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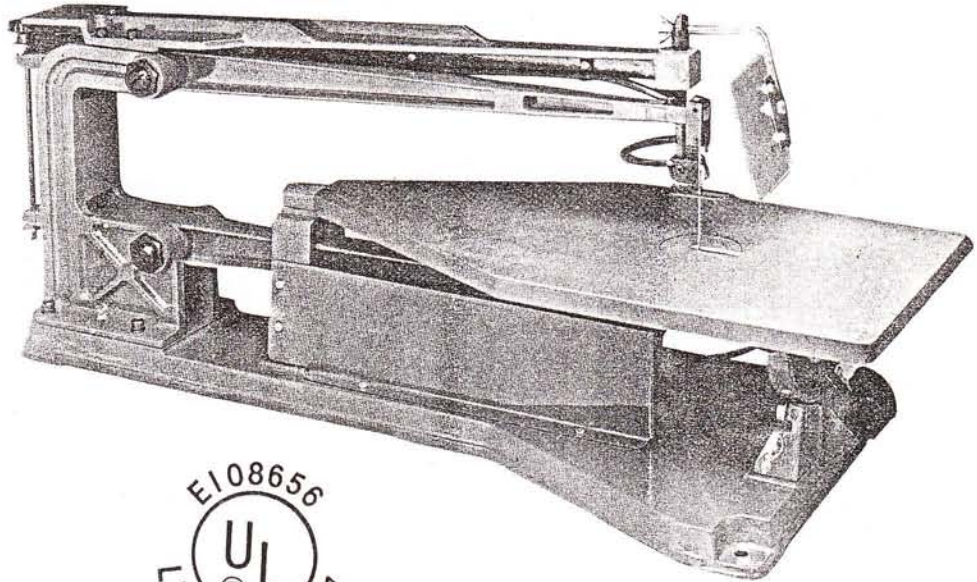
23" SCROLL SAW MODEL 4671

owners manual

- *assembly*
- *operating*
- *repair parts*

CAUTION:

Read SAFETY
RULES and
INSTRUCTIONS
carefully



GENERAL SAFETY RULES FOR POWER TOOLS



1. KNOW YOUR POWER TOOL

For your own safety, read the owner's manual carefully. Learn its application and limitations as well as the specific potential hazards peculiar to this tool.

2. GROUNDING INSTRUCTIONS

A. All grounded, cord-connected tools:

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 serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong

grounding plugs, and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn cord immediately.

B. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 volts:

GROUNDING METHODS

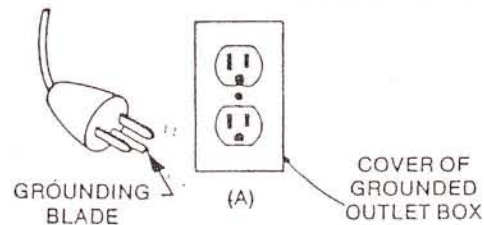


Figure 1 — Wiring Methods

This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A in Figure 1. The tool has a grounding plug that looks like the plug illustrated in Sketch A in Figure 1. A temporary adapter, which looks like

3. **KEEP GUARDS IN PLACE**
and in working order.
4. **REMOVE ADJUSTING KEYS AND WRENCHES**
Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning on tool.
5. **KEEP WORK AREA CLEAN**
Cluttered areas and benches invite accidents.
6. **DON'T USE IN DANGEROUS ENVIRONMENT**
Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well illuminated.
7. **KEEP CHILDREN AWAY**
All visitors should be kept a safe distance from work area.
8. **MAKE WORKSHOP KID PROOF**
with padlocks, master switches, or by removing starter keys.
9. **DON'T FORCE TOOL**
It will do the job better and be safer at the rate for which it was designed.
10. **USE RIGHT TOOL**
Don't force tool or attachment to do a job for which it was not designed.
11. **WEAR PROPER APPAREL**
No loose clothing, gloves, neckties, rings, bracelets, or jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
12. **ALWAYS USE SAFETY GLASSES**
Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses. They are NOT safety glasses.
13. **SECURE WORK**
Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
14. **DON'T OVERREACH**
Keep your proper footing and balance at all times.
15. **MAINTAIN TOOLS IN TOP CONDITION**
Keep tools sharp and clean for best and safest

performance. Follow instructions for lubricating and changing accessories.

16. **DISCONNECT TOOLS FROM POWER SOURCE**
before servicing and when changing accessories such as blades, bits, cutters, or when mounting and re-mounting motor.
17. **AVOID ACCIDENTAL STARTING**
Make sure switch is in "OFF" position before plugging in cord.
18. **USE RECOMMENDED ACCESSORIES**
Consult the owner's manual for recommended accessories. Use of improper accessories may be hazardous.
19. **NEVER STAND ON TOOL**
Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
20. **CHECK DAMAGED PARTS**
Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure 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.
21. **DIRECTION OF FEED**
Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
22. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.**
Don't leave tool until it comes to a complete stop.

! WARNING: DO NOT ALLOW FAMILIARITY (GAINED FROM FREQUENT USE OF YOUR EVACUATOR) TO BECOME COMMONPLACE. ALWAYS REMEMBER THAT A CARELESS FRACTION OF A SECOND IS SUFFICIENT TO INFLICT SEVERE INJURY.



The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety goggles complying with ANSI Z87.1 (shown on Package) before commencing power tool operation.

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ADDITIONAL SAFETY INSTRUCTIONS FOR SCROLL SAW

Safety is a combination of operator common sense and alertness at all times when the scroll saw is being used.

WARNING: FOR YOUR OWN SAFETY, DO NOT ATTEMPT TO OPERATE YOUR SCROLL SAW UNTIL IT IS COMPLETELY ASSEMBLED AND INSTALLED ACCORDING TO THE INSTRUCTIONS. . .AND UNTIL YOU READ AND UNDERSTAND THE FOLLOWING:

1. Your scroll saw must be bolted securely to a stand or work bench. In addition, if there is any tendency for the scroll saw to move during certain operations, bolt your scroll saw stand or workbench to the floor.
2. This scroll saw is intended for indoor use only.
3. Wear safety goggles that comply with ANSI Z87.1 and a face shield if operation is dusty. Wear ear plugs or muffs during extended periods of operation. Do not wear gloves...roll long sleeves above the elbow.
4. Do not cut pieces of material too small to hold by hand.
5. Avoid awkward hand positions where a sudden slip could cause a hand to move into the blade.
6. Never turn your scroll saw "ON" before clearing the table of all objects (tools, scraps of wood, etc.,) except for the workpiece and related feed or support devices for the operation planned.
7. Make sure the blade teeth point downward toward the table.
8. Always adjust blade tension correctly.
9. When cutting a large piece of material, make sure it is supported at table height.
10. Hold the work firmly against the table.
11. Do not feed the material too fast while cutting. Only feed the material fast enough so that the blade will cut. Keep fingers away from the blade.
12. Use caution when cutting off material which is irregular in cross section which could pinch the blade before the cut is completed. A piece of molding for example must lay flat on the table and not be permitted to rock while being cut.
13. Use caution when cutting off round material such as dowel rods, or tubing. They have a tendency to roll while being cut causing the blade to "bite".
14. When backing the blade out of the workpiece, the blade may bind in the kerf (cut)...this is usually caused by sawdust clogging up the kerf. If this happens: Turn off the scroll saw...remove plug from power source outlet...wedge open the kerf...back the blade out of the workpiece.
15. Never leave the scroll saw work area with the power on, before the machine has come to a complete stop.
16. Do not perform layout, assembly, or setup work on the table while the cutting tool is operating.
17. Turn saw "OFF" and remove plug from power supply outlet before installing or removing an accessory or attachment.
18. Should any part of this scroll saw be missing, bent, or fail in any way, or any electrical component fail to perform properly, shut off power switch and remove plug from power supply outlet. Replace damaged, missing, and/or failed parts before resuming operation.
19. Think Safety.
Safety is a combination of operator common sense and alertness whenever the scroll saw is in operation.

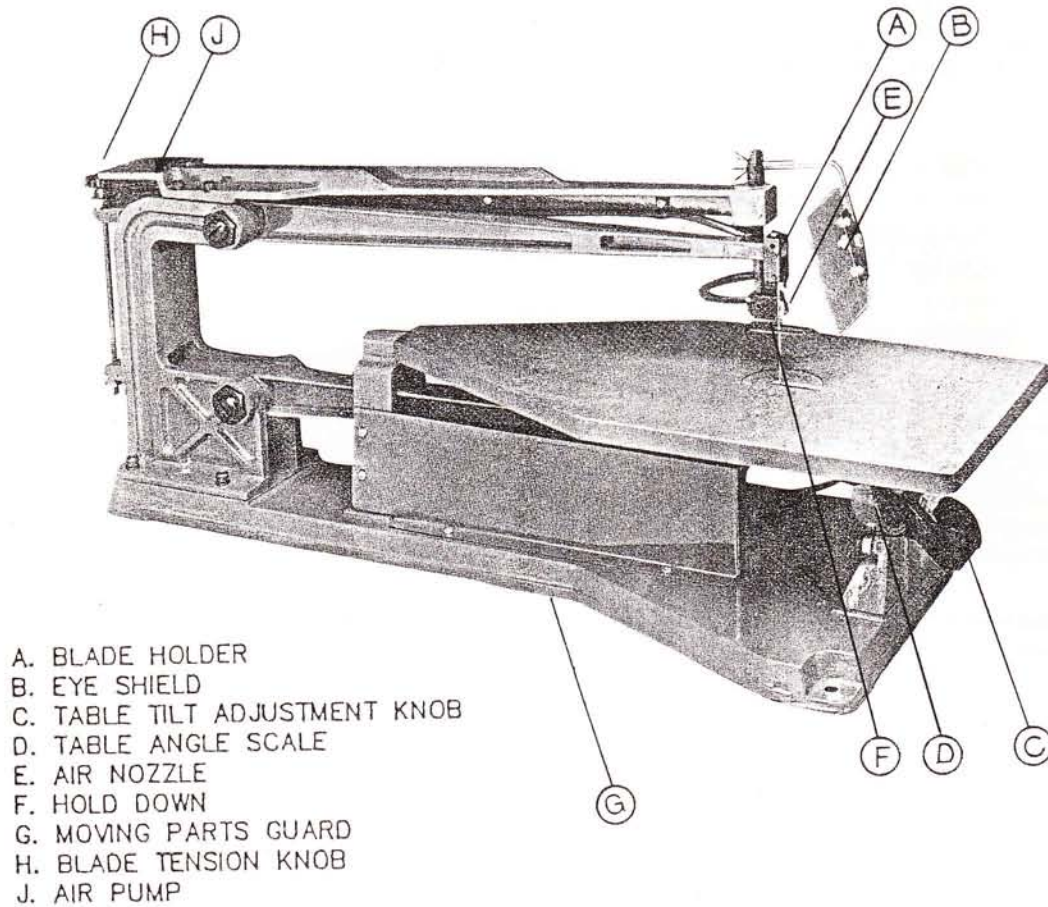
WARNING: ALWAYS KEEP ALERT. DO NOT ALLOW FAMILIARITY (GAINED FROM FREQUENT USE OF YOUR SCROLL SAW) TO CAUSE A CARELESS MISTAKE. ALWAYS REMEMBER THAT A CARELESS FRACTION OF A SECOND IS SUFFICIENT TO INFLICT SEVERE INJURY.

SPECIFICATIONS

- | | |
|------------------------------------|---|
| 1. Max. thickness of cut: 2-5/8" | 7. Table tilt: 0'-45° (Left) |
| 2. Blade length: 5" | 8. Base size: 29-1/2x12-5/8 |
| 3. Throat: 23" | 9. Net weight: 76LBS |
| 4. Stroke: 5/8" | 10. Gross weight: 8.6LBS |
| 5. Cuts per minute: 1720/860(60HZ) | 11. Machine Dimensions: 32"x14"x14 1/2" |
| 6. Table size: 20-1/2x10 | 12. Packing size: 36 1/2"x17 1/4"x16 1/2" |

CONTROLS AND ADJUSTMENTS

! CAUTION: MAKE SURE THE SWITCH IS OFF AND THE CORD IS UNPLUGGED BEFORE PERFORMING ANY CHECKS OR ADJUSTMENTS.



RECOMMENDED MOUNTING

If the Scroll Saw is to be used in a permanent location, it should be fastened securely to a firm supporting surface such as a workbench. Holes should be drilled through supporting surface of the workbench as illustrated. Each foot of the Scroll Saw should be bolted securely using 1/4" bolts, hex nuts and lock washers. Bolts should be of sufficient length to accommodate foot of Scroll Saw washer, hex nut and thickness of supporting surface. Tighten all 3 bolts securely. If the Scroll Saw is to be used in a portable application it is recommended that it be fastened to a mounting board. The board should be of sufficient size to avoid tipping of the Scroll Saw while in use. Any good grade of plywood or chipboard with a 3/4" minimum thickness is recommended. Mount Scroll Saw to the board using hole pattern as shown. Before each use, clamp board securely to workbench or supporting surface.

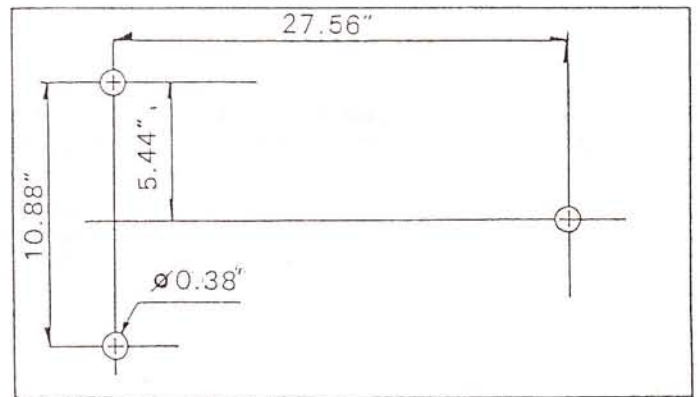


Fig 1.

TO ALIGN THE BEVEL INDICATOR

1. Loosen the table tilt adjustment knob by turning counterclockwise.
2. Place the square in front of the blade. The holddown device prevents placing the square directly against the blade, so gauge squareness of table to blade by viewing from the front of saw. (See Fig. 2a)
3. Move the table until the blade is parallel with the square, then tighten the tilt adjustment knob.
4. Loosen the screw holding the pointer for the table angle scale and adjust so it points to the zero and retighten the screw.
5. Loosen the hex head screw just above the pointer through the quad and slide the assembly until the flat side of the nut is against the side of the quad support. Retighten the hex head screw. This will set your zero stop. (See Fig2b)

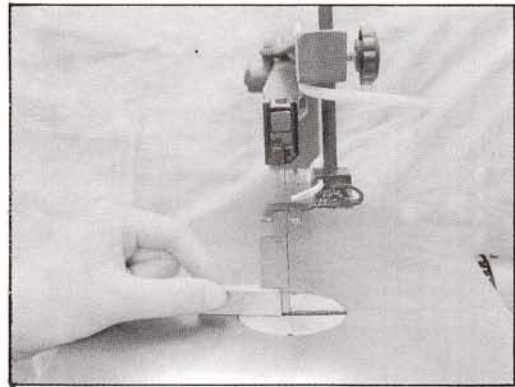


Fig. 2A



Fig. 2B

REMOVING AND INSTALLING BLADES

1. Remove the insert from the table.
2. Release the blade tension by turning the tension knob counterclockwise.
3. Slide the upper and lower blade holder from the arms by pulling outward on each holder.
4. Lay the assembly on a flat surface with the upper holder to your left, (See Fig. 3).
5. Loosen the set screw in each holder and remove the blade.
6. Install the new blade with the cutting edge up and the points toward your right. If installing a 5" pin blade the pins should be against the inner surface of the holder, (See Fig. 3), and if installing a plain end blade let the ends extend beyond the holder equal amounts on each end
7. When the blade is set, tighten the set screws.
8. Insert the lower end of the assembly through the opening in the table and push the holder on the lower arms so the pin is in the groove. Push the upper end of the assembly on the upper arm in similar fashion.
9. Carefully tighten the blade tension by turning the tension knob clockwise until you feel the slack in the blade is removed.

and set the overall length at $6 \frac{13}{16}'' \pm 1/16$, (See Fig. 4). If when using a pin blade the assembly is short, remove the blade from the holders, remove the pins from the blade, re-install blade following the procedure for plain end blade.

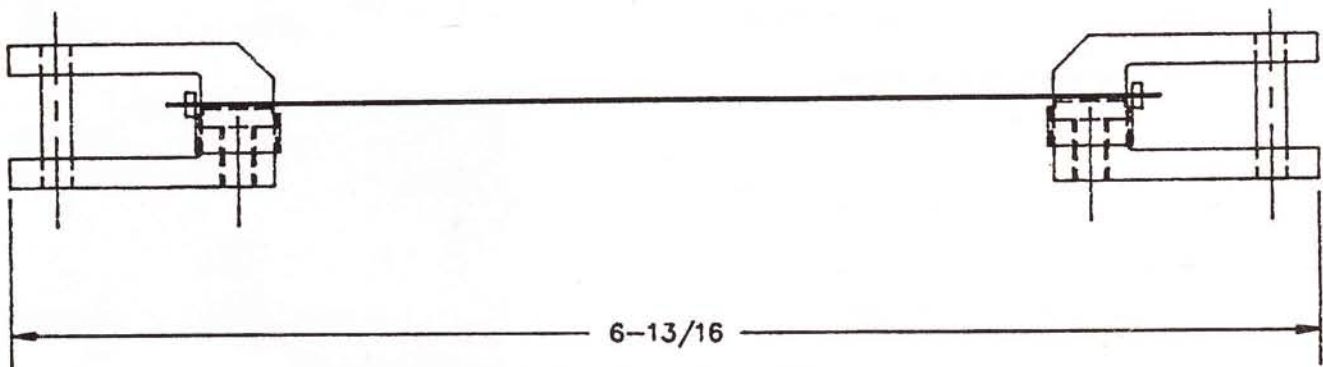


Fig. 3

PIN END BLADE INSTALLATION

REMOVING AND INSTALLING BLADES (continued)

10. Check to see that the pins in the upper and lower blade holders are in the grooves at the end of the arms. DELETE

12. Before applying power, turn the mechanism by hand to make certain this assembly is properly installed.

11. Replace the table insert.

13. When you are sure that everything is properly installed the saw is ready for use.

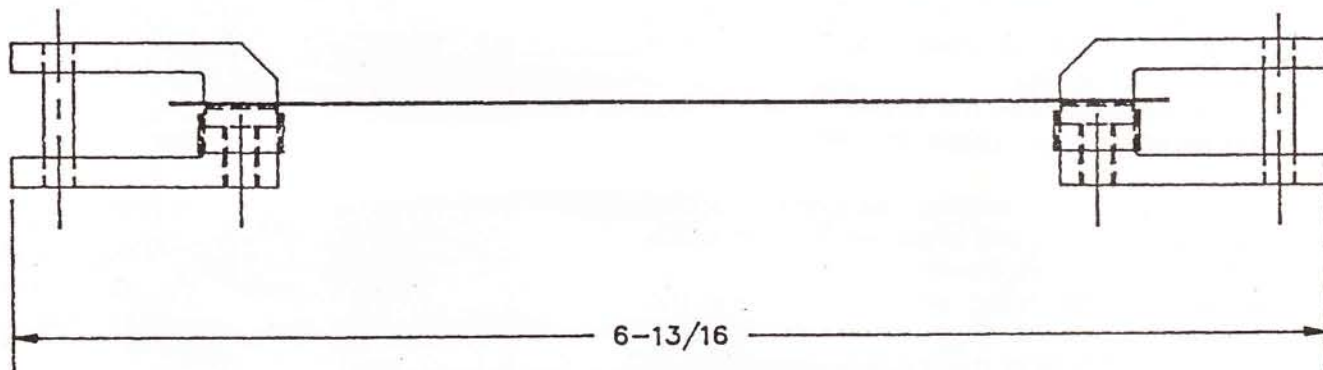


Fig. 4

PLAIN END BLADE INSTALLATION

OVERTENSIONING or **UNDERTENSIONING** of the blade will cause blades to break rapidly.

The thicker, harder and more abrasive the wood you are cutting the more blades you will have to use.

Blade breakage is caused by the following:

- overtension or undertension

- over working the blade by going too fast
- twisting or bending the blade
- over use—blade life exhausted
- **OVER AGGRESSIVE FEEDING** of the workpiece into the blade.

BASIC SCROLL SAW OPERATION

A scroll saw is basically a "curve cutting" machine. It can also be used for straight-line cutting operations such as cross cutting, ripping, beveling. Refer Fig. 5 (beveling), Fig. 6 (scrolling).

PLEASE, read and understand the following items about your scroll saw before attempting to use the saw.

1. The saw does not cut wood by itself. You allow the saw to cut wood by guiding the wood into the blade as it moves.
2. The blade teeth cut wood ONLY on the down stroke.
3. You must guide the wood into the blade slowly because the teeth of the blade are very small and they can only remove wood when they are on the down stroke.
4. 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 the saw and receive the greatest benefit from the blades.
5. 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, very slowly into the blade and take extra care not to bend or twist the blade while cutting in order to maximize blade life.
7. Teeth on scroll saw blades wear out and as such must be replaced frequently for best cutting results. Scroll saw blades generally stay sharp for 1/2 hour to 2 hours of cutting.

8. To get accurate cuts be prepared to compensate for the blades' tendency to follow the wood grain as you are cutting.

9. This scroll saw is intended to cut wood or wood products only.

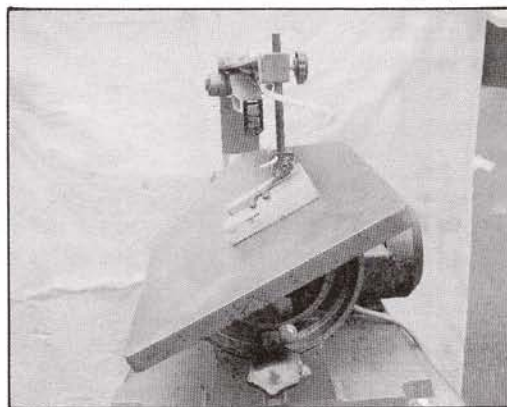


Fig. 5

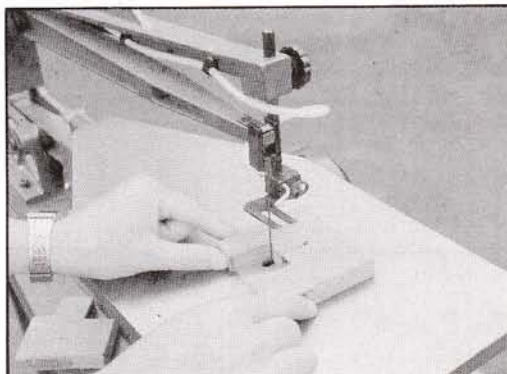


Fig. 6

BASIC SCROLL SAW OPERATION (continued)

INSIDE CUTTING

WARNING: TO AVOID INJURY FROM ACCIDENTAL STARTING, ALWAYS TURN SWITCH "OF" AND REMOVE SWITCH KEY BEFORE REMOVING OR REPLACING THE BLADE.

The scroll saw has the capability of inside cutting, to perform, perform, an inside cut, proceed as follows:

1. Make an opening in the board large enough to permit the blade holder to pass through.
2. Release the tension on the blade by turning the tension knob counterclockwise.
3. Remove the blade holder assembly.
4. Place the board on the saw table with the hole in the board over the hole in the table.
5. Pass the lower end of the blade holder assembly through both openings and rein tall the assembly on the arms.
6. Retension the blade.
7. When finished making the interior scroll cuts simply remove the blade holder assembly, and remove the board from the table.

CHANGING SPEED

When facing your saw, on the right side attached to the motor, there's a box with two switches. One is red and marked "On" and "Off", the other is marked "Hi" and "Low". The latter will give you two speeds 1725 strokes in the "High" position and 860 strokes in the "Low" position.

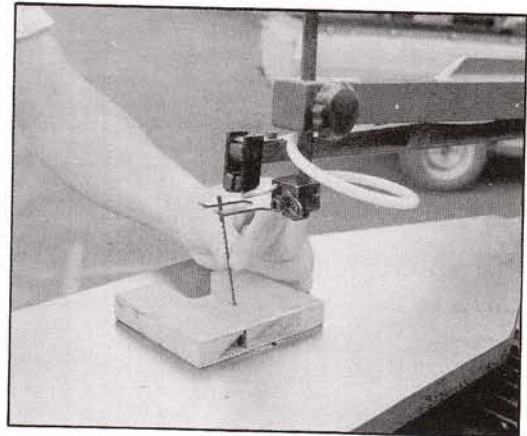
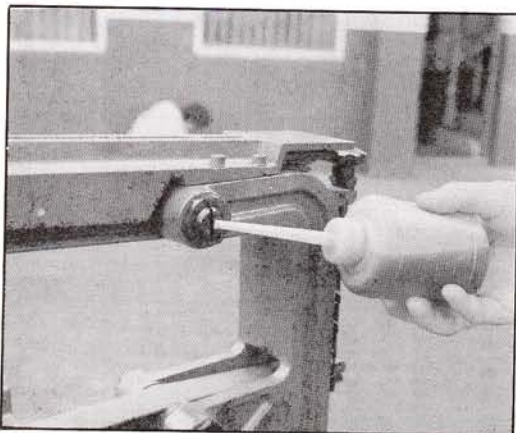


Fig. 7

MAINTENANCE

GENERAL

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



MOTOR

If the power cord becomes worn, cut, or damaged in any way, have it replaced immediately.

Do not attempt oil the motor bearings or service the motor internal parts.

LUBRICATION

Lubricate the arm bushings with SAE 20 oil approximately every 50 hours of operation. This can be accomplished through the small hole provided in the center of each pivot point

ACCESSORIES

PLAIN END BLADES

Teeth/Inch	Width	Thickness	Material cut	AMT No.
17	.070"	.023"	Jeweler's metal cutting blade.	A755
14	.037"	.015"	For close radius cutting in hardwood, softwood, and plastic 1/8" or thicker.	A751
12	.043"	.015"	General-purpose blade for hardwood, softwood, plastic, etc. 3/16" to 2" thick.	A752
11.5	.053"	.018"	General-purpose blade for hardwood, softwood, plastic, etc. 3/16" to 2" thick.	A753
9	.100	.022	Has 3 reverse teeth per inch. For splinter-free finish on top, and bottom of workpiece. for hardwood, softwood, plywood, etc. 1/4" or thicker.	A754

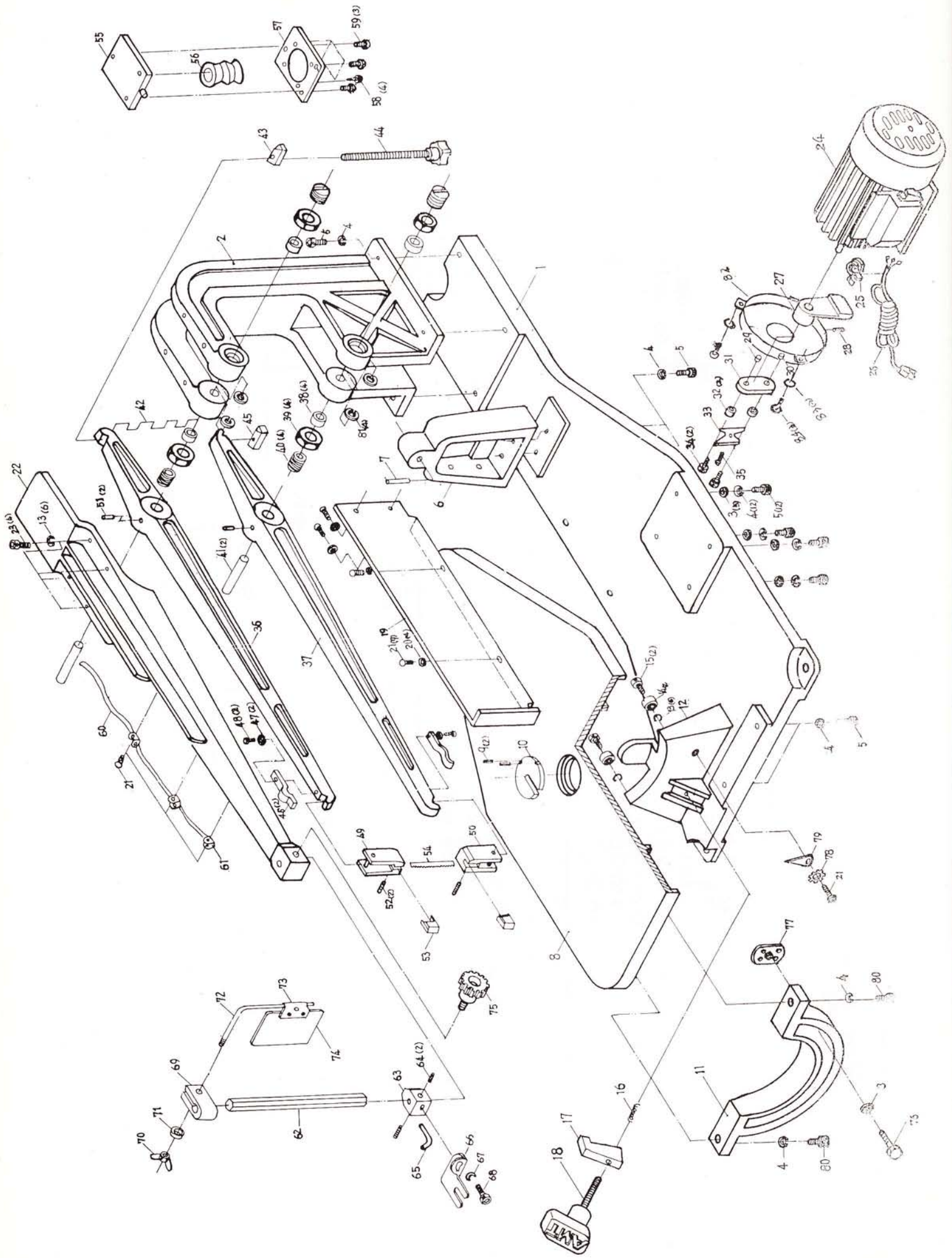
PIN-TYPE BLADES

Teeth/Inch	Width	Thickness	Material cut	AMT No.
25	.070"	.010"	Jeweler's metal cutting blade.	A913
25	.068	.007	For close radius cutting in hardwood, softwood, and plastic 1/8" or thicker.	A909
18.5	.068"	.010"	General-purpose blade for hardwood, softwood, plastic, etc. 3/16" to 2" thick.	A910
15	.110"	.022"	General-purpose blade for hardwood, softwood, plastic, etc. 3/16" to 2" thick.	A911
10	.110"	.022"	For splinter free finish on top and bottom of workpiece. For hardwood, softwood, plywood, etc. 1/4" or thicker.	A912

TROUBLE SHOOTING

WARNING: FOR YOUR OWN SAFETY, TURN SWITCH "OFF", REMOVE KEY AND REMOVE PLUG FROM POWER SOURCE OUTLET BEFORE TROUBLESHOOTING YOUR SCROLL SAW.

PROBLEM	PROBABLE CAUSE	REMEDY SUGGESTED
<p>Breaking Blades.</p>	<ol style="list-style-type: none"> 1. Wrong tension. 2. Over working blade. 3. Wrong blade application. 4. Twisting blade in wood. 	<ol style="list-style-type: none"> 1. Adjust blade tension. 2. Reduce feed rate. 3. Use narrow blades for cutting thin wood, wide blades for thicker wood. 4. Avoid side pressure on blade.
<p>Motor will not run.</p>	<ol style="list-style-type: none"> 1. Defective cord or plug. 2. Defective motor. 	<ol style="list-style-type: none"> 1. Replace defective parts before using saw again. 2. Any attempt to repair this motor may create a HAZARD unless repair is done by a qualified service technician.
<p>Vibration NOTE: There will always be some vibration present when the saw is running because of the motor operation.</p>	<ol style="list-style-type: none"> 1. Improper mounting of saw. 2. Unsuitable mounting surface. 3. Loose table or table resting against motor. 4. Loose motor mounting 	<ol style="list-style-type: none"> 1. See mounting instructions in this manual for proper mounting technique. 2. The heavier your work bench 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 table lock knob. 4. Tighten motor mounting screws.
<p>Blade Runout—Blade not in-line with arm motion</p>	<p>Blade holders not aligned</p>	<ol style="list-style-type: none"> 1. Loosen cap screws holding blade holders to arms. Adjust position of blade holders—Retighten holders.



PARTS LIST FOR 23" SCROLL SAW
ALWAYS ORDER BY PART NUMBER — NOT BY KEY NUMBER

PART/KEY NO.	ITEM	NAME	SIZE	QTY
4671-01	40301001	Base		1
4671-02	40301002	Seat		1
4671-03	S0210500	Washer	5/16	5
4671-04	S0230500	Spring Washer	5/16	14
4671-05	S0010512	Soc Hd Cap Screw	5/16-18x3/4	12
4671-06	40301003	Table Support Rear		1
4671-07	S0310525	Pivot Pin-Table	5x25	1
4671-08	40301004	Table		1
4671-09	S0310305	Pin	3x5	2
4671-10	40101036	Insert Sheet		1
4671-11	40301006	Quad-Table		1
4671-12	40301005	Quad-Support		1
4671-13	S0230400	Spring Washer	1/4	6
4671-14	C0000607	Ball Bearing		2
4671-15	S0010410	Soc Hd Cap Screw	1/4-20x5/8	2
4671-16	40301007	Spring		1
4671-17	40301008	Clamp-Table Tilt		1
4671-18	40301009	Clamp Knob		1
4671-19	40301010	Guard		1
4671-20	S0230300	Spring Washer	3/16	4
4671-21	S0030304	Rd. Hd. Screw	# 10-24x1/2	7
4671-22	40301011	Support Beam		1
4671-23	S0010412	Soc. Hd Screw	1/4-20x1	4
4671-24	M4000000	Motor		1
4671-25	S1026P3-4	Strain Relief Bushing		1
4671-26	L0000000	Coil		1
4671-27	40301012	Balance Weight		1
4671-28	S0050404	Soc. Set Screw	1/4-20x3/8	1
4671-29	40101011	Spacer		1
4671-30	40101012	Down Spacer		1
4671-31	40101010	Connecting Rod		1
4671-32	C000006	Ball Bearing		2
4671-33	40101044	Connecting Rod Cover		1
4671-34	S0010301	Soc. Hd Cap Screw	# 10-24x1	2
4671-35	S0070300	Self Tapping Screw		1
4671-36	40301013	Upper Arm		1
4671-37	40301014	Lower Arm		1
4671-38	40301015	Arbor Bushing		4
4671-39	40301016	Lock Nut		4
4671-40	40301017	Nut		4
4671-41	40301018	Arbor		2
4671-42	40301019	Spring		1

PART/KEY NO.	ITEM	NAME	SIZE	QTY
4671-43	40301020	Upper Rocker		1
4671-44	40301021	Blade Tension Bolt		1
4671-45	40301022	Down Rocker		1
4671-46	40301023	Blade Holder Safety		2
4671-47	S0230300	Spring Washer	3/16	2
4671-48	S0010304	Soc. Hd Cap Screw		2
4671-49	40301024	Upper Blade Holder		1
4671-50	40301025	Lower Blade Holder		1
4671-51	S0320336	Roll pin	∅ 3x36	2
4671-52	S0050305	Soc. Set Screw	# 10-24x5/16	2
4671-53	40301026	Spring-Bld Holder		2
4671-54	40101035-5	Saw Blade		1
4671-55	40101008	Bellows plate		1
4671-56	40101006	Bellows		1
4671-57	40101007	Anchor plate		1
4671-58	S0070306M	Soc Hd Cap Screw	# 10-24x1/4	4
4671-59	S0030308	Rd. Hd. Screw	# 10-24x1/2	3
4671-60	40301027	Tube		1
4671-61	S1050600	Clamp		3
4671-62	40301031	Support Rod		1
4671-63	40101028	Holder Block		1
4671-64	S0050605M	Soc. Set. Screw		2
4671-65	40101030	Aluminium Tube		1
4671-66	40301028	Follow Plate		1
4671-67	S0230500	Spring Washer	∅ 5	1
4671-68	S0010510M	Soc. Hd. Cap Screw	= 10-24x3/8	1
4671-69	40101043	Support Rod Clamp		1
4671-70	S0130400	Wing Nut		1
4671-71	S0210400	Washer		1
4671-72	40101042	Support Rod	1/4	1
4671-73	40101054	Clip		1
4671-74	40101041	Eye Shield		1
4671-75	40301029	Clamping knob		1
4671-76	S0020510	Hex. Hd. Screw	5/16-18x5/8	1
4671-77	40301030	Nut	∅ 25.4x4t	1
4671-78	S0220300	Star Washer	^{3/16}	1
4671-79	40301032	Pointer	22x12x8	1
4671-80	S0010510	Soc.Hd. Cap Screw	^{5/16} · 18 x ^{5/8}	2
4671-81	S0251000	Thrust Washer		4
4671-82	40101056	Pendulum Guard		1
4671-83	S0230400M	Spring Washer	∅ 4	3
4671-84	S0030410M	Rd. Hd. Screw	M4x10	3