.

   CAUTION

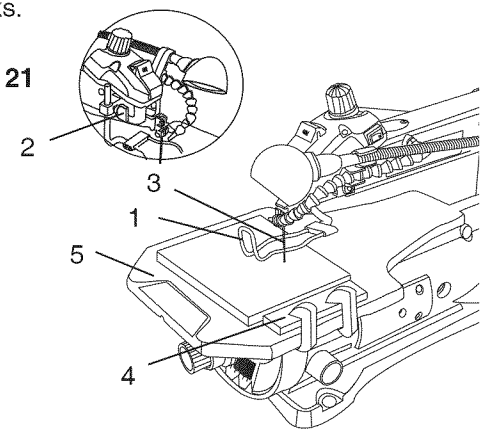
   In order to avoid uncontrollable lifting of the work piece and to reduce blade breakage, do not turn the saw on while the work piece is against the blade.
7. Position the work piece against the straight edge prior to touching the leading edge of the work piece against the blade.
8. Slowly feed the work piece into the blade, guiding the work piece against the straight edge. Press the work piece down against the table while cutting.

   CAUTION

   Do not force the leading edge of the work piece into the blade. The blade will deflect, reducing accuracy of cut, and may break.
9. When the cut is complete, move the trailing edge of the work piece beyond the blade guard foot. Push the control knob in to turn the scroll saw off.

   NOTE: When cutting a narrow work piece, use push sticks.

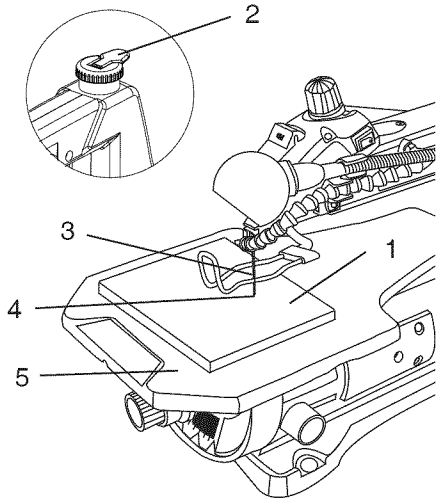
Fig. 21



INTERIOR CUTTING (FIG. 22)

1. Lay out the design on the work piece (1). Drill a 1/4-inch hole into the work piece .
2. Release the quick release tension lever (2), and remove the blade (3). Refer to BLADE REMOVAL AND INSTALLATION.
3. Place the work piece on the saw table with the hole (4) over the access hole in the table (5).
4. Install the blade (3) through the hole in the work piece and lower the quick release tension lever (2).
5. Follow steps 3-9 under FREEHAND CUTTING OPERATIONS.
6. When finished making the interior scroll cuts simply turn the scroll saw off. Remove the blade from the blade holder, and remove the work piece from the table.

Fig. 22



MAINTENANCE

CAUTION

For your own safety, turn the switch off and remove the plug from the power outlet before cleaning or performing maint enance on the saw.

GENERAL

An occasional coat of paste wax on the work table will allow the wood being cut to glide smoothly across the work surface.

MOTOR

1. If the power cord is worn, cut, or damaged in any way, have it replaced immediately.
2. Do not attempt to oil the motor bearings or service the motor internal parts.

TROUBLESHOOTING GUIDE

CAUTION

To avoid injury from accidental starting, always turn switch off. Unplug the tool before moving, replacing the blade or making adjustments. Consult your local service center if for any reason the motor will not run.

PROBLEM	PROBLEM CAUSE	REMEDY SUGGESTED
Breaking blades.	1. Wrong tension. 2. Overworking blades. 3. Wrong blade application. 4. Twisting blade in wood.	1. Adjust blade tension. 2. Reduce feed rate. 3. Use narrow blade. 4. Avoid side pressure on blade.
Motor will not run.	1. Defective cord or plug. 2. Defective motor. 3. Blown overload breaker.	1. Replace defective parts before using saw again. 2. Call service center. Any attempt to repair this motor may create a hazard unless the repair is done by a qualified technician. 3. Push the motor switch to the OFF position. Let the motor cool.
Excessive vibration. **Note**: There will always be some vibration present when the saw is running because of motor operation.	1. Improper mounting of saw. 2. Unsuitable mounting surface. 3. Loose table or table resting against motor. 4. Loose motor mounting.	1. See mounting instructions in this manual for proper mounting technique. 2. The heavier your workbench is, the less vibration will occur. A plywood workbench will not be as good a work surface as the same size solid lumber. Use common sense in choosing a mounting surface. 3. Tighten the table lock knob. 4. Tighten motor mounting screw.
Blade run out. Blade not in line with arm motion.	1. Blade holders not aligned.	1. Loosen cap screws holding blade holder to arms. Adjust position of blade holders. Retighten cap screw.

PARTS LIST

I.D. NO.	DESCRIPTION	SIZE	QTY	I.D. NO.	DESCRIPTION	SIZE	QTY
04Q4	STICKER		1	0KEE	CR. RE. PAN HD. SCREW	M5*0.8-50	4
0751	PLUNGER HANDLE		1	0KKJ	CR.RE. PAN HD. ROUND NECK SCREW	M4*0.7-12	2
075B	INSERT		1	0KQW	NUT CHUCK	M5*0.8 T=5	1
075L	PLUNGER HOUSING		1	0KQX	NUT	M6*1.0 T=6	1
08JA	SPRING		1	0KQY	NUT CHUCK	M8*1.25 T=8	1
0A98	COMPRESSION SPRING		1	0KTH	STRAIN RELIEF		1
0AM3	WASHER		1	0KUX	TERMINAL		1
0AMW	SET PLATE		2	0L71	POWER CABLE		1
0C10	BLADE		1	0LSR	CIRCUIT BREAKER SWITCH		1
0C12	BLADE		1	0LYN	STEEL BALL	Φ10	1
0C15	BEARING SEAT		4	0U7V	CR. RE. TRUSS HD. TAPPING SCREW	M4*16-16	1
0CDD	FOOT		4	0ZW4	MOTOR		1
0DDW	UPPER ARM ROCKER ASS'Y	#06	1	0ZW9	BRACKET-TILT		1
0DF1	CONTROLLER ASS'Y		1	0ZWG	BEARING SEAT ASS'Y		1
0DF6	BELLOWS		1	0ZWJ	BUSH		2
0DF8	PLUG HOUSING		1	0ZWK	POINTER		1
0DG2	PVC HOSE		1	0ZWL	HOUSING	#AW	1
0DG4	AIR DUCT ASS'Y		1	0ZWN	SUPPORT ROD		1
0FPN	EXTENSSION SPRING	WD=Φ0.8 L=52	1	0ZWR	HOLDER BLADE ASS'Y		2
0G1U	DUST SHIELD		4	0ZWX	BOTTOM ARM ROCKER	#06	1
0GXP	CLAMP-CORD		4	0ZX1	CONNECTOR BOX		1
0GXQ	PLUNGER HOUSING		1	0ZX3	CONNECTOR BOX COVER		1
0GXR	SHAFT-PIVOT		1	0ZX6	PUSH BUTTON		1
0HFX	BOLT CLAMP		1	10QX	ECCENTRIC ASS'Y		1
0J3M	HEX WRENCH		1	20P1	CLAMP PLATE		1
0J4U	FLAT WASHER	Φ6*18-1.5	7	20XY	HEX.SOC. HD.CAP SCREW	M6*1.0-20	2
0J66	FLAT WASHER	Φ4*10-1	1	22KK	GUIDE CLAMP		1
0J91	SPRING WASHER	Φ4	2	22VH	HOUSING RIGHT	#AW	1
0JAE	EXTERNAL TOOTH LOCK WASHER	Φ4	1	27Y7	LEAD WIRE ASS'Y		1
0JAZ	WAVE WASHER	WW-6	1	2AN6	SWITCH BOX COVER		1
0JB0	WAVE WASHER	WW-8	2	2AN8	TABLE	#AW	1
0JPG	HEX HD. BOLT	M6*1.0-30	5	2AN9	SWITCH BOX		1
0JU4	HEX SOC. HD. CAP BOLT	M4*0.7-10	2	2AYB	BASE	#06	1
0JUZ	HEX SOC. HD. CAP BOLT	M8*1.25-40	1	2BL7	BLADE BOX		1
0JVD	HEX SOC. HD. CAP BOLT	M5X0.8-35	1	2BLA	TRUNNION BRACKET		1
0JX7	HEX SOC. SET SCREW	M6*1.0-6	2	2BLC	PLATE COVER		1
0JX8	HEX SOC. SET SCREW	M6*1.0-8	1	2BQ6	OPERATOR'S MANUAL ASS'Y		1
0JXR	HEX SOC. SET SCREW	M8*1.25-8	1	2BR1	TENSION HANDLE		1
0K23	HEX SOC. HD.CAP SCREW	M6X1.0-16	2	2BR8	INDICATED BUTTON		1
0K2B	HEX SOC. HD.CAP SCREW	M6*1.0-16	3	2BUH	TRADE-MARK LABEL		1
0K56	CR. RE. COUNT HD. SCREW	M5*0.8-12	2	2BUJ	TRADE-MARK LABEL		2
0K70	CR. RE. TRUSS HD. SCREW	M4*0.7-16	1	2BUK	TILTING SCALE		1
0K71	CR. RE. TRUSS HD. SCREW	M5*0.8-8	2	2BUL	LABEL		1
0K7G	CR. RE. ROUND WASHER HD. SCREW	M5*0.8-12	1	2BUM	CAUTION LABEL		1
0KA9	CR. RE. PAN HD. TAPPING SCREW	M3*24-10	2	2BXQ	LINGAGE BAR ASS'Y		1
0KBC	CR. RE. PAN HD. TAPPING SCREW	M5*16-25	2	2BY8	ROCKET SWITCH		2
0KBD	CR. RE. PAN HD. TAPPING SCREW	M4X18-25	4	2CDB	WARNING LABEL		1
0KD7	CR. RE. PAN HD. SCREW	M4*0.7-10	1	2CDC	LABEL		1
0KDK	CR. RE. PAN HD. SCREW	M5*0.8-16	3	2CDE	TABLE LABEL		1
0KDM	CR. RE. PAN HD. SCREW	M5*0.8-20	3	2CDH	LAMP ASS'Y		1
0KDR	CR. RE. PAN HD. SCREW	M5*0.8-10	6				

EXPLODED VIEW