

Operating Instructions and Parts Manual **22-inch Woodworking Scroll Saw**Model JWSS-22B



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1.0 IMPORTANT SAFETY INSTRUCTIONS

WARNING - To reduce risk of injury:

- Read and understand the entire owner's manual before attempting assembly or operation.
- Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
- Replace the warning labels if they become obscured or removed.
- 4. This scroll saw is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a scroll saw, do not use until proper training and knowledge have been obtained.
- Do not use this scroll saw for other than its intended use. If used for other purposes, JET disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
- Always wear ANSI Z87.1 approved safety glasses or face shield while using this machine. (Everyday eyeglasses only have impact resistant lenses; they are not safety glasses.)
- Before operating this scroll saw, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Do not wear loose clothing. Confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do not wear gloves.
- Wear ear protectors (plugs or muffs) if noise exceeds safe levels.
- Some dust created by power sanding, sawing, grinding, drilling and other construction activities contain chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
 - Lead from lead based paint.
 - 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 work with approved safety

- equipment, such as face or dust masks that are specifically designed to filter out microscopic particles.
- Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
- Make certain the switch is in the OFF position before connecting the machine to the power supply.
- 12. Make certain the machine is properly grounded.
- Make all machine adjustments or maintenance with the machine unplugged from the power source.
- 14. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
- 15. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately after completion of maintenance.
- 16. Check damaged parts. Before further use of the machine, 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.
- 17. Provide for adequate space surrounding work area and non-glare, overhead lighting.
- 18. Keep the floor around the machine clean and free of scrap material, oil and grease.
- 19. Keep visitors a safe distance from the work area. Keep children away.
- 20. Make your workshop child proof with padlocks, master switches or by removing starter keys.
- Give your work undivided attention. Looking around, carrying on a conversation and "horseplay" are careless acts that can result in serious injury.
- 22. Maintain a balanced stance at all times so that you do not fall into the blade or other moving parts. Do not overreach or use excessive force to perform any machine operation.
- 23. Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it was not designed. The right tool will do the job better and more safely.
- 24. Use recommended accessories; improper accessories may be hazardous.

- 25. Maintain tools with care. Keep saw blades sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
- 26. Turn off the machine before cleaning. Use a brush or compressed air to remove chips or debris do not use your hands.
- 27. Do not stand on the machine. Serious injury could occur if the machine tips over.
- 28. Never leave the machine running unattended. Turn the power off and do not leave the machine until it comes to a complete stop.
- Remove loose items and unnecessary work pieces from the area before starting the machine.
- Keep hands and fingers away from moving saw blade.
- 31. Don't use in dangerous environment. Don't use power tools in damp or wet location, or expose them to rain. Keep work area well lighted.

Additional safety instructions for scroll saws

- 32. Scroll saw must be secured to a sturdy foundation. If there is a tendency for the stand or workbench to move, it must also be secured to the floor.
- Blade must be properly tensioned before operating. Failure to do so could result in blade breakage and possible injury.
- 34. Never start saw with workpiece contacting blade.

- 35. Always keep fingers and hands away from blade. Avoid awkward hand positions where a sudden slip might cause hand to move into or toward the blade.
- 36. Always hold stock firmly against table. The provided hold-down should be correctly positioned over the workpiece.
- 37. Do not attempt to saw any stock that does not have a flat surface, without a suitable support. Do not cut pieces of material too small to hold by hand.
- 38. Care must be taken when cutting material with an irregular cross section. The blade could pinch before the cut is completed. Any stock, such as frame molding, must lie flat on the table surface and not be allowed to rock.
- 39. Dowels or tubing have a tendency to roll while being cut and cause the blade to "bite." Round material should be held firmly against the table.
- Turn off saw before backing stock out of an incomplete cut. Only remove jammed cut-off pieces after blade has stopped.
- 41. Make "relief" cuts before cutting long curves.
- 42. When cutting large or oversize stock, always make sure material is supported at table height.
- Do not feed workpiece too fast while cutting.
 Feed workpiece only fast enough for the blade to cut.
- 44. Never reach under the table while blade is moving.

Familiarize yourself with the following safety notices used in this manual:

This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

This means that if precautions are not heeded, it may result in serious, or possibly even fatal, injury.

SAVE THESE INSTRUCTIONS

1.2 Switch lock-out

To safeguard your machine from unauthorized operation and accidental starting by young children, the use of a padlock (not included) is highly recommended. See Figure 1. Place the key in a location that is inaccessible to children and others not qualified to use the tool.

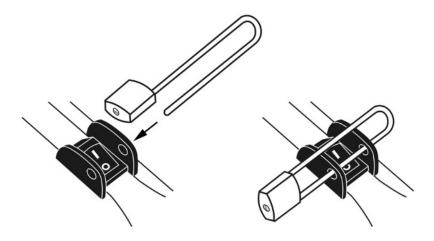


Figure 1

2.0 About this manual

This manual is provided by JET, covering the safe operation and maintenance procedures for a JET Model JWSS-22B Scroll Saw. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. Your machine has been designed and constructed to provide consistent, long-term operation if used in accordance with the instructions as set forth in this document.

This manual is not intended to be an exhaustive guide to scroll saw operational methods, choice of blades or wood stock, etc. Additional knowledge can be obtained from experienced users or trade articles. Whatever accepted methods are used, always make personal safety a priority.

If there are questions or comments, please contact your local supplier or JET. JET can also be reached at our web site: www.jettools.com.

Retain this manual for future reference. If the machine transfers ownership, the manual should accompany it.

AWARNING Read and understand the entire contents of this manual before attempting assembly or operation! Failure to comply may cause serious injury!

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4.0 Glossary

Some terms relevant to the scroll saw:

Beam strength: A blade's resistance to backward deflection caused by pressure of the workpiece.

Bevel edge cut: Tilt of blade between 0° and 45° to perform angled cutting operation.

Blade drift: Deviation of blade from a straight line. The smaller the blade, the more prone to drifting.

Blade tracking: How the blade moves through the cutting path.

Contour cut: Cutting outside the workpiece line.

Crosscut: A cut made across the grain of a workpiece.

Deflection: Tendency of blade to be pushed backward under pressure from the workpiece.

Feed rate: Linear travel of workpiece into blade.

Freehand: Moving the workpiece into the blade using only the hands, without a fixed positioning device.

Fret work: Cutting inside the workpiece; also called open work, or pierce cutting.

Kerf: The resulting cut or gap made by the blade.

Kickback, or Lift: The tendency of workpiece to rise off the table due to being caught by the blade.

Leading edge: Edge of workpiece that first gets pushed into blade.

Parallel: Position of saw arm equal in distance at every point to the table surface.

Parallel link: style of scroll saw in which a motor pushes rods in upper and lower arms that move articulated arms holding the blade. (The JET scroll saw is this type.)

Perpendicular: 90° (right angle) intersection or position of vertical and horizontal planes, such as saw blade to table.

Pin-end blade: Blade that requires a pin to secure it to the saw. (These are not suitable for intricate fretwork.)

Plain-end blade: Blade that slides into a clamp without need of a pin holder. These are preferred for delicate fretwork. (The JET scroll saw uses this type.)

Rake angle: Angle of a blade tooth in respect to a line perpendicular to the back edge of blade.

Relief cut: Extra cut to remove waste material and prevent the blade from binding when cutting a curve.

Rip Cut: A cut made along the grain of the workpiece.

Scroller: User of a scroll saw. Sometimes called "scroll-sawyer".

Scroll work: General term for designs with spirals and rolling curves.

Stack cutting: Placing multiple workpieces together for simultaneous cutting. (CAUTION: Pieces must be properly taped or glued together to prevent sliding.)

Throat capacity: Distance from blade to body column; identifies maximum workpiece size.

Trailing edge: Edge of workpiece that last contacts blade.

5.0 Specifications

•	
Model number	JWSS-22B
Stock numbers:	
Scroll saw with foot switch	
Scroll saw with foot switch and stand	
Optional stand only	727200\$
Motor and electricals:	
Motor type	brushed DC
Horsepower	
Phase	
Voltage	
Cycle	
Listed FLA (full load amps)	
Starting amps	
Running amps (no load)	
On/off switch	
Power cord	
Power plug installed (saw and foot pedal)	
Foot pedal cord length	
Recommended circuit and fuse/breaker size ¹	15Δ
Overload fuse	
Overload ruse	3.13A, 230 V
Blade and capacities:	
Stroke	3/4 in (18.6 mm)
Speed	
Throat capacity	
Blade type used	
Blades included	
Maximum cutting depth	
Arm tilt	
74111 (11)	40 degrees fort, 40 degrees right
Main materials:	
Body and tool tray	steel
Main table	
Trunnion	
Arm	
	э.с., р.ас.е ссте
Table:	
Table dimensions (LxW)	23.62 x 12.67 in. (600 x 322 mm)
Table slot width	
Table height from floor, on optional stand	
	•
<u>Dimensions:</u>	
Optional stand footprint (LxW)	28 x 25-1/2 in. (711 x 648 mm)
Overall dimensions – saw only (LxWxH)	
Overall dimensions – saw on stand (LxWxH)	
Shipping dimensions – saw only	7.7" x 18.9" (900mm x 450mm x 480mm)
,	,
<u>Dust collection:</u>	
Dust port outside diameter	
Recommended dust extraction volume	300-350 CFM (8.5-10 CMM)
Weights:	
Net weight, saw only	
Net weight, optional stand only	21.5 lbs (9.8 kg)
¹ subject to local/national electrical codes.	

L = length; W = width; H = height

Specifications in this manual were current at time of publication, but because of our policy of continuous improvement, JET reserves the right to change specifications at any time and without prior notice, without incurring obligations.

5.1 Mounting hole pattern

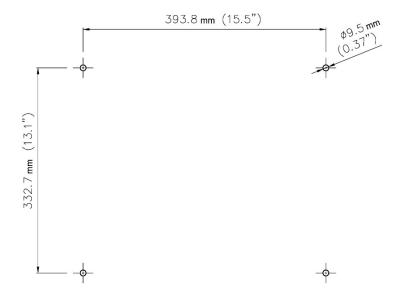


Figure 2: scroll saw mounting hole pattern

6.0 General features

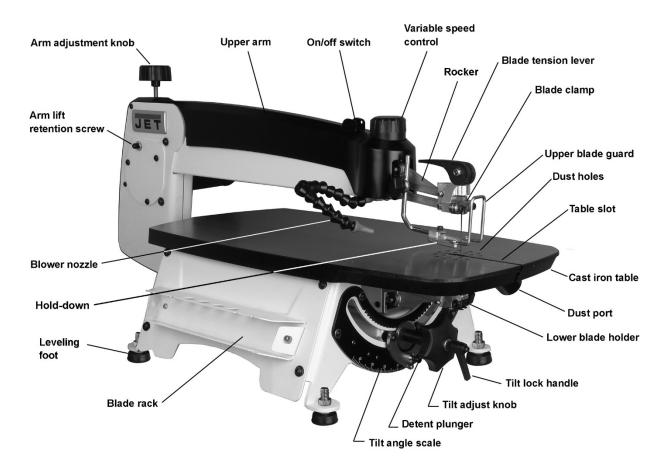


Figure 3: JWSS-22B features

7.0 Setup and assembly

AWARNING Read and understand all assembly instructions before attempting assembly. Saw must remain unplugged from power source during assembly procedures.

7.1 Shipping contents

Refer to Figure 4.

- 1 Scroll saw (not shown)
- 4 Leveling feet with hex nuts
- 2 Lower blade holders
- 1 Foot pedal assembly
- 1 Dust port
- 1 Blade rack
- 5 Blades, skip type (not shown)
- 4 Rubber washer (HP5)
- 1 Operator's manual (not shown)
- 1 Warranty card (not shown)



Figure 4: contents (not to scale)

Stand (Optional Acessory)

Refer to Figure 10, or sect. 15.4.1.

- 2 Long top braces (#3)
- 2 Short top braces (#4)
- 2 Short bottom braces (#7)
- 2 Long bottom braces (#8)
- 4 Legs (#5)
- 4 Leg extensions (#10)
- 1 Hardware package (see Figure 5); contains:
 - 4 Hex cap screws 5/16x1 (HP1)
 - 24 Carriage bolts 5/16x1/2 (HP2)
 - 32 Flat washers 5/16 (HP3)
 - 28 Hex nuts 5/16 (HP4)

7.2 Tools required for assembly

14mm open-end wrench (for foot pads)

12mm wrench (for optional stand only)

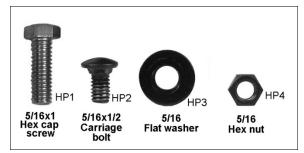


Figure 5: hardware package JWSS22B-SHP

7.3 Unpacking and cleanup

- Remove all contents from shipping carton. Remove protective coating from the table using a soft cloth moistened with a solvent. (Do **not** use acetone, gasoline or lacquer thinner for this purpose, as these will damage painted and plastic parts.)
- Inspect contents for shipping damage or missing parts. Report any damage or part shortages to your distributor. (Note: Check saw for any pre-installed parts before reporting part shortage.)

7.4 Transporting saw

arm (Figure 6) which may result in damage to linkage system. Always lift using motor and edge of table (Figure 7).

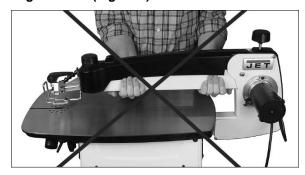


Figure 6: INCORRECT lifting



Figure 7: correct lifting

7.5 Mounting to bench or stand

The scroll saw should be installed upon a sturdy, flat surface with all four legs contacting the surface. Do NOT install with saw partially hanging over edge of table or workbench.

If scroll saw will not be bolted down to a surface, install the four foot pads to reduce vibration. See Figure 8. Lower hex nut may be adjusted for height. Tighten top hex nut down against saw foot.



Figure 8: leveling foot

The preferred method is to mount the saw directly to a solid workbench or table, or to the optional JET stand. If mounting to a workbench, use a pad (provided rubber washers) between saw and bench to minimize vibration. See Figure 9.

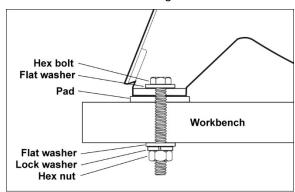


Figure 9: bench mounting (fasteners not included)

If a non-permanent method is preferred, an alternative is to fasten the saw to a thick plywood board (minimum 3/4-inch), then attach the board to a table using clamps.

7.6 Assembling stand (optional)

- Assemble stand pieces, referring to Figure 10. (Refer to exploded view, sect. 15.4.1, if further clarification is needed.) Only hand-tighten all fasteners at this time.
- 2. The leg extensions (#10, Figure 10) can be adjusted for height.
- If stand will not be bolted to the floor, install the leveling feet (shown in Figure 8) that were

- included with the scroll saw, onto the bottoms of the stand leg extensions.
- Position stand upright on level floor. Push down on stand assembly to settle it on floor, then fully tighten all fasteners with 12mm wrench.
- Some scrollers prefer to tilt the saw toward them for convenience. If this is desired, adjust only the two front leg extensions.
- 6. Mount scroll saw to stand, using fasteners shown (also identified in Figure 5).

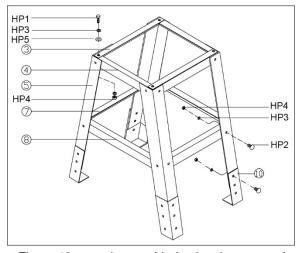


Figure 10: stand assembly (optional accessory)

7.7 Blade storage

The blade rack (Figure 11) can be mounted to either side of the scroll saw. It contains holes for storage of blades inside "test tubes" (not provided). Additionally, four slots provide storage for blades pre-inserted into a blade holder.



Figure 11: blade storage

7.8 Foot pedal

Connect plug from scroll saw into receptacle on back of foot pedal. Then plug foot pedal into power source. (If not using foot pedal, plug saw directly into power source; the on/off switch is then pressed to start and stop the saw.)

It is strongly recommended the foot pedal be secured in place using screws through the two holes. It may be secured directly to the floor or a wide board laid beneath the saw.

7.9 Dust collection

Slide dust port into the slot on underside of table. A dust collector or shop vacuum can be connected to the dust port via a 2-1/2-inch hose (not provided).

8.0 Electrical connections

The JWSS-22B Scroll Saw is prewired for 120-volt power. The saw comes with a plug designed for use on a circuit with a *grounded outlet* that looks like the one pictured in **A**, Figure 12.

Before connecting to power source, be sure switch is in *off* position.

It is recommended that the scroll saw be connected to a dedicated 15 amp circuit with circuit breaker or fuse. If connected to a circuit protected by fuses, use time delay fuse marked "D". Local codes take precedence over recommendations.

8.1 GROUNDING INSTRUCTIONS

This machine must be grounded. 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.

electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Failure to comply may cause serious or fatal injury.

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.

This tool is for use on a nominal 120-V circuit, and has a grounded plug that looks like the plug illustrated in sketch A in Figure 12. A temporary adaptor that looks like the adaptor illustrated in sketches B and C may be used to connect this plug to a 2-pole receptacle as shown in sketch B if a

properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet (sketch A) can be installed by a qualified electrician. The green colored rigid ear, lug, or the like extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adaptor is used, it must be held in place by a metal screw.

In Canada, the use of a temporary adaptor is not permitted by the Canadian Electrical Code, C22.1.

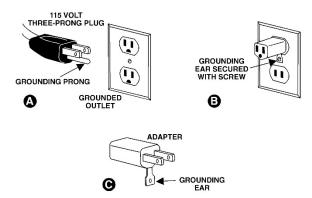


Figure 12: plug configuration

8.2 Extension cords

The use of extension cords is discouraged; try to position machines near the power source. If an extension cord is necessary, make sure it 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. Table 1 shows 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.

Amper Rating		Volts	Total length of cord in feet				
More	Not	120	25	50	100	150	
Than Than			AWG				
0	6		18	16	16	14	
6	10		18	16	14	12	
10	12		16	16	14	12	
12	16		14	12	Not Recommended		

Extension Cord Recommendations
Table 1

9.0 Adjustments

AWARNING Before making adjustments to saw, push rocker switch to OFF. Also unplug saw from power if working around blade area.

9.1 Arm tilt

The table remains stationary, so the operator's hands can remain in the same comfortable position, with no risk of the workpiece sliding off the table. The arm can be tilted up to 45-degrees left or right for beveled cuts, which are frequently used in projects such as marquetry.

Refer to Figure 13.

- 1. Loosen lock handle (A).
- Make sure upper guard and blower nozzle positions will not conflict with table.
- 3. Rotate handle (B) to desired angle. Preset stops are available at 90°, 45°, 30° and 22.5°, left and right. Push detent pin (C) while rotating handle (B) until pin engages hole.
- 4. Tighten lock handle (A) and release pin.

Lock handle (A) is adjustable to prevent obstruction when in angled position: Pull out handle and rotate on pin, then release, making sure it reseats on pin.

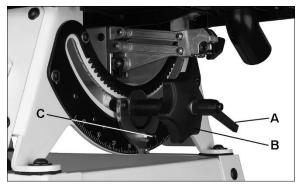


Figure 13: arm tilt adjustment

9.2 Installing blade

Land Caution Unplug saw from power source before removing, installing or adjusting a blade.

- 1. Switch off saw and unplug.
- 2. Insert lower blade holder (Figure 14) into hole in blade rack for leverage, and loosen knob.
- 3. Slide blade into holder as far as it will go. Tighten blade holder knob.

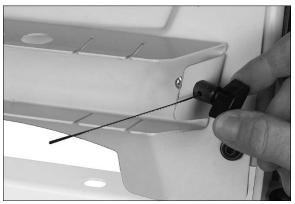


Figure 14: installing blade into holder

- 4. Flip clamping lever (D, Figure 15) toward front of saw to release guide.
- 5. Push blade holder into clip (E) while guiding blade through table slot.
- Push top end of blade into upper guide (F), making sure it rests between the contact points of guide set screws.
- 7. Flip clamping lever (D) toward rear of saw to tension blade. Do not over-tension blade; this can result in blade breakage or premature wear to clamping surfaces.

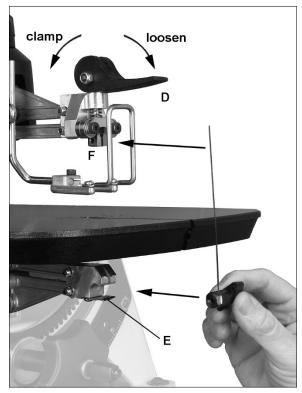


Figure 15: installing blade into guides

- Check that blade teeth point forward and down toward table.
- 9. Try moving blade by hand to make sure it is secure. Pluck the blade with your finger, as you would a guitar string it should emit a clear note if properly tensioned.

TIP: If changing a blade while cutting fretwork, you may first push blade through pilot hole in workpiece, then install blade to saw. See Figure 16. This prevents having to raise the arm for the first cut.

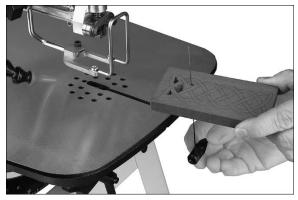


Figure 16: installing blade with workpiece

9.3 Adjusting blade tension

If blade refuses to be clamped tightly according to the above steps, one or both of the following adjustments may be needed (Figure 17):

- Upper clamp spring pressure can be adjusted by lifting handle (D) to vertical position. Rotate handle clockwise one turn to increase pressure, then push handle into clamping position. Note: Too much handle rotation will prevent clamping.
- Turn set screws (G) with 3mm hex wrench clockwise to reduce gap between clamping surfaces.

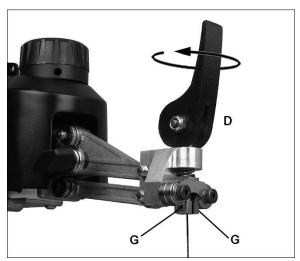


Figure 17: tension adjustment

Either of the above steps should resolve blade tension problems. If problem still exists:

 Rotate arm adjustment knob (Figure 18) clockwise by hand. This will raise arm and apply more tension to blade.

IMPORTANT: Rotating arm adjustment knob for tension purposes should only be done if absolutely needed, as it will affect later blade oscillation settings (sect. 9.7).

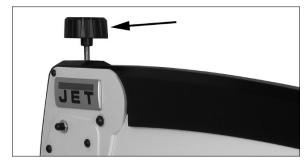


Figure 18: arm adjustment knob

9.4 Material hold-down

Refer to Figure 19.

Adjust material hold-down as close to workpiece as possible without impeding workpiece movement.

For vertical adjustment, Loosen knob (H, Figure 19) and slide hold-down to position. Tighten knob.

For forward/back movement and angling to table, loosen socket head screw (J) and adjust. Tighten screw.



Figure 19: hold-down

9.5 Speed control

Refer to Figure 3.

Rotate speed control knob while saw is running – clockwise to increase blade strokes per minute, counterclockwise to decrease.

9.6 Squaring blade to table

Refer to Figures 20 and 21.

The blade may get out of alignment with the table over time, depending upon how often the saw is used, and frequent use of the tilt mechanism.

Periodically check squareness of blade to table as follows.

- 1. Turn off saw, unplug from power source.
- 2. Make sure blade is fully tensioned.
- 3. Set blade tilt to "0" (90 degrees).

 Place a machinists square or other 90-degree measuring device on table and against blade (Figure 20). Do not deflect blade by pushing into it.

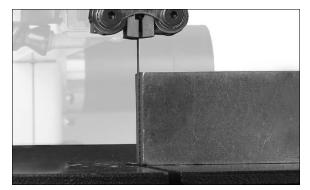


Figure 20: inspecting blade squareness

- If side of blade does not lie flush against square, first check that the set screws (see G, Figure 17) protrude evenly into the clamping area. Adjust if needed.
- If blade is still not perpendicular, loosen eight screws on trunnion plates, at front and back of saw (Figure 21)
- 7. Nudge trunnion/arm assembly until side of blade is flush to square.
- 8. Tighten all screws at front and back.
- 9. If needed, loosen screw on pointer (K) and adjust it to zero. Tighten screw.

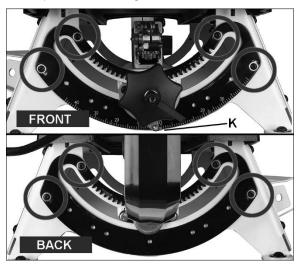


Figure 21: squaring blade to table

9.7 Adjusting blade oscillation

Refer to Figure 22.

Blade movement can be adjusted to accommodate different wood stock and types of operations. For example, for faster, more aggressive cutting the blade can be adjusted for slight backward movement on the upstroke, and slight forward movement into the wood on the downstroke. For slower, fine detail work and more control, completely vertical blade movement is often preferred.

This adjustment is based upon user's preference; as the scroller gains experience, he/she will get a feel for the oscillation that is most efficient for the work at hand.

- 1. Turn off saw and unplug.
- First verify that upper arm is parallel to table surface (Figure 22). Push arm down, and measure at front and back of arm; if measurements are different, rotate arm adjustment knob (L) until upper arm is parallel.



Figure 22: arm/table parallelism

- Adjustments to blade oscillation can be subtle; place a square or block of wood on table and alongside blade as reference.
- 4. Loosen screws on motor flange (M, Figure 23) with 4mm hex wrench. *Only loosen screws enough to allow motor rotation.*
- 5. Turn motor shaft (N, Figure 27) with flat-blade screwdriver to observe blade motion. Alternatively, you may turn on saw to slowest speed to observe blade motion.

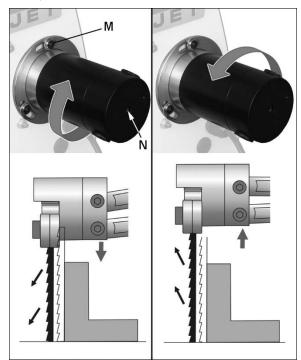


Figure 23: blade oscillation

- Slowly rotate entire motor by hand to adjust oscillation. Clockwise rotation will make blade movement more aggressive on downstroke. Counter-clockwise will make blade more aggressive on upstroke. See Figure 23.
 - TIP: If more rotation is needed, *turn off saw* and install motor mount screws in second set of holes behind motor flange.
- 7. When desired oscillation is achieved, securely tighten motor mount screws (M).

9.8 Arm lift retention

Refer to Figure 24.

If arm will not remain in position after being raised, loosen hex nut (14mm wrench) and slightly turn adjustment screw clockwise with flat blade screwdriver, until arm remains in raised position. *Do not overtighten*. Tighten hex nut.



Figure 24: tightening arm lift

9.9 Blower nozzle

Adjust blower nozzle away from operator, and as close to blade as needed without interfering with blade or workpiece movement.

10.0 Operations

10.1 General operating tips

- 1. Always use a clean, sharp blade.
- Maintain proper posture to avoid strain. Saw table should be set approximately level with operator's elbows.
- Avoid wrist or finger strain which can occur by constantly pushing workpiece against table. Always use hold-down whenever possible.
- 4. Guide the wood into the blade slowly to prevent blade breakage.
- You will achieve best results when cutting wood less than 1-inch thick. When cutting stock thicker than 1-inch, guide the stock very slowly into the blade, taking care not to bend or twist the blade.
- 6. Blade should have minimum 3 teeth in contact with workpiece at all times.

- Make relief cuts as needed to prevent binding of blade in workpiece.
- A blade has a tendency to follow the wood grain. Be prepared to compensate for this to achieve accurate cuts.
- 9. Use caution when sawing round pieces, such as dowels, which tend to roll while cutting.
- Keep fingers away from cutting path. Avoid awkward hand positions or getting fingers wedged between saw arm and workpiece when cutting small workpieces.
- 11. For fretwork, drill all needed pilot holes at the same time before moving to the scroll saw. Drill pilot holes as close as possible to reference lines.
- As a general rule, select the narrowest blades recommended for intricate curve cutting, and widest blades for straight cuts or large curve cuts.
- 13. Run saw only at high enough speed to efficiently do the work. Constant running at maximum speed is not necessary for most operations, may reduce control of the cutting process, and may hasten wear on the saw.

10.2 On/off controls

With foot pedal: Push on/off switch to ON position (I). Press foot pedal to operate saw, release pedal to stop.

Without foot pedal: Push on/off switch to ON position (I); saw will operate. Press switch to OFF position (O) to stop.

AWARNING

If foot pedal is not used and power outage occurs during operation, blade will resume motion when power is restored. Turn off switch immediately after power outage to avoid accidental restart.

10.3 Procedure

- Install blade appropriate for desired operation.
 Make sure blade is properly tensioned, and teeth point forward and down toward table.
- 2. Position blower nozzle and hold-down.

For straight cutting or outside curve cutting:

- Turn on saw and allow blade to reach full operating speed.
- 4. Set speed using variable control knob.
- 5. Hold workpiece firmly against table and feed workpiece directly into front edge of blade with steady pressure. See Figures 25 and 26. Do not use excessive pressure allow the blade to do the work. Compensate for blade drift.

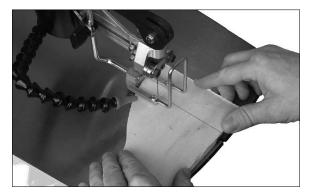


Figure 25: straight cutting



Figure 26: outside curve cutting

For fretwork (inside cutting):

- Drill pilot holes in workpiece just large enough for blade insertion.
- Release clamp lever (D, Figure 27) and raise arm.
- 3. Guide blade through pilot hole in workpiece.
- Lower arm and tighten clamp lever (D).
- 5. Hold workpiece tightly against table and turn on saw. Set speed using variable control knob.
- Smoothly guide workpiece into blade, using light pressure. Avoid coming to a complete stop while cutting.



Figure 27: fretwork cutting

11.0 User-maintenance

Always unplug scroll saw from power before performing maintenance. Failure to comply may result in serious personal injury.

11.1 General maintenance

Clean wood dust from the saw frequently, using a vacuum or compressed air, or damp cloth. Use a soft bristle brush for crevices.

AWARNINGUse proper eye and respiratory protection if using compressed air.

Keep the table clean. Periodically apply a light coat of paste wax or spray protectant to the table to prevent rust and maintain a smooth surface.

When finished cutting, release blade from upper clamp to remove unneeded tension on clamp spring. Remove blade if saw will be stored for longer periods.

Periodically inspect the prongs of the lower spring plate (see E, Figure 15). Bend upward slightly if needed to ensure a firm grip upon lower blade holder.

11.2 Lubrication

Periodically apply light dabs of grease to front and rear trunnions (Figure 28) where parts slide against one another.

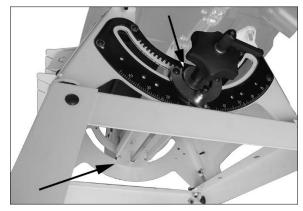


Figure 28

Bearings in the drive mechanism are pre-lubricated and sealed; no further attention is needed for these.

11.3 Fuse inspection

The scroll saw is equipped with a 5-amp fuse for overload protection. If the saw stops working, inspect fuse:

- Unscrew fuse cap (Figure 29) and pull fuse out of cap.
- 2. If fuse has blown, replace it.
- Install new fuse into cap, then screw cap into hole.



Figure 29

11.4 Commutator brush inspection

To maintain motor efficiency, inspect the two carbon brushes every two months, or more frequently if saw is heavily used. Stalling or loss of power may be a symptom of worn carbon brushes. If one brush is worn out, replace both at the same time.

Continued use of a damaged or worn brush may result in damage to motor armature.

- 1. Unplug saw from power source.
- 2. Unscrew and remove cap with flat blade screwdriver. See Figure 30.
- Gently pry up an edge of the brass clip, until the spring causes it to disengage from hole. (Notice orientation of brush as you remove it; it should be inserted in the same manner; curvature of brush will match curvature of motor.)

- 4. Pull out brush and inspect. Brush should be replaced if any of the following are discovered:
 - Brush has worn to about 1/2-inch long.
 - Signs of crumbling, burning or breaking.
 - End of brush is rough or pitted.
 - Abnormal coloration of spring
 - Broken lead in spring
 - Collapsed spring
- Install new brush (or reinstall current brush) and gently press it all the way into hole until the brass clip is secured.
- 6. Install cap.
- 7. Repeat for other brush.

NOTE: It is recommended that saw be run without load for several minutes to seat new brushes.



Figure 30

12.0 Blade selection

Refer to Figures 31 and 32.

The following information is general in nature. The scroller is encouraged to research specific options to meet project needs. Note that the same specifications may vary among manufacturers.

A wide array of blades are available for the scroll saw. Woodworking blade sizes range from #3/0 to #12.

Here are factors to consider when selecting a blade:

- Type of material to be cut (hardwood, softwood?).
- Thickness of workpiece (thicker pieces will require larger blades).
- Features of workpiece (straight cuts, sweeping curves or tight fretwork?).

These factors are important because they involve basic concepts of blade design. There are 5 blade features that normally vary to meet certain kinds of sawing requirements. They are:

- 1. width
- 2. pitch (number of teeth per inch)
- 3. tooth set
- 4. blade material
- tooth form

12.1 Width

Width is measured from back edge of blade to tip of tooth. Generally, wider blades are used for making straight cuts and long curves. Narrow blades are suited for cuts with tight corners, such as fretwork. When cutting straight lines with a narrow blade, the blade may have a tendency to drift (called "blade lead").

12.2 **Pitch**

Pitch is measured in "teeth per inch" (TPI) and can be constant or variable.

A fine pitch (more teeth per inch) will cut slowly but more smoothly, and minimize vibration. A coarse pitch (fewer teeth per inch) will cut faster but more roughly.

Try to use a blade that will have a minimum of 3 teeth engaged in the workpiece at any given time.

12.3 **Set**

"Set" refers to the manner in which the blade teeth are bent or positioned. Bending the teeth creates a kerf that is wider than the back of the blade. This helps the operator more easily pivot a workpiece through curve cuts, and decreases friction between blade and workpiece on straight cuts. Two common sets are the straight (or alternating) and the raker.

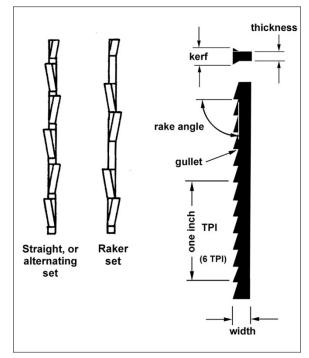


Figure 31: blade anatomy

12.4 Material

Blades are manufactured by stamping, milling, or grinding.

- Stamped blades are punched out on a press from sheet steel. The teeth are given an alternate set to allow clearance in the kerf.
- Milled blades are made by flattening a steel wire, cutting the teeth through a "milling" process, then heat-hardening the steel.
- Ground blades have high-carbon steel teeth which tend to hold their sharpness longer, and provide smooth cuts.

Special styles are also available, such as twist and spiral blades, which cut from all sides.

Most blades offered are 5 inches long; if a longer blade is acquired the end can be snipped off to accommodate the saw.

Optimally, a blade (and the operator's technique) should leave smooth, clean cuts that do not require sanding, as it is often very difficult to sand inside cuts after they are made.

Instead of purchasing a wide assortment of styles from the start, the scroller may find a few carefully-selected styles will serve most of his or her needs. The selection can be expanded as the scroller gains experience.

12.5 Tooth form

Figure 32 shows common blade forms. Tooth form has an effect on cutting rate.

Regular: Standard blade form with evenly spaced teeth and zero-degree rake angle. Offers clean cuts at slower feed rates.

Skip Tooth: More space between teeth, for good chip removal and fast cuts.

Double Tooth: A skip tooth with larger gaps between tooth sets; good chip removal, fast cutting.

Reverse Tooth: Prevents underside tear-out, leaves clean edge.

Spiral: Cuts on all sides without turning workpiece; limited applications but good for looser fretwork.

Crown Tooth: Cuts on both up and down strokes for clean, splinter-free edges. Depending on blade oscillation settings, a crown tooth blade may often be turned over for a fresh set of cutting teeth.

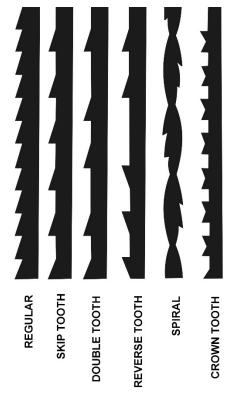


Figure 32: blade forms

13.0 Optional accessories

These accessory items, purchased separately, can enhance the functionality of your scroll saw. Contact your dealer to order, or call JET at the phone number on the cover.





727200S - Steel stand for JWSS-22B

727201 - Lower Blade Holder (set of 3)

14.0 Troubleshooting JWSS-22B Scroll Saw

Symptom	Possible Cause	Correction *
Motor will not start.	Low voltage.	Check power line for proper voltage.
	Open circuit in motor or loose connection.	Inspect all lead connections on motor for loose or open connections.
	Damaged cord or plug.	Inspect and replace.
	Carbon brushes worn.	Replace brushes.
Motor will not start: fuses blow or circuit	Short circuit in line cord or plug.	Inspect cord or plug for damaged insulation and shorted wires.
breaker trips.	Short circuit in motor or loose connections.	Inspect all connections on motor for loose or shorted terminals or worn insulation.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses or circuit breakers.
Machine slows when operating.	Applying too much pressure to workpiece.	Feed workpiece more slowly.
Tilting mechanism difficult to move.	Caked dust or other obstruction in trunnion assemblies.	Clean trunnion areas and apply light dabs of grease to contacting parts.
Blades frequently	Incorrect blade tension.	Set proper tension.
break.	Blade being overworked.	Reduce feed rate.
	Wrong blade for job.	Select proper blade.
	Blade twisting in workpiece.	Avoid side pressure on blade. Reduce feed rate.
	Too few teeth per inch.	Blade should have minimum 3 teeth in contact with workpiece.
Blade refuses to tension properly, or	Blade not seated properly.	Inspect entry of blade into upper and lower blade chucks.
keeps slipping.	Clamping lever needs tightening.	Tighten clamp lever.
	Set screws in upper blade chuck are backed out, not contacting blade.	Tighten set screws.
	Blade clamp has oil or debris on it.	Clean blade clamp, ends of set screws.
Blade drift.	Some drift is unavoidable depending upon size of blade and type of cut.	Compensate by manipulation of workpiece into blade.
	Incorrect blade tension.	Increase tension.
Excessive vibration.	Saw improperly mounted.	Secure saw properly to bench or stand.
	Unsuitable mounting surface.	Less vibration will occur with a heavier work bench. Use pads or fiber washers at mounting contact points.
	Arms/linkage system not tight.	Tighten trunnion lock knob.
	Loose motor mounting.	Tighten motor mount screws.

^{*} **WARNING:** Some corrections may require a qualified electrician or service personnel.

Table 2

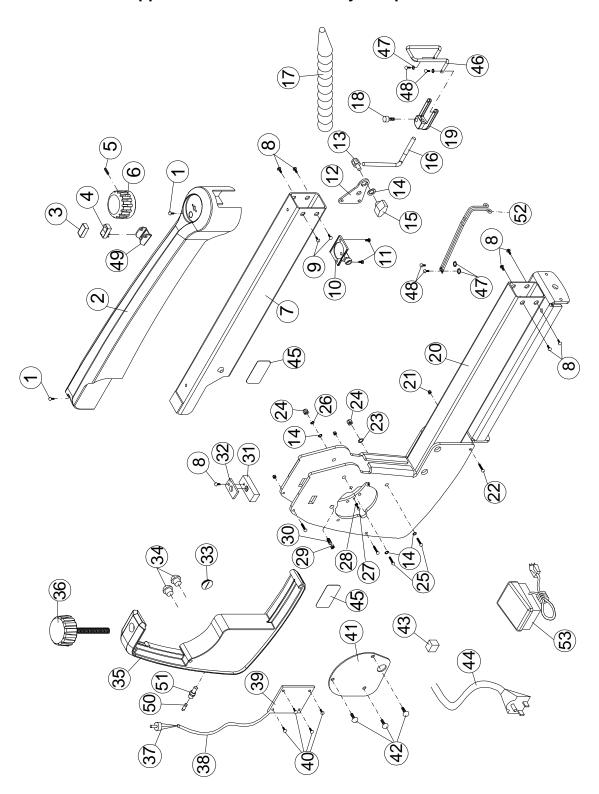
15.0 Replacement Parts

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848 Monday through Friday, 8:00 a.m. to 5:00 p.m. CST. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

Some parts are shown for reference only and may not be available individually.

Non-proprietary parts, such as fasteners, are usually available at local hardware stores or may be ordered from JET.

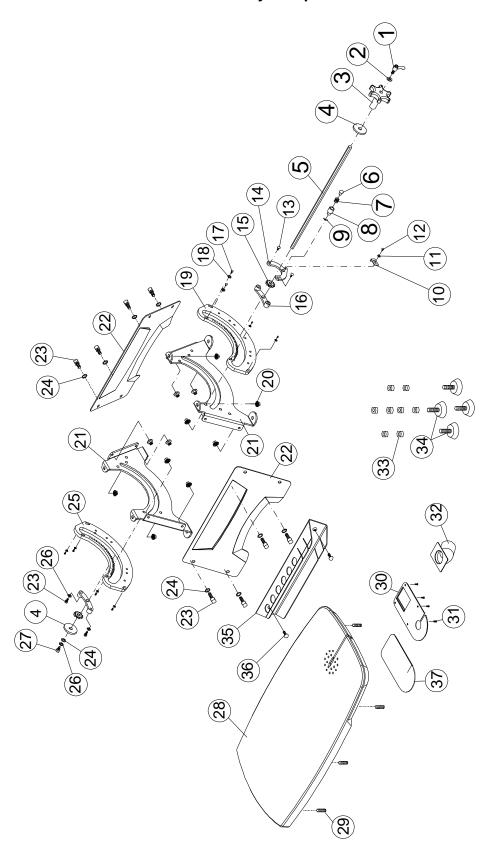
15.1.1 JWSS-22B Upper & Lower Arm Assembly – Exploded View



15.1.2 JWSS-22B Upper & Lower Arm Assembly – Parts List

Index No Part No	Description	Size	Qty
	Button Head Socket Screw		
	Top Cover		
3JWSS22B-203	Switch Rubber Cover		1
4JWSS22B-204	Switch		1
5TS-1521031	Socket Set Screw	. M4x8	1
	VR Knob with Speed Label		
	Upper Arm		
	Button Head Socket Screw		
	Button Head Socket Screw		
	Dust Blower		
	Pan Head Screw		
	Hold Down Mount Plate		
	Hold Down Clamp Screw		
14 TS-0680021	Flat Washer	1/4"	1
	Hold Down Clamp Knob		
	Hold Down Bar		
	Air Nozzle		
17	Socket Head Cap Screw	#10 20v1/2	1
	Hold Down Fork		
	Main Body		
	Hex Nylon Lock Nut		
	Button Head Socket Screw		
	Flat Washer		
	Hex Nylon Lock Nut		
	Button Head Socket Screw		
	Lock Washer		
	Phillips Pan Head Machine Screw		
28TS-0720041	External Tooth Lock Washer	. #8	1
	Hex Nut		
	Ball Set Screw		
31JWSS22B-231	Housing Cross Block		1
32JWSS22B-232	Cross Block Retainer		1
33JWSS22B-233	Cap		1
	Strain Relief		
	Control Box		
	Arm Adjustment Knob		
	PC Board with VR (#37,38,39)		
	Variable Resistor		
	Control Cable		
	PC Board		
	Machine Screw		
	Cover Plate		
	Button Head Socket Screw		
	Sponge Block		
	Power Cord		
	JET Logo		
	Upper Blade Guard		
	Lock Washer		
	Phillips Pan Head Machine Screw		
	Switch Protector		
	Fuse		
	Fuse Holder		
	Lower Blade Guard		
	Foot Switch Assembly		
	Warning Label (not shown)		
55LM000188	Warning Label (not shown)	. 49x100mm	1
56LM000189	ID Label, JWSS-22B (not shown)		1

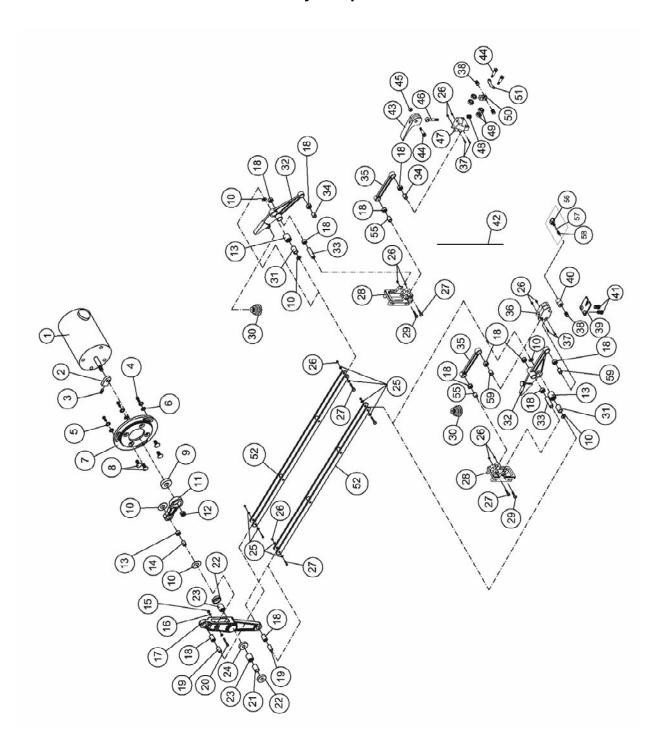
15.2.1 JWSS-22B Table & Cabinet Assembly – Exploded View



15.2.2 JWSS-22B Table & Cabinet Assembly – Parts List

Index No	Part No	Description	Size	Qty
1	JWSS22B-301	Blade Tilt Locking Lever		1
2	TS-0680021	Flat Washer	1/4	1
		Tilt Adjust Knob		
		Blade Tilt Washer		
5	JWSS22B-305	Tilt Lock Draw Rod		1
		Detent Plunger		
7	JWSS22B-307	Spring		1
8	JWSS22B-308	Tilt Detent Barrel		1
9	JWSS22B-309	E-Ring	ETW-3	1
		Pointer		
11	TS-1550021	Flat Washer	M4	1
		Phillips Pan Head Machine Screw		
		Button Head Socket Screw		
14	JWSS22B-314	Angle Indicator Bracket		1
15	JWSS22B-315	Blade Tilt Drive Gear		2
16	JWSS22B-316	Angle Follower		2
17	F009916	Button Head Socket Screw	#10-32x5/16	8
18	TS-069204	Flat Washer	#10x12x1	8
		Front Trunnion Plate		
		Hex Flange Nut		
		Trunnion		
		Side Panel		
23	TS-0050031	Hex Cap Screw	1/4-20x3/4	10
		Flat Washer		
		Rear Trunnion Plate		
		Lock Washer		
		Hex Cap Screw		
		Table		
		Socket Set Screw		
		Dust Collect Plate		
		Button Head Socket Screw		
		Dust Port		
		Hex Nut		
		Leveling Foot		
		Blade Rack		
		Pan Head Screw		
37	JWSS22B-337	Sponge		1

15.3.1 JWSS-22B Drive Link Assembly – Exploded View

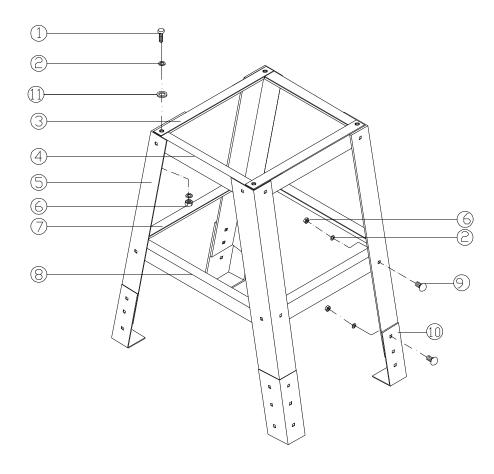


15.3.2 JWSS-22B Drive Link Assembly – Parts List

Index No Part No	Description	Size	Qty
1JWSS22B-401	. Motor		1
JWSS22B-MCB	Motor Carbon Brush (not shown)		2
JWSS22B-MCBC	Motor Carbon Brush Cap (not shown)		2
LM000190	Motor Label, JWSS-22B (not shown)		1
	. Balance Block		
3TS-1523011	. Socket Set Screw	M6x6	1
4TS-0254021	Button Head Socket Screw	1/4-20x1/2	3

Index No		Description	Size	Qty
		Lock Washer		
		Flat Washer		
7	.JWSS22B-407	Motor Cover Plate		1
8	.TS-1514021	Socket Head Flat Screw	. M6x16	4
	.JWSS22B-CDLA	Complete Drive Link Assembly (#9 thru 27, #52)		1
		Ball Bearing		
		Flat Washer		
		Motor Cam		
		Nut		
		Bearing		
		Inner Bearing Sleeve		
		Hex Nylon Lock Nut		
		Flat Washer		
		Rocker Cam		
		Bearing		
		Inner Bearing Sleeve (Long)		
		Socket Head Cap Screw		
		Main Rocker Pivot		
		Bearing Cover		
		. Bearing		
		Flat Washer		
		Hex Nylon Lock Nut		
		Socket Head Cap Screw		
		Rocker Mount		
		Socket Head Cap Screw		
		Air Pump Bellows		
31	.JWSS22B-431	Inner Bearing Sleeve – Front Rocker	. Ø8.03x18.40mm	2
		Front Rocker		
		Inner Bearing Sleeve (Long)		
		Inner Bearing Sleeve		
		Strut		
		Lower Blade Chuck		
37	F005668	Socket Head Cap Screw	. M4x22	4
		Set Screw		
39	.JWSS22B-439	Spring Plate		1
	.727201	Lower Blade Holder Assembly (#38, 40, 56 thru 58	3), set of 3	1
		Lower Blade Holder		
41	. 6286494	Pan Head Screw	. M5x6	2
		Blade0.36mm (t) x 1.1mm (W)		
		Tension Lever		
		Screw		
		Hex Nylon Lock Nut		
		Bolt		
		. Upper Blade Chuck		
		Spring		
		Bearing		
		Blade Clamp Assembly (includes #38)		
		Plate		
		Drive Link Assembly		
		Inner Bearing Sleeve (Short)		
		Thumb Screw Assembly (#56 thru 58)		
		Thumb Screw		
		O-Ring		
		Press Bar		
ວອ	.Jvv 3322B-459	. Inner Bearing Sleeve	നമ്പാരാ (14ന്ന്ന്	Т

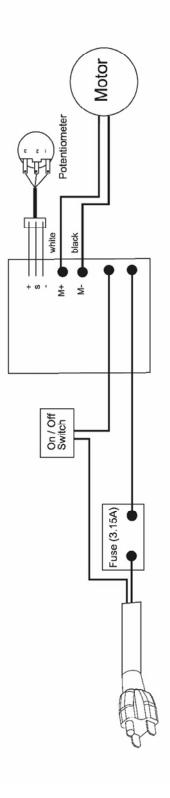
15.4.1 Stand (OPTIONAL) for JWSS-22B Scroll Saw – Exploded View



15.4.2 Stand (OPTIONAL) for JWSS-22B Scroll Saw – Parts List

Index No P	Part No	Description	Size	Qty
7	27200S	Stand for Scroll Saw (#1 thru 10)		
1T	S-0051051	Hex Cap Screw	. 5/16"-18 x 1"	4
2T	S-0680031	Flat Washer	. 5/16"	32
3J'	WSS22B-103	Top Short Brace		2
4J'	WSS22B-104	Top Long Brace		2
		Leg		
6T	S-0570021	Hex Nut	. 5/16"-18	28
7J	WSS22B-107	Bottom Short Brace		2
8J'	WSS22B-108	Bottom Long Brace		2
		Round Hd. Carriage Bolt, b.oxide		
10J'	WSS22B-110	Leg Extension		4
		Rubber washer (included with saw hardware)		
J'	WSS22B-SHK	Stand Hardware Kit (#1,2,6,9)		

16.0 Electrical Connections – JWSS-22B Scroll Saw



17.0 Warranty and service

JET warrants every product it sells against manufacturers' defects. If one of our tools needs service or repair, please contact Technical Service by calling 1-800-274-6846, 8AM to 5PM CST, Monday through Friday.

Warranty Period

The general warranty lasts for the time period specified in the literature included with your product or on the official JET branded website.

- JET products carry a limited warranty which varies in duration based upon the product. (See chart below)
- Accessories carry a limited warranty of one year from the date of receipt.
- Consumable items are defined as expendable parts or accessories expected to become inoperable within a reasonable amount of use and are covered by a 90 day limited warranty against manufacturer's defects.

Who is Covered

This warranty covers only the initial purchaser of the product from the date of delivery.

What is Covered

This warranty covers any defects in workmanship or materials subject to the limitations stated below. This warranty does not cover failures due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair, alterations or lack of maintenance. JET woodworking machinery is designed to be used with Wood. Use of these machines in the processing of metal, plastics, or other materials outside recommended guidelines may void the warranty. The exceptions are acrylics and other natural items that are made specifically for wood turning.

Warranty Limitations

Woodworking products with a Five Year Warranty that are used for commercial or industrial purposes default to a Two Year Warranty. Please contact Technical Service at 1-800-274-6846 for further clarification.

How to Get Technical Support

Please contact Technical Service by calling 1-800-274-6846. Please note that you will be asked to provide proof of initial purchase when calling. If a product requires further inspection, the Technical Service representative will explain and assist with any additional action needed. JET has Authorized Service Centers located throughout the United States. For the name of an Authorized Service Center in your area call 1-800-274-6846 or use the Service Center Locator on the JET website.

More Information

JET is constantly adding new products. For complete, up-to-date product information, check with your local distributor or visit the JET website.

How State Law Applies

This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty

JET LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF THE LIMITED WARRANTY FOR EACH PRODUCT. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. JET SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

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Product Listing with Warranty Period

90 Days - Parts; Consumable items

1 Year - Motors; Machine Accessories

2 Year – Metalworking Machinery; Electric Hoists, Electric Hoist Accessories; Woodworking Machinery used for industrial or commercial purposes

3 Year - Air Compressors

5 Year - Woodworking Machinery

Limited Lifetime – JET Parallel clamps; VOLT Series Electric Hoists; Manual Hoists; Manual Hoist Accessories; Shop Tools; Warehouse & Dock products; Hand Tools; Air Tools

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