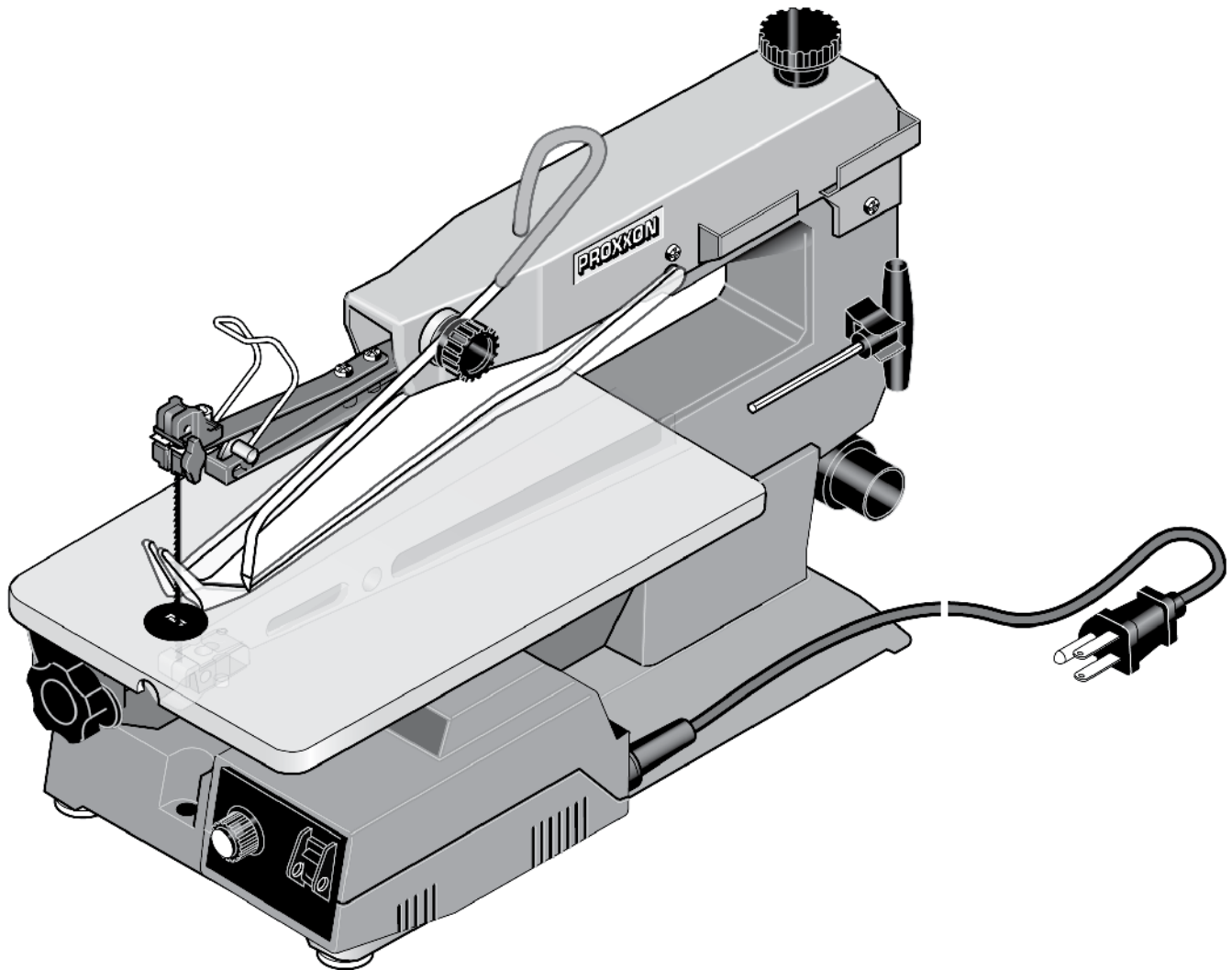


PROXXON

VARIABLE SPEED SCROLL SAW DSH/E



Manual

Fold out the picture pages
when reading the user instructions!

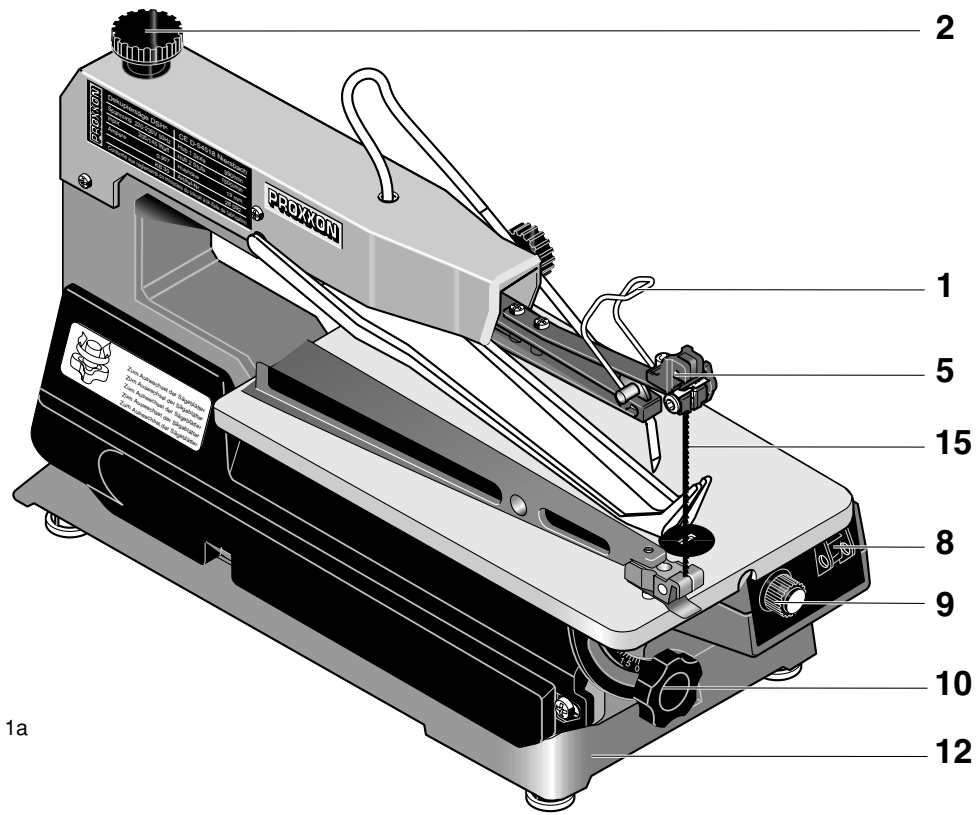


Fig. 1a

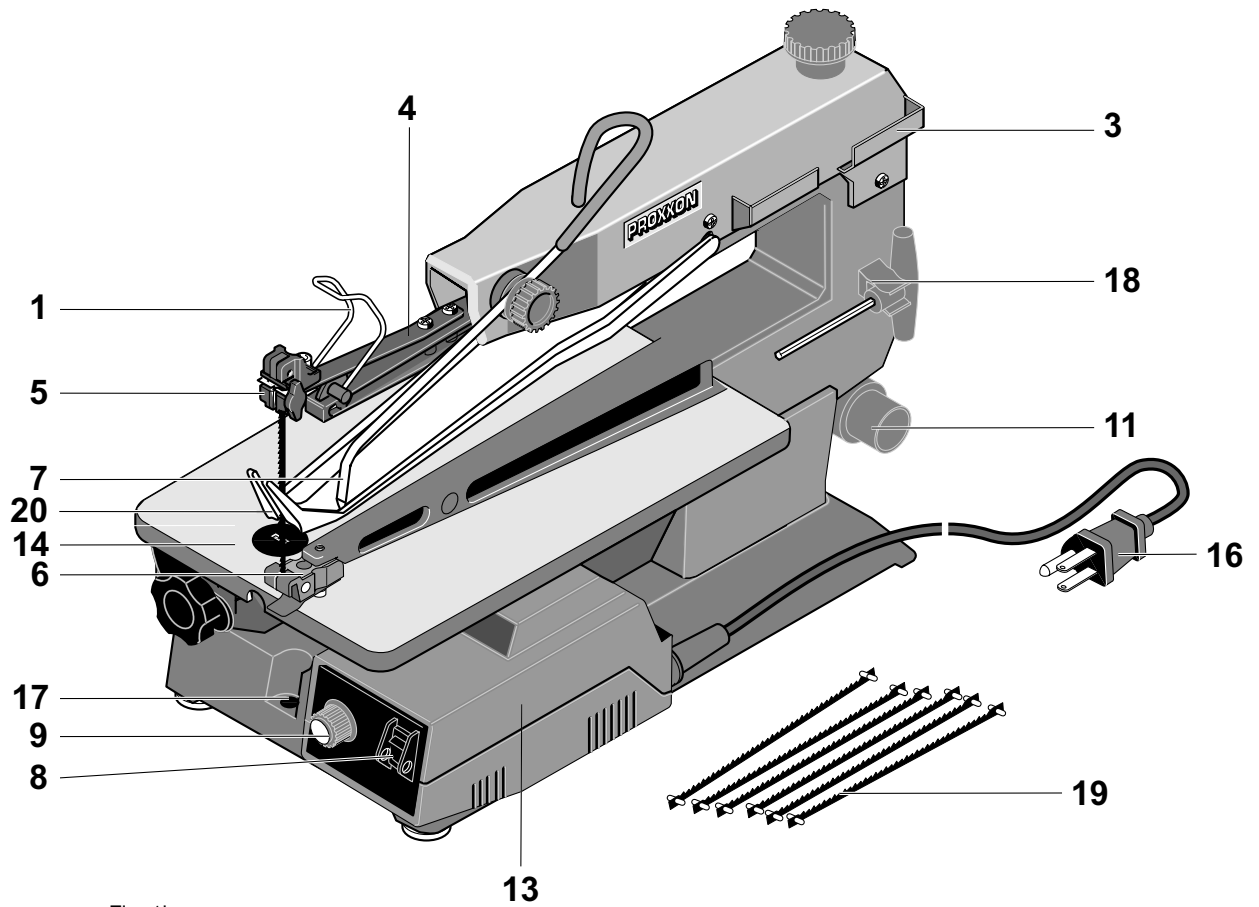


Fig. 1b

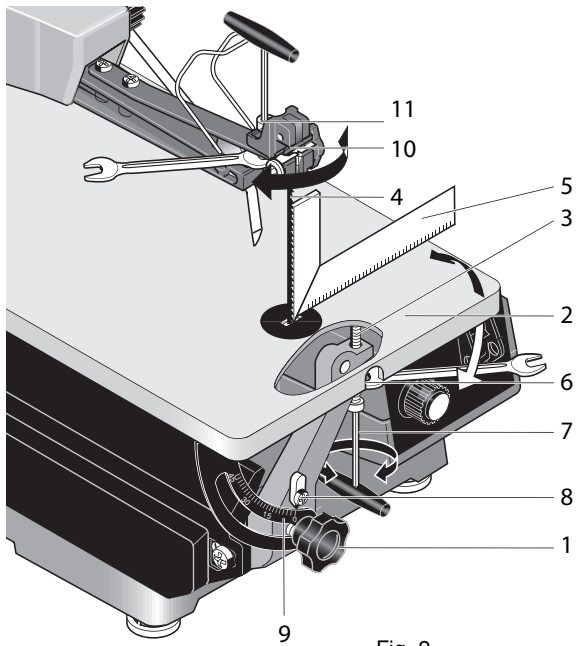


Fig. 2

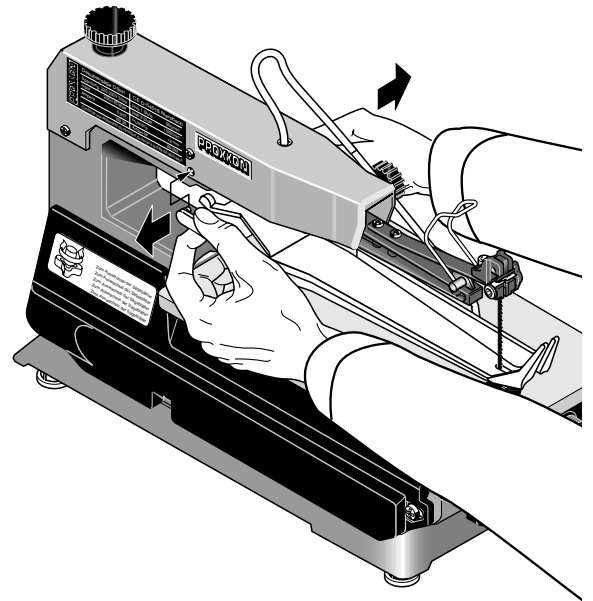


Fig. 2a

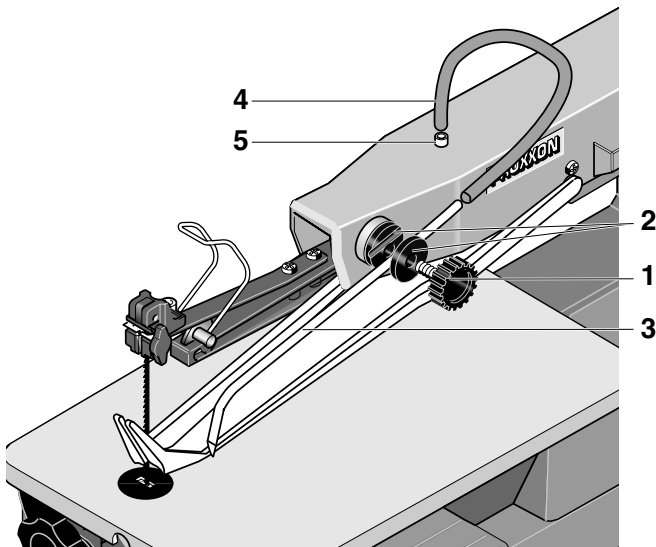


Fig. 3

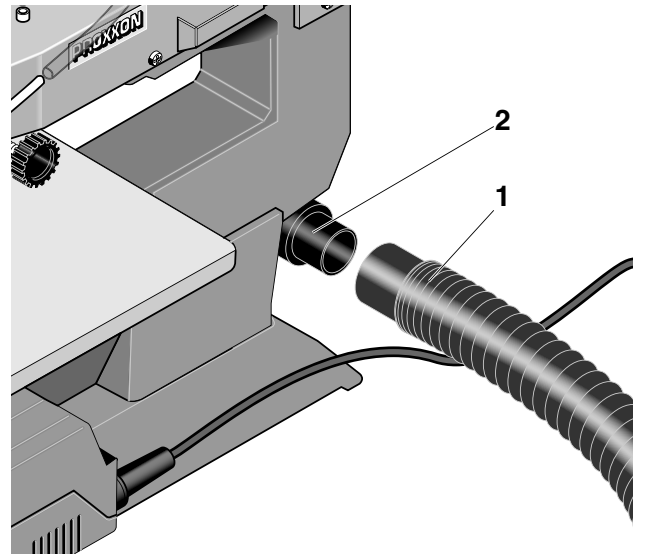


Fig. 4

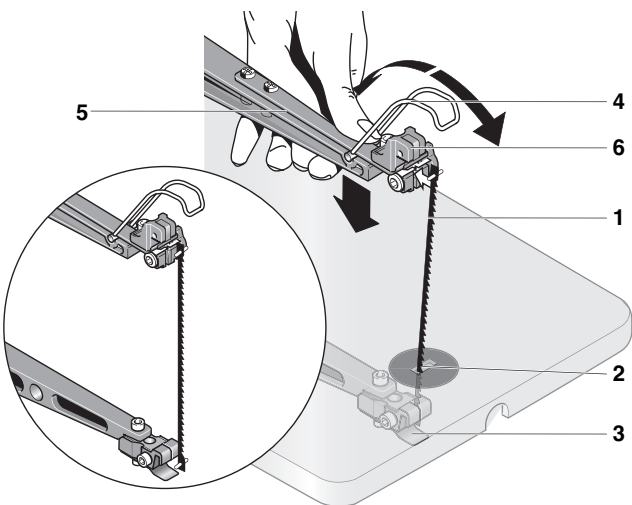


Fig. 5a

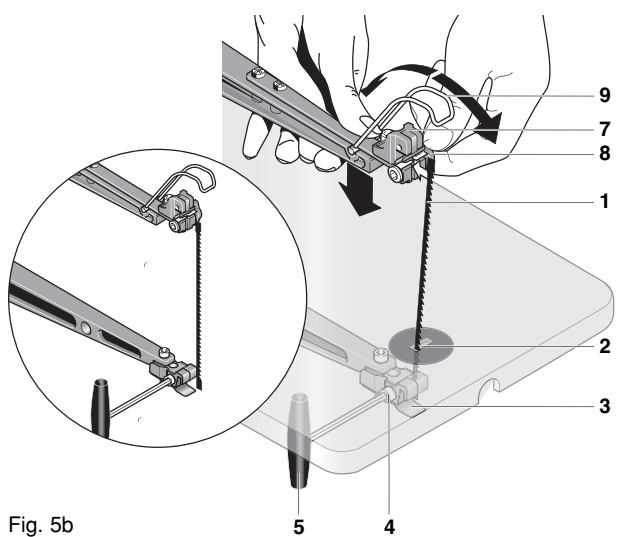


Fig. 5b

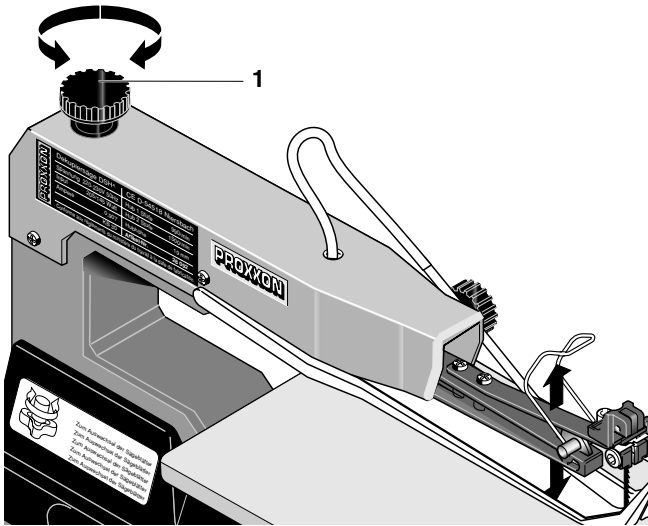


Fig. 6

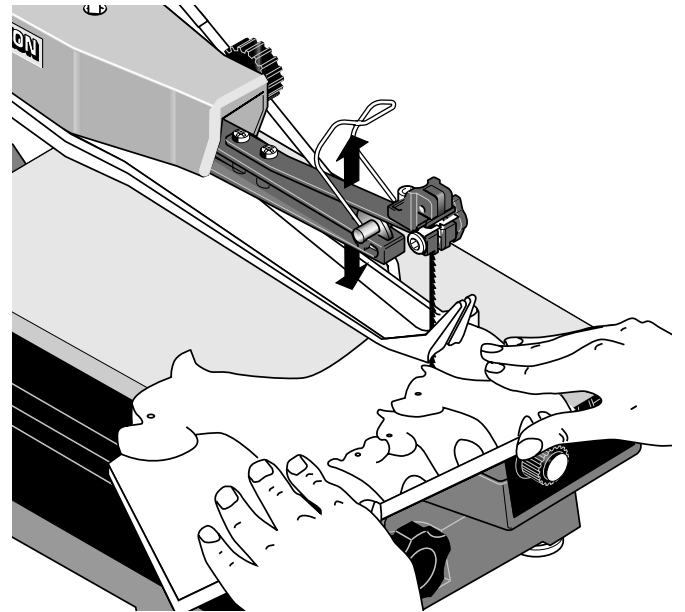


Fig. 7

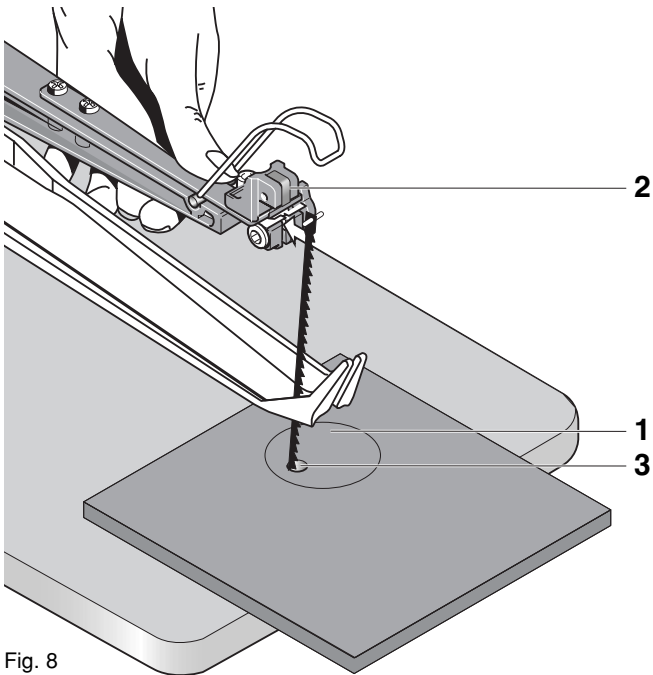


Fig. 8

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1 Mechanical Scroll Saw DSH/E with electronic speed control

Dear customer!

Using these instructions

- makes it easier to get familiar with the device
- prevents malfunctions caused by improper handling, and
- lengthens the service life of your device.

NOTE:

Keep this instruction manual in an easily accessible place. Only operate this machine if you are qualified to do so and follow the guidelines in this instruction manual.

PROXXON does not accept responsibility for the safe functioning of the machine

if it is handled in a manner which constitutes improper use,
if it is used for other purposes which are not specified in the instruction manual,
if the safety regulations are not observed.

Warranty claims are invalid if

1. the machine is incorrectly operated,
2. the machine has not been sufficiently maintained.

In the interests of your safety, please always observe the safety regulations. Only use genuine PROXXON spare parts. We reserve the right to make further alterations for the purpose of technical progress. We wish you every success with your machine.

Read and understand the entire owners manual before attempting assembly or operation!

2 General safety instructions

Read and become familiar with this entire instructions manual. Learn the tool's applications, limitations and possible hazards.

SAVE THESE INSTRUCTIONS

1. KEEP GUARDS IN PLACE and in working order.
2. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
3. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
4. 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 lighted.
5. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
6. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
7. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
8. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
9. USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table 1 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord. Exception No. 1: The reference to the table and the table itself may be omitted if a statement indicating the appropriate gage and length is incorporated into the instruction. Exception No. 2: The information regarding extension cords need not be provided for a permanently connected tool.
10. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Exception: The reference to gloves may be omitted from the instructions for a grinder.

11. 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.
12. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
13. DON'T OVERREACH. Keep proper footing and balance at all times.
14. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
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 owner'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 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. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
21. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

Table 1:
Minimum gage for cord:

Total length of cord in feet	25 ft	50 ft	100 ft	150 ft
AWG:	18	16	16	14

IMPORTANT

Additional Safety Instructions For Scroll Saws

Your safety is very important! Please follow the warnings below :

3. Additional Safety Instructions For Scroll Saws

Safety is a combination of common sense, staying alert and knowing how your scroll saw works. Read this manual to understand this saw and become familiar with its contents, including all the safety warnings. Do not allow familiarity (gained from frequent use of your Scroll Saw) to become commonplace. Always remember that a careless fraction of a second is sufficient to inflict severe injury.

Developing these habits in your shop and safety will become second nature to you.

ALWAYS WEAR EYE PROTECTION

Projectiles thrown away from the machine could cause serious permanent eye damage. Always wear safety goggles, not glasses, complying with ANSI Z87.1 (or in Canada CSA Z94-3-M88). Everyday eyeglasses have only impact resistant lenses. They are not safety glasses! Safety goggles are available at many local retail stores. Glasses or goggles not in compliance with ANSI or CSA could seriously hurt you when they break.

DO NOT REMOVE JAMMED CUTOFF PIECES UNTIL BLADE HAS STOPPED¹

Before freeing any jammed material or loose pieces from the saw table, turn the machine off, wait for all moving parts to stop and unplug the saw!

MAINTAIN PROPER ADJUSTMENT OF BLADE TENSION AND BLADE GUARDS

Quick Release Tension Lever should be in the correct position before operating. Make sure the blade tension is properly adjusted: For finely setting the correct saw blade tension you can use the knob on the upper back part of the housing, observe the instruction manual!

HOLD WORK PIECE FIRMLY AGAINST TABLE

Plan the way you will hold the work piece from start to finish; and follow the instructions:

Reduce the Risk of awkward operations and hand positions where a sudden slip could cause fingers or hand to move into the blade. Keep your face and body to one side of the blade, out of line with a possible thrown piece if the blade should break. Always use extra caution with large, very small or awkward work pieces! Do not use this Scroll Saw to finish pieces too small to hold by hand, and, if necessary, use extra supports (saw horses, V-blocks, tables, etc.) for any work pieces large enough to tip when not held down to the table top.

- Support round material such as tubing or dowel rods. They have a tendency to roll during a cut, causing the blade to "bite". To avoid this, always use "V" blocks.

- When cutting irregularly shaped work pieces, plan your work so it will not pinch the blade. A piece of molding, for example, must lay flat or be held by a fixture or jig that will not let it twist, rock or slip while being cut.
- Cut only one work piece at a time.
- Clear everything except the work piece and related support devices off the table before turning the saw on.

Never turn your Scroll Saw on before clearing the table of all objects (tools, scraps of wood, etc.) except for the work piece and related feed or support devices for the operation planned. Do not use another person as a substitute for a table extension, or as additional support for a work piece or to help feed, support or pull the work piece.

INSTALL BLADE TEETH POINTING DOWN TOWARDS TABLE

The Scroll Saw should cut on the down stroke. Always make sure blade teeth are oriented downward toward table.

KEEP FINGERS IN A SAFE DISTANCE FROM THE BLADE

Do not cut pieces so small that your fingers go under the blade guard. Never reach in blade cutting path with your hands or fingers.

Use jigs or fixtures to hold the work and keep your hands away from the blade.

When making a very small cut out, always secure the work piece to a scrap piece of plywood with double faced tape. This way, the work is supported and your fingers are away from the blade.

BLADE GUARD/HOLD DOWN MUST CONTACT WORKPIECE

Never use your Scroll Saw with the blade guard removed, damaged or mounted incorrect (see instruction manual). A blade guard that is damaged should be properly replaced.

NEVER LEAVE SCROLL SAW WITH MOTOR OPERATING

Never leave the Scroll Saw running unattended. Turn the saw OFF, make sure the saw has come to a complete stop, and then remove plug from power supply before leaving the work area.

ADJUST BLADE TENSIN BY HAND. NO TOOLS

For finely setting the correct saw blade tension you can use the knob on the upper back part of the housing, observe the instruction manual! Do not use any tools!

RAISE GUARD/HOLD DOWN WHEN TILTING TABLE

SECURE TOOL PROPERLY TO PREVENT UNEXPECTED MOVEMENT

Bolt the saw on a firm level surface where there is plenty of room for handling and properly supporting the work piece, like a stable, level table, workbench or the floor. The saw may move when cutting large work pieces if not secured (See also "Setting up the saw" in the manual). Support large work pieces

to reduce blade breakage and pinching. Support the saw so the table is level and the saw does not rock.

DISCONNECT MACHINE FROM POWER SOURCE BEFORE MAKING REPAIRS AND ADJUSTMENTS

Unplug your scroll saw before changing blades, adjustments, or performing any maintenance.

DO NOT EXPOSE TO RAIN OR USE IN DAMP LOCATIONS

DO NOT OPERATE MACHINE WHILE UNDER THE INFLUENCE OF DRUGS; ALCOHOL OR MEDICATION

Never operate a machine when tired, or under the influence of drugs or alcohol or medication. Full mental alertness is required at all times when running a machine.

NEVER ALLOW UNSUPERVISED CHILDREN OR UNTRAINED PERSONNEL TO OPERATE THE MACHINE.

Make sure any instructions you give in regards to machine operation are approved, correct, safe, and clearly understood. Unsupervised visitors or children inside your shop could receive serious personal injury. Ensure child and visitor safety by keeping all entrances to the shop, the ON/OFF knob on the saw locked and the plug removed from the power supply outlet at all times the saw is unsupervised.

KNOW YOUR POWER TOOL

Read and understand the owner's manual and all the labels affixed to the tool. Learn its application and limitations as well as the specific potential hazards peculiar to this tool.

DO NOT FEED THE MATERIAL TOO FAST WHILE CUTTING

Only feed the material fast enough so that the blade will cut.

BEFORE EACH USE INSPECT YOUR SAW AND CHECK DAMAGED PARTS AND WATCH THE SAW WHILE IT RUNS

Before use of the tool, any part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. If the saw makes an unfamiliar noise or vibrates excessively, stop immediately; turn the saw off. Unplug the saw! Check for alignment of moving parts, mounting, and any other conditions that may affect its operation. If any part is missing, broken or bent in any way, or any electrical parts don't work properly, turn the saw off and unplug the saw. Do not restart until finding and fixing the problem correctly. All repairs, electrical or mechanical, should be attempted only by trained repairmen.

USE BLADES AND ACCESSORIES RECOMMENDED FOR YOUR MACHINE

Choose the right size and style blade for the material and the type of cutting you plan to perform. Use only recommended accessories and follow the instructions that come with the accessories. The use of improper accessories may cause risk of injury. Remove plug from power supply outlet before installing or removing any saw blades or other accessories.

DO NOT ALTER OR MISUSE TOOL

These Scroll Saws are precision built. Any alteration or modification not specified is misuse and may result in dangerous conditions.

AVOID POSITIONS where a slip could cause your hand to go into the blade. Wear non slip footwear.

DO NOT START THE SAW WITH THE BLADE IN CONTACT WITH THE WORKPIECE.

BEFORE STARTING YOUR WORK ALWAYS INSPECT YOUR WORKPIECE:

Make sure there are no nails or foreign objects in the part of the work piece to be cut.

REDUCE THE RISK OF FIRE!

Remove all traces of wood dust from on and around the saw. Remove all metal shavings from on or around the saw before sawing wood again.

WARNING:

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

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

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

Use a vacuum cleaner for wood dust collection as described in our manual whenever possible.

4 Grounding instructions

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 service personnel 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.

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

This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A in Figure 9. The tool has a grounding plug that looks like the plug illustrated in Sketch A in Figure 9 temporary adapter, which looks like the

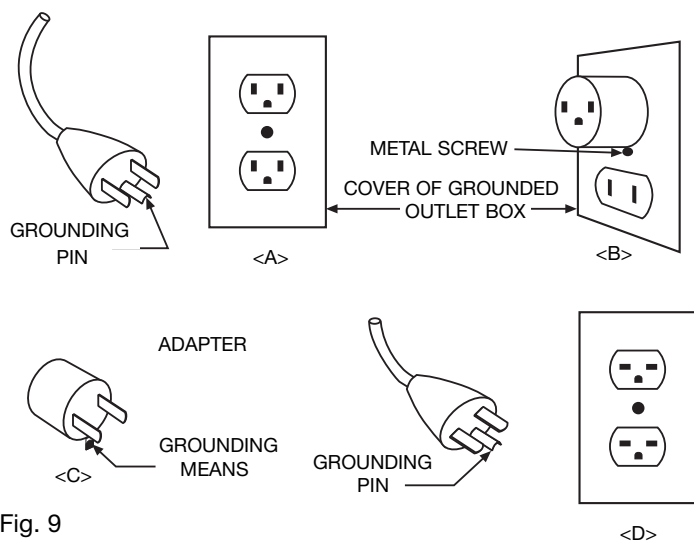


Fig. 9

adapter 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 adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box.

5 Legend (fig. 1)

1. Quick tensioning clamp for saw blade tensioning
2. Fine adjustment for saw blade tensioning
3. Storage compartment for saw blades
4. Saw frame
5. Saw blade mount, top
6. Saw blade mount, bottom
7. Air nozzle
8. ON OFF switch
9. Stroke rate regulating button
10. Tilting Locking Knob
11. Connecting piece for vacuum cleaner
12. Cast steel base
13. Direct current motor
14. Saw table
15. Saw blade
16. Mains cable
17. Drill holes for fastening screws
18. Allen key with T-Handle
19. Saw blades
20. Blade guard

6 Description of machine (also see fig. 1a and 1b)

The PROXXON mechanical scroll saw is a very solid and robustly designed device. The heavy base made of cast material, item 12, forms a solid basis for the expensive mechanism of the machine which can work vibration-free, precisely positioned and driven by an electronically controlled direct current motor 13.

The areas of application are multifaceted. Your DSH/E is particularly suitable for mould construction, precision engineering model building and toy manufacture. For this reason, it is precisely the right tool for designers, architects (model building) and carpenters.

The large-area, saw table 14 1/8" x 10 5/8" for mitre cuts can be tilted up to 45°, is manufactured from aluminium die casting for the highest precision and stability, and is then ground for optimal glide properties.

The high quality saw blade mounts (5 and 6) and the innovative quick clamping 1 also guarantee a lot of pleasure while working and a convincing working result.

Changing the saw blades 15 is very simple with the quick tensioning clamp. Saw blades with flat ends (without pin) are introduced into the clamp adapter when the quick tensioning device is released, clamped by tightening the screw and then tightened with the tensioning device.

Changing saw blades with pins is even easier. These are simply attached when the quick clamp is released and then clamped using the quick clamp device.

The saw blade tensioning can then be set by the large rotary button 2 at the top end of the arm.

The replacement saw blades are stored in the "saw blade garage" 3, on the side of the panelling of the top arm.

The DSH/E saws soft wood up to a thickness of 2", plastic up to 1 1/4" and non-ferrous metals up to 0.4".

The saw can also be used without problem for separating Plexiglas, GRP, foam, rubber, leather and cork.

And so that the dust does not obscure the view of the cutting line when working, there are automatically driven bellows with adjustable air nozzle 7. An additional vacuum cleaner can also be connected. The connecting piece 11 is positioned at 90° to save space.

This guarantees clean work.

Scope of supply:

- 1 pc. Scroll Saw DSH/E
- 1 pc. connector for Vacuum cleaner
- 1 pc. Bag with air nozzle incl. accessories
- 5 pc. Saw blades 18 teeth
- 5 pc. Saw blades 25 teeth
- 1 pc. Allen key with T-handle
- 1 pc. Operating manual

7 Technical data

No. of strokes:	400-1.600 strokes per min.
Stroke height:	3/4"
Max. cutting height (90°):	2"
Max. cutting height (45°):	1"
Table tilt:	0-45°
Cutting blade length:	5" Pin-Type or Plain End (without cross pin)
Net weight:	34.6 lb
Dimensions:	
LxWxH	20 7/8" x 10 5/8" x 11 13/16"
Table:	14 1/8" x 10 5/8"
Depth of Throat:	15 3/4"
Motor:	
Voltage:	110-120 V, 60 Hz
Amps:	1.6 A

8 Set-up and commissioning of the saw:

CAUTION:

For your own safety, do not operate your Scroll Saw until it is completely assembled and installed according to the following instructions!

Disconnect power to the machine during the entire assembly process. Failure to do this may result in serious personal injury.

8.1 Unpacking (fig. 1a and 1b):

Disconnect power to the machine during the entire assembly process. Failure to do this may result in serious personal injury.

1. Unpack the device and remove it from the box. Ensure that the device is not lifted by the plastic panelling around the top arm 4 (as shown on the sheet attached to the packaging).
2. For transport reasons, the saw table is tilted up at an angle of about 45°. Turn the toggle 10 to tilt the table back into the horizontal position (the precise setting is described below). Then tighten the toggle 10 again.

8.2 Attaching Blade Guard

Your DSH/E Scroll Saw is provided with the attached blade guard. But for some of the actions and adjustments described in this manual it could be necessary to detach the blade guard.

Attaching and detaching the blade guard:

1. Bend up the saw blade guard on the upper side and hang it out like shown in illustration 2a.
2. For attaching the saw blade guard just act the opposite way around: Bend up the saw blade guard on the upper side and hang it in. There are holes in the upper cover designed for that.

8.3 Setting up the saw:

NOTE:

Safe and precise work is only possible with careful fixing!

Bolt your Scroll Sas securely to a stand or workbench. If there is any tendency for the Scroll Saw to tip over or move during certain operations (for example cutting long, heavy boards), fix the Scroll Saw stand or the workbench to the floor.

1. Secure saw with two screws (not included in scope of delivery) on a solid workbench. Use the drill holes intended for this purpose (17, fig. 1) which are located at the front and back of the saw base.

The saw is equipped with rubber feet for noise insulation. If required, you can also place an additional plastic or cork underlay between the machine and the standing surface (not included in scope of delivery!).

8.4 Adjust and set angle display (fig. 2):

1. Slightly loosen toggle 1 (fig. 2) and fold saw table 2 up to stop screw 3.
2. Clamp saw blade 4! See the corresponding section 8.7.1 of these instructions. Caution! Mains plug must not be connected.
3. Using an angle 5 on the saw table 2, check the right-hand angle to the saw blade. The stop screw is preset. If this still has to be adjusted, you can adjust the setting yourself using an Allen key 7, as shown in fig. 2, once the counter nut has been loosened. After correct setting, tighten the counter nut. Make sure that the stop screw does not go out of position in this process.
4. Check the "zero" setting of the bevel indicator 8, if necessary, correct after the fastening screw has been loosened. For precise working, carry out sawing sample.
5. Saw a sample from a piece of wood and check the angle again, if necessary adjust the saw table 2, indicator 8 or stop screw 3 as shown in fig. 2.

8.5 Assembling the air nozzle (fig. 3):

1. Take parts for securing the air nozzles from the attached bag.
2. Screw the knurled screw 1 (fig. 3) with clamping pieces 2 into the saw frame.
3. Introduce the air nozzle pipe 3 (fig. 3) into the hole on the opened clamp pieces, adjust the pipe and slightly tighten the toggle 1.
4. Place the air hose 4 (fig. 3) on pipe 3 and nipple 5.

8.6 Connecting the vacuum cleaner (fig. 4):

1. Place the vacuum hose 1 of the vacuum cleaner in the connecting piece 2.
2. Switch on the vacuum cleaner before sawing so that the sawdust is vacuumed and the suction device does not get blocked. For practical reasons, the PROXXON suction control device is recommended.

8.7 Saw blades

CAUTION!

Always remove the mains plug before performing the activities described here.

8.7.1 Clamping in the saw blade (fig. 5a and 5b):

Standard blades with cross pins or plain ended blades without cross pin can be clamped into the saw blade mount.

Replace damaged or worn saw blades immediately. They represent a safety risk and worsen the work result. The best

cutting performance and precision can only be achieved with perfect saw blades.

Use PROXXON original saw blades and carefully select suitable saw blades for the intended purpose and material to be cut. With Proxxon, there are also various fine toothings, flat and round blades, and some with and without cross pin. You will find suggestions in these instructions.

8.7.2 Saw blades with cross pin (fig. 5a).

Saw blades with cross pin are particularly suitable for working with many closed inside cuts. The saw blade can be quickly and comfortably removed from the upper mount, looped through the work piece and repositioned. You will find more precise information in the section "Inside cuts".

CAUTION!

Saw blades with cross pins may only be hung in position. Do not clamp the saw blades with the cross pin additionally by means of the cheese-head screws. Risk of fracture!

1. Position the level for the quick tensioning clamp 4 to the front!
2. Place saw blade 1 with the teeth pointing downwards through the table opening 2 and fit in the bottom mount 3.
3. Press lightly on the top arm 5 and fit blade in the upper mount 6, see fig. 5a).
4. Release arm and position the lever of quick tensioning clamp 4 to the rear.
5. If required, finely set the saw blade clamp as described under 8.7.4.

8.7.3 Saw blades with flat ends (hand or leaf saw blades, see fig. 5b):

1. Position the lever for the quick tensioning clamp 4 to the front!
2. Place saw blade 1 with the teeth pointing downwards through the table opening 2 and fit in the bottom mount 3. Then clamp the blade in the mount by tightening the cheese-head screw 4 with the supplied Allen key with T-handle 5.
3. Press lightly on the upper arm 6, introduce the saw blade into the upper mount 7 and fix by tightening the wingnut 8.
4. Position the lever for the quick tensioning clamp 9 to the rear!
5. If required, finely set the saw blade clamp as described under 8.7.4.

8.7.4 Finely setting the correct saw tensioning (fig. 6):

Correct saw tensioning is an essential factor for a clean work result. This must, therefore, be carefully set. If over or

undertensioned, the saw blade can lightly crack. Turn knurled button 1 to set the tensioning. If the button is moved to the right (clockwise), the saw blade is more tightly tensioned. If it is turned to the left (anticlockwise) the blade is loosened.

A correctly tensioned blade sounds a slight tone if "plucked" like a string.

8.7.5 Removing saw blade (fig. 5a and 5b):

8.7.5.1 Saw blades with cross pin (fig. 5a).

1. Position the quick tensioning lever 4 to the front
2. Press top arm 5 slightly down so that the saw blade 1 can be released from the top mount 6. Take out saw blade.
3. Take out saw blade from bottom mount 3 and remove through table opening 2.

8.7.5.2 Saw blades with plain ends (fig. 5b):

1. Position the quick tensioning lever 4 to the front.
1. Open wingnut 8, the saw blade 1 releases from the top mount 7.
2. Open cheese-head screw 7 with the T-handle Allen key 5, release saw blade from the lower mount 3 and remove through the table opening.

9 Working with the saw:

9.1 General information for working with mechanical scroll saw:

The mechanical scroll saw is predominantly a machine for sawing curves and precise sections. A typical application is shown in fig. 7. The work piece must be carefully guided by the operator. Note: Mechanical scroll saws are normally operated without length stop, as the saw blade loses its line if forced in, particularly in the grain of wood.

Please note that the saw blade only saws in reverse motion in the direction in which the teeth point.

For good results, please note the following points:

- When sawing, press the work piece onto the work plate (fig. 7), guide by feeling and with little power; more pressure on the work plate, less pressure against the saw blade.
- Make sure that the work piece is lying properly on the saw table (nor burrs or sawdust)
- Adapt the feed to the requirements by saw blade, speed and work piece material.
- Guide the work piece slowly into the saw blade, particularly if the blade is very thin and the teeth very fine or if the work piece is very thick. Note: The teeth only cut in reverse motion.

- Only use perfect saw blades.
- Do not let the device operate unsupervised.
- Carefully mark out/block the check line.
- Make sure there is good lighting.
- Always work with connected vacuum cleaner and carefully set the air nozzle (7, fig. 1).
- You will achieve the best results if the wood thickness is under 1".
- With wood thicknesses of greater than 1", the work piece must be very carefully guided to stop the saw blade from jamming, bending, twisting or breaking.
- For precise cutting, note that the saw blade will always try to follow the direction of the fibre (applies particularly to thin saw blades).

9.1.1 Selecting the saw blade:

As already mentioned, the correct selection of material has a very great influence on the quality of the result. The table below should serve as a small guide. Extensive experience with many materials and types of saw blade is, of course, always helpful with selection. You can experiment here.

Tip: The saw blades are mostly only particularly worn at places where the teeth are particularly highly utilised when sawing and, therefore, become blunt very quickly. To "use up" the non-worn teeth and thus increase the edge life of the sawing blades, you can artificially "raise" the bearing surface for the work piece somewhat.

To do this, simply secure a smooth, table-sized underlay with the required thickness to the saw table, using, for example, double-sided sticky tape. The non-worn parts of the saw blade are now sawing the work piece.

This is particularly sensible if you often saw very hard and wear-intensive materials with thin blades.

The numerical data for characterising the "fineness" of the toothing is related to the number of teeth per inch of saw blade length:

Teeth/inches	Material:
approx. 10-14	Soft and hard wood (from approx. 3/16"-2"), plastics, soft materials, thicker work pieces
approx. 17-18	Fine sawing work, wood (up to 3/16"), plastics, soft materials, thinner work pieces
approx. 25-28	Plastic, GRP, non-ferrous metal, Plexiglas, iron with restriction Pertinax
approx. 41	Iron, Pertinax

Round sawing blades (with flat ends) can ideally be used for plastic, hard and soft wood. They cut on all sides, so it is not necessary to turn the work piece when sawing.

10 Selecting the speed:

This representation can, of course, only give instructions on the general direction to take. As in the previous section, you have to "experiment" a little to find the optimal result. The appropriate speed also, of course, depends on the blade used, the material of the work piece, the feed etc.

Level	Material
400 strokes	Steel, brass, non-ferrous metals, GRP, plastics
1600 strokes	Aluminium, wood, polystyrene, rubber, leather, cork

10.1.1 Possible causes of faults:

The following causes may break the saw blade:

- If blade is tensioned too tightly or not tightly enough
- Mechanical overloading of the blade by feeding too quickly.
- Bending or twisting of the blade when turning the work piece too quickly when cutting curves.
- When the wear limit of the saw blade has been reached.
- If the screws are tightened on saw blades with cross pin.

10.2 Sawing (fig. 7)

Hold the work piece on the saw table as shown in fig. 7. Adapt the feed according to the material, the saw blade and the work piece thickness. Hard materials, fine saw blades and thick work pieces do not "tolerate" as much feed as soft materials, rough saw blades and thin materials.

You can also experiment with various speeds.

NOTE:

Safe and precise work is only possible with careful fixing!

The mechanical scroll saw is predominantly a machine for sawing curves. For good results, please note the following points:

Please note:

- Only use perfect saw blades.
- Always remove the mains plug for maintenance and upkeep work.
- Do not let the device operate unsupervised.

1. When sawing, press the work piece onto the work plate, guide by feeling and with little power, more pressure on the work plate, less pressure against the saw blade. Caution! The saw does not cut the work piece itself. You must guide the work piece into the saw blade.
2. Guide the work piece slowly into the saw blade, particularly if the blade is very thin and the teeth very fine or if the work piece is very thick. You will achieve the best results if the wood thickness is less than 25 mm.
3. Please observe the instructions under 8.1.

10.2.1 Inside cuts (fig. 8)

CAUTION!

Always remove the mains plug before releasing the saw blade.

If you must also make inside cuts when working with your mechanical scroll saw, proceed as follows:

1. Drill a hole in the inside part 1 to be cut out of your work piece.
2. Take the saw blade from the top saw blade guide 2. Proceed as shown in 8.7.5.1 and in 8.7.5.2, depending on the type of saw blade used.
3. Push the saw blade through the drill hole. Reattach saw blade at the top. Tension the saw blade properly again.
4. Cut out the opening and remove the work piece once the saw blade has been removed again.

Tip: If you drill the hole in such a way that it does not touch the later inside contour, you can allow the saw line to run tangentially into the contour. This produces a nice even sawing edge.

10.2.2 Grain cuts:

For grain cuts, the table is simply tilted by the required amount. This works as follows:

1. Slightly loosen toggle screw 1 (fig. 2) and align saw table 2 to the required value, using scale 9 on indicator 8.
2. Tighten toggle screw 1.
3. Press the work piece particularly firmly against the table for a grain cut.

11 Care and maintenance

After use

CAUTION!

Pull the mains plug before making any adjustments, performing maintenance work, or carrying out repairs!

Failure to do this may result in serious personal injury.

NOTE:

The scroll saw is basically maintenance free. However, to ensure a long service life you should clean the device after each use with a soft cloth, swab, or brush. A vacuum cleaner is also advisable for this. Ensure all ventilation slots are free from obstruction.

External cleaning of the housing can be carried out using a soft, possibly moist cloth. While doing so, a mild detergent or other suitable cleansing agent can be used.

WARNING:

To avoid fire or toxic reaction, never use gasoline, naphtha, acetone, lacquer thinner, or similar highly volatile solvents to clean the scroll saw.

These products have low flash points and could explode if used to clean the saw.

NEVER smoke while using solvents: Smoking near solvents could ignite an explosion or fire and cause serious injury.

ALWAYS WORK in a well ventilated area to prevent the accumulation of dangerous fumes, continuously supply the work area with a constant source of fresh air:

Lack of ventilation while using solvents could cause serious personal health risks, fire, or environmental hazards.

Do not allow brake fluids, gasoline, or penetrating oils to come in contact with the plastic parts. They contain chemicals that can damage or destroy plastics!

When servicing use only PROXXON replacement parts. Use of any other parts may create a hazard or cause product damage.

Any attempt to repair or replace electrical parts on this tool may create a hazard unless repair is done by a qualified service technician.

Repair service is available at your PROXXON service center (You find the address at address at the back of this manual).

12 Accessories

Replace damaged or worn saw blades immediately. They represent a safety risk and worsen the work result.

Please use PROXXON accessories. NOTE: The use of improper accessories may cause hazards.

Use 5 inch Plain or Pin-end blades. Actually PROXXON provides:

"Super-Cut" scroll saw blades:

Special industrial quality steel for prolonged cutting capacity.

NO 28 106 Very fine-toothed blades
Set of 6 blades (40 TPI)
Ideal for hard woods, circuit boards, non-ferrous metals, Plexiglas and plastic.

NO 28 107 Set of fine-toothed blades
Set of 6 blades (28TPI)
For thinner materials, or finer cuts on hard and soft woods as well as plastics (Plexiglas and acrylics, too).

NO 28 108 Coarse toothed (16 TPI). For
Set of 6 blades hardwoods, plastics (Plexiglas and acrylics, too) as well as thicker materials.

Standard blades with pin ends:

NO 28 740 Coarse (10 TPI). For hard and
Set of 6 blades soft woods and thick material.

NO 28 742 Fine (18 TPI). For soft and hard
Set of 6 blades woods and thinner materials.

NO 28 744 Very fine toothed (25 TPI). For v
Set of 6 blades plastics, fiberglass, non-ferrous metals, acrylics and wood.

Spiral blades for DSH/E:

NO 28 746
Set of 6 blades Plain end blades, cutting in all directions, eliminating the need to turn the work piece (advantageous, especially with bigger work pieces). A 1/16" hole is required. Ideal for plastic, hard and soft woods.