

Sabre Saws

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Portable Sabre saws, sometimes referred to as “jig” saws, are used to cut curves in wood. Sabre saw blades are secured at only one end and reciprocate (move up-and down).

They are commonly used to:

- Cut sink holes in countertops
- Cut openings for electrical outlets
- Scribe trim

A scroll saw is a stationary version of a jig saw. The scroll saw blade is held at both ends.



Jig saw



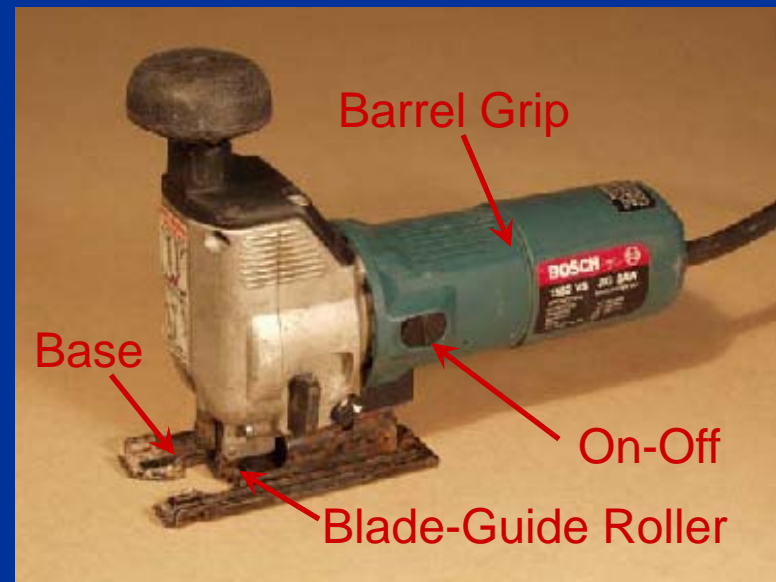
Scroll saw

Sabre Saw Features

Sabre saws have either barrel or handle (“Bayonet”) grips. Power is rated in amps. All models have a blade clamp and a way to loosen and tighten the blade.



Bayonet Style Sabre saw



Barrel Grip Style Sabre saw

Optional Features: Variable Speed Control

Sabre saws are available with many optional features.

Variable-speed control allows cutting at different speeds. Speeds can be selected between 0- 3000 strokes per minute. This control can be a separate roller switch or included in a trigger switch.

Rules-of-thumb:

- Adjust speed to control chip-out.
- Wood usually requires high-speed cutting; metal requires a slower rate.



Variable Speed Roller Switch

Optional Features: Tilting Bases

Tilting bases allow bevel cuts. Angle adjustments are made with an Allen wrench or with a locking lever. Cutting precise angles is difficult with the jig saw, as the blade will bend during the cut. Feed the saw slowly and use a sharp blade. For normal cutting operations, always check that the blade is square to the base.

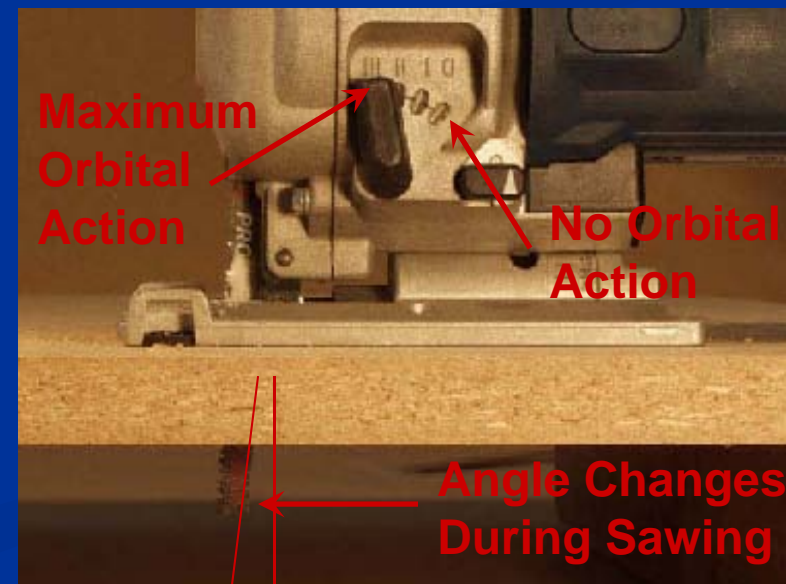
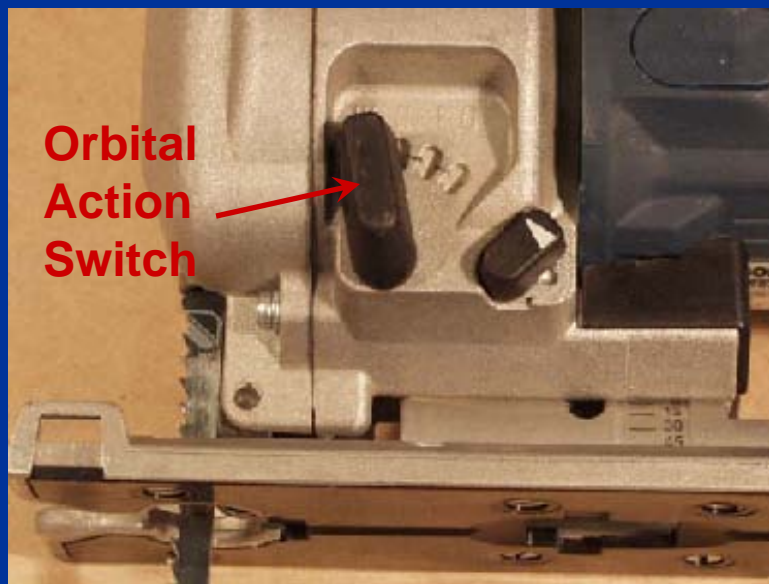


Allen Screw
Underneath



Optional Features: Orbital Action

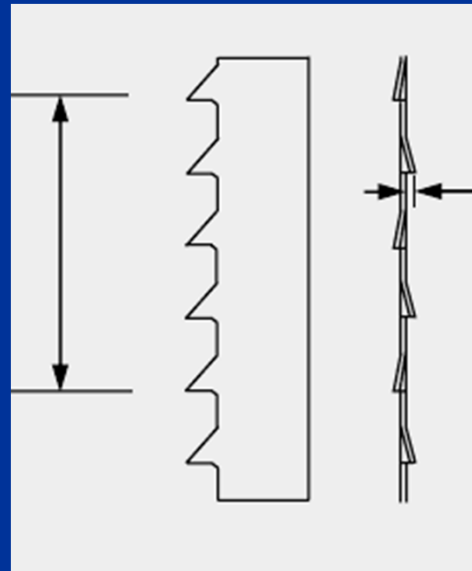
With an orbital action saw the blade leans back-and-forth as it reciprocates. The blade moves forward on the up-stroke (for an aggressive cut) and back on the down-stroke (keeping the teeth clear of wear). The blade cuts faster, but makes a rougher cut. Controls allow the user to select the amount of orbital action. Counterbalanced (internally weighted) Sabre saws are available that help reduce vibration. Saw vibration affects the quality of the cut.



Sabre Saw Blades

- Sabre saw blades have offset teeth (or set), which causes the kerf to be wider than the body of the blade. Set allows the blade to steer. Without set the blade would burn and bind in a curved cut. The greater the set, the rougher the cut.
- Pitch is the number of cutting teeth per inch. The more teeth the blade has the smoother (and slower) the cut. Pitch, set and tooth shape determine how the blade cuts.

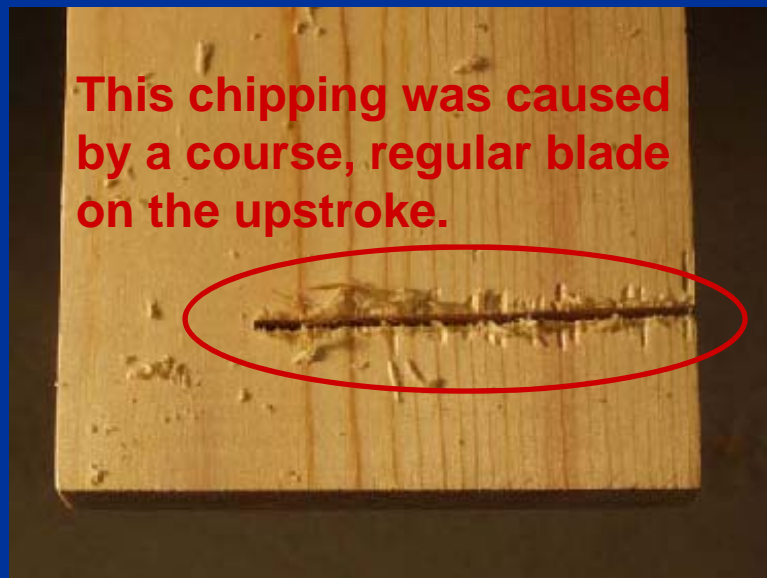
Pitch is number of teeth per inch.



Set is the distance that a tooth is bent to the side.

Sabre Saw Blades, continued

Sabre saws cut on the upstroke. The blade teeth point upward, towards the saw. Care must be taken not to splinter out the top surface of the wood. Reverse-tooth blades cut on the down-stroke and minimize chip-out for critical cuts.



Review Questions-Part 1

1. A Sabre saw can _____.
 - a) cut on the upstroke
 - b) cut on the downstroke
 - c) Both a and b
2. A reciprocating blade _____.
 - a) is only used for straight cuts
 - b) has a speed adjustment
 - c) moves up and down
 - d) moves in a circular pattern
3. Orbital action is _____.
 - a) the up-and-down movement of the saw
 - b) an up-and down movement combined with a back-and-forth movement
 - c) the tilting of the base
 - d) a mechanism for changing the blade

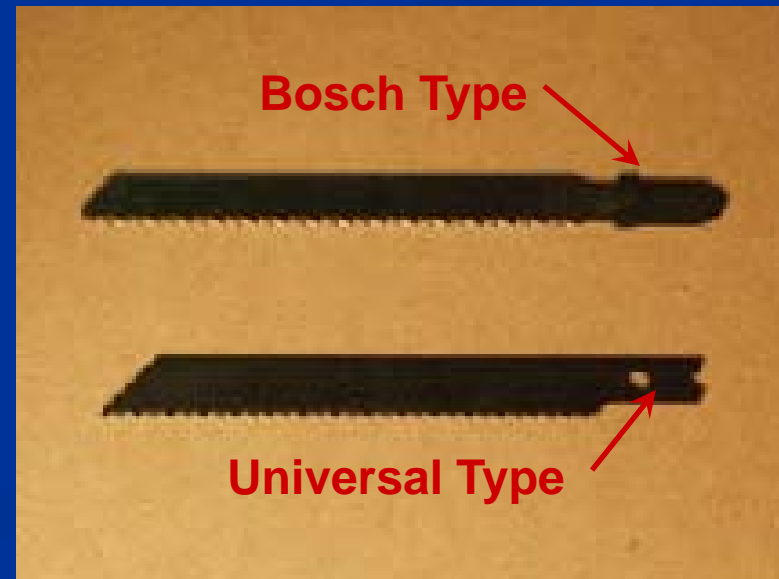
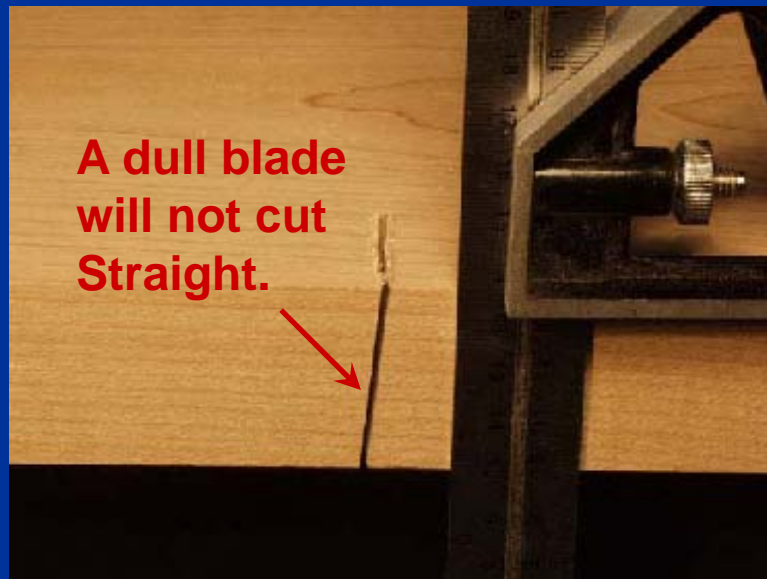
Blade Shank Styles

Sabre saw blades are commonly available in two (2) shank types:

- U-shank or Universal
- T-shank or Bosch-style

The shank must be compatible with the saw model. The blade is gripped only at one end so it is free to twist and bend. For this reason, it is difficult to make a square, accurate cut through thick material. If the blade is dull, it may:

- 'wander' or bend in the cut.
- smoke and burn the wood.



Blade Types

- There is a blade for almost every type of material.
- Blades are available in carbon steel, bi-metal and high-speed steel.
- Blades come in lengths from three (3) to six (6) inches. Long blades bend more easily than short blades.
- Blades also come in different widths. Wider blades are more stable and are better for straight cuts. Narrow blades cut tight curves, but break more easily.



Changing Blades

Each saw has its own way to change a blade. Here are two methods for Bosch saws:

1. The saw may have a knob or lever which releases the blade. This is called a quick-release mechanism.
2. The saw may require a long screwdriver to tighten and loosen the blade. Some models include an adjustable-roller that helps keep the blade straight. Ask your supervisor how to change the blade on your saw.

- **Always** unplug the saw before changing blades.
- **Always** remove Allen wrenches or screwdrivers before starting the saw.



A long screwdriver tightens the blade through the main shaft.

A quick-release handle tightens and loosens the blade without extra tools.



Making a Curved Cut

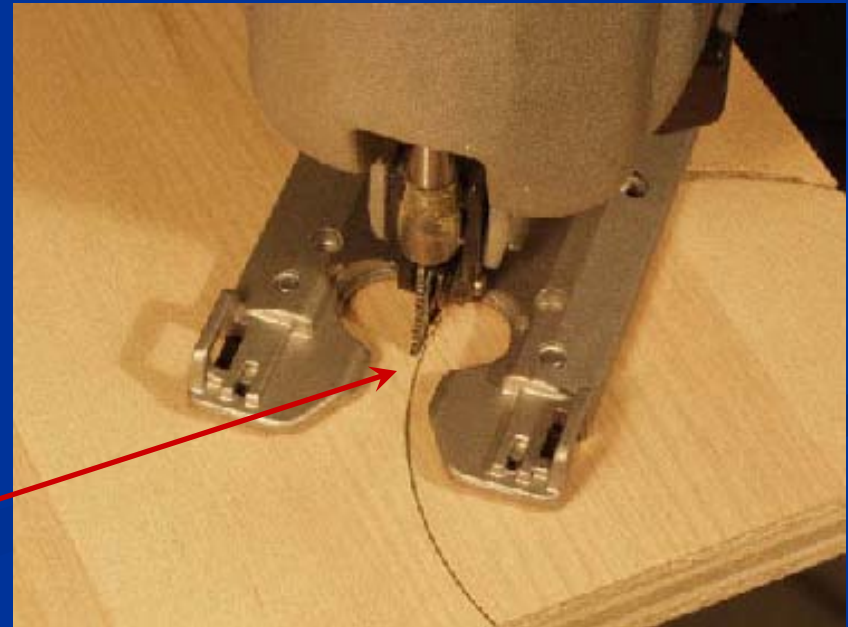
A Sabre saw is capable of making curved cuts, such as for a sink hole in a countertop.

- **Always** wear safety glasses.
- Secure the board with clamps.
- Remember that the saw blade sticks down below the work; the area under the cut must be clear. **Be careful** not to cut into sawhorses or the workbench.
- If the saw is a tilt-base model, check that the blade is square to the base.



Making a Cut
Without Cutting
the Table

Cutting Beside
the Line



How to Layout a Hole in a Panel

The cut is made by guiding the tool along layout lines. Mark the line in pencil and decide which side of the line to cut. **Do not** cut through the center of a line, because you will lose your path.

Remember that the saw typically cuts on the upstroke and that chips will obscure the topside of the work. If tearout on the top surface is a concern, use a reverse cutting blade.



Making a Layout Line



It is hard to make a straight line without a layout line to cut to.

Starting the Cut

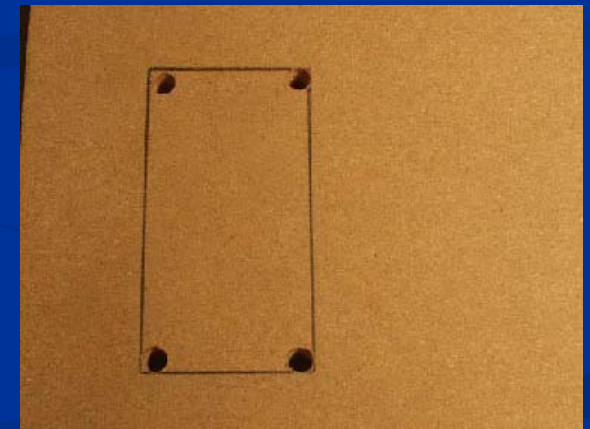
- Drill a starter hole big enough for the blade inside the layout line.
- Burrs or grit on the base of the saw may scratch the surface of the board. Keep it clean.
- To cut a sink hole in a counter, a very sharp turn would be required at the corners. This might cause the blade to bend or break. A solution is to drill holes in the four (4) corners, so that the blade can turn the corner easily.
- **Do not** start the cut until the tool is up to speed.



Drill holes larger than the saw blade.



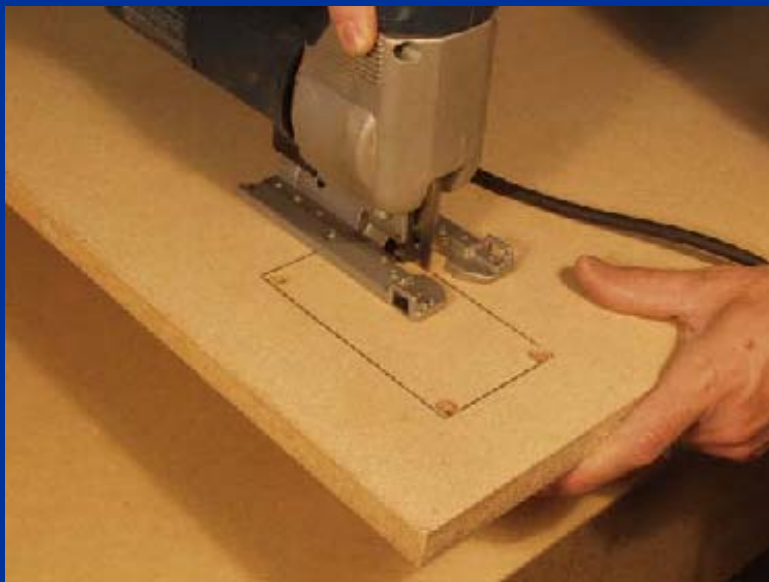
Drill holes near the corners



Correct Drilling for Square Cutout

Making a Cut

- Insert the saw blade into the hole and allow the base to rest on the board. Align the blade with the layout line and **then** turn the saw ON. Starting the saw before it is plunged into the hole can be dangerous and will cause damage.
- Hold the saw down to prevent bouncing while cutting.
- Blow away sawdust as it covers the layout line. Some Sabre saws have a small air-channel, which helps to keep the blade path clear.



Cutting on the Line



Sawdust Obscuring the Line

Making a Cut, continued

- **Never** turn the blade hard into a cut. Back the blade out if it bends or binds. Replace bent blades - they will ruin the cut.
- Keep the cord and hands away from the path of the blade.
- Maintain a steady feed-rate and watch for signs of burning (smoke). Pushing too hard can cause heat to build-up and prematurely wear out the blade.
- **Always** wait until the saw stops before lifting it from the board.



The blade should be smaller than the hole diameter, so that it does not break at the corners.

Answers to Review Questions-Part 2

1. If the wood smokes, it may be a sign that _____.
 - a) the wrong blade is mounted in the saw
 - b) the blade is dull
 - c) too much pressure is being applied on a tight curve
 - d) a, b, and c
2. What is an important consideration in blade selection?
 - a) The number of teeth per inch.
 - b) The type of shank on the blade.
 - c) The type of material being cut.
 - d) a and b
 - e) a, b and c
3. If the blade bends while cutting, _____.
 - a) just keep going
 - b) replace the blade with a different type of shank
 - c) back out the blade and replace it
 - d) force the blade through the wood

Working Safe

- **Always** wear safety glasses.
- **Always** support and secure the wood with clamps.
- **Always** use the correct blade. Unplug the saw when changing blades.
- **Always** keep the cord and hands away from the blade. Do not reach beneath the saw when it is running.
- **Always** have the blade at full speed before starting the cut.
- **Always** come to a full stop before lifting the saw out of work.
- **Always** apply pressure downward. The saw may bounce and bend the blade.
- **Always** replace bent or dull blades.
- **Never** force the blade to make too sharp of a turn.
- **Never** force the saw to cut faster than it is capable; the blade will break and the saw can burn out.



Cabinetmaking & Millwork

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