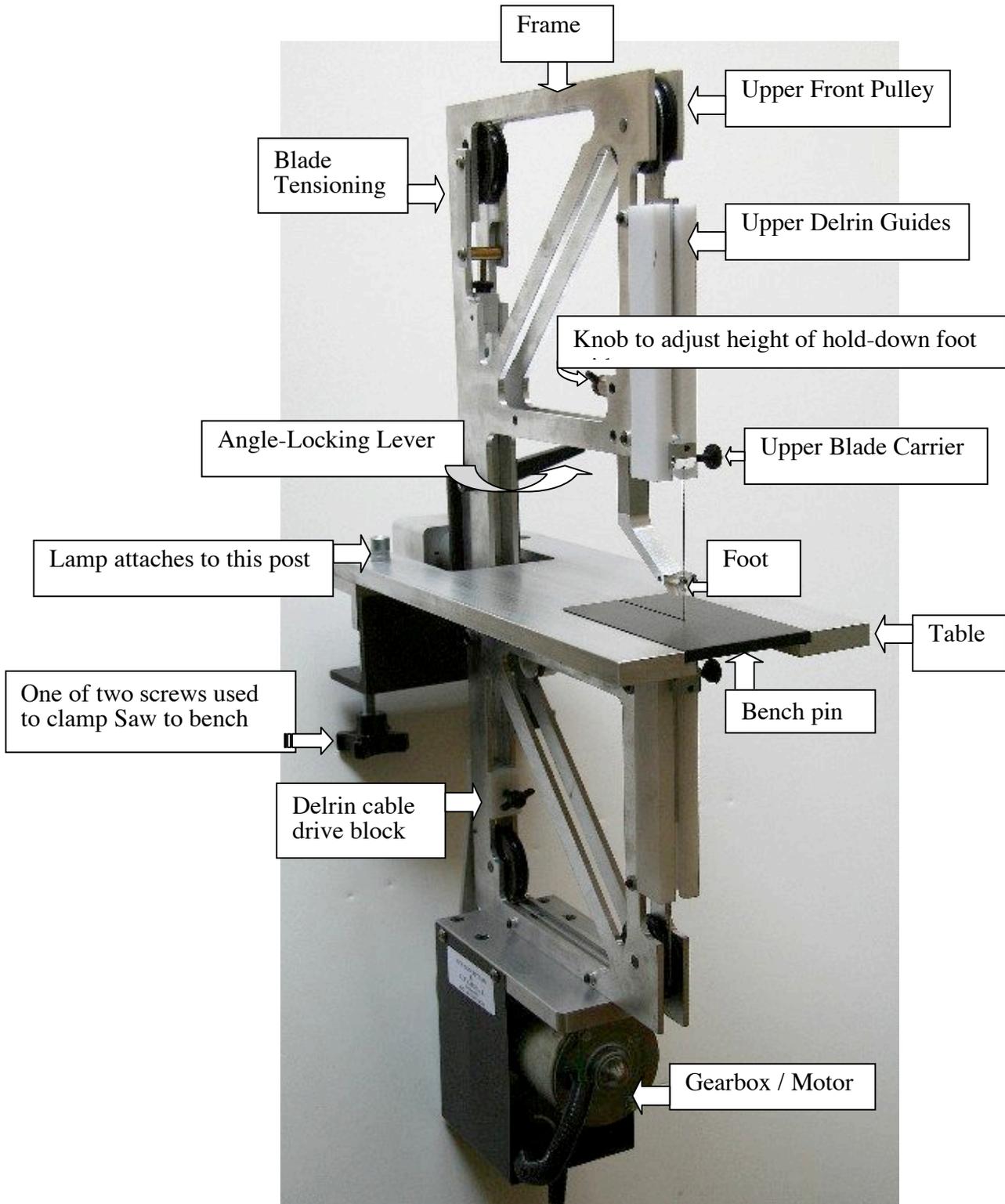


# NEW CONCEPT SAW

Developed by Lee Marshall  
with help from Phil Poirier, Cynthia Eid, Brian Marshall, Gorst Duplessis and others

Instructions by Cynthia Eid, Lee Marshall, and Phil Poirier



### **“QUICK START” INSTRUCTION SUMMARY (Detailed Instructions follow)**

- Remove the saw from the box, taking care to support the motor, which is the heaviest part of the machine.
- Install the two clamp screws.
- Fasten the New Concept Saw to the bench.
- Re-position angle locking lever so that saw frame and table are at 90 degrees to each other.
- Plug the power cord into the speed control.
- Plug the speed control into an outlet.
- Install and plug in the light (if the light was ordered)
- Pull forward the blade tensioning bar
- Insert a saw blade. Place it in the lower blade carrier first. Be sure that the blade is fully inserted.
- Push back the blade tensioning bar.
- Check the blade tension. The tension is adjusted by opening the blade tension adjuster and turning the black thumb screw.
- Adjust the tension (For safe shipping, the New Concept Saw is shipped with the saw blade loosely tensioned.)
- For continuous lubrication, add a drop or two of oil to the felt on the underside of the bench pin.
- Install the bench pin
- Adjust the foot to the metal thickness so that it rides the metal loosely.
- Begin to saw.

### **DETAILED INSTRUCTIONS FOR THE NEW CONCEPT SAW**

#### **REMOVAL FROM CRATE, and anytime the saw is carried or moved:**

- Since the gearbox/motor is the heaviest part of the saw, it is best to support the motor and carry the saw upright.
- If possible, save the crate for safe transport for any future shipping or storage.

#### **INSTALL THE TWO CLAMP SCREWS.**

#### **FASTEN THE NEW CONCEPT SAW TO THE BENCH.**

#### **RE-POSITION THE ANGLE LOCKING LEVER.**

The lever is adjustable for position, and has been positioned for fitting into the box. Lift up on the lever and rotate so that it is at 90 degrees to the saw table. (The bench pin can be held against the table and frame to confirm the 90° angle.) Let the lever drop into its correct position.

#### **PLUG THE POWER CORD FROM THE MOTOR INTO THE SPEED CONTROL.**

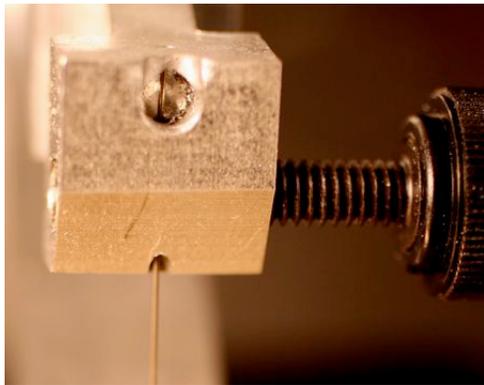
The saw uses a flexible shaft speed control. Any model can be used; most users prefer a foot control. The motor can be unplugged from a flexible shaft, or purchased for exclusive use with the New Concept Saw. Plug the motor into the speed control.

#### **PLUG THE SPEED CONTROL INTO A WALL SOCKET.**



**INSTALL THE LIGHT.**  
(if purchased)

- The light mounting is a threaded post that screws into the threaded hole at the rear of the saw table.
- Screw the post into the hole, and tighten it with a 3/16" allen wrench.
- Hold the light in one hand, and lift up the collar at the base to mount the light to the post at the rear of the saw table.



**INSERT A SAW BLADE.**

Check that the blade is inserted all of the way to the stop. Failure to do this will cause the tension to change from one blade to the next.

**SAW BLADES**

The New Concept Saw was designed for 5-1/8" long blades. Saw blades vary in length and consistency among manufacturers. Rio Grande's *Laser Gold™* blades are high quality and consistently 5-1/8" long. Spiral saw blades cannot be used, since they would be dulled by the carbide blade guides, and do not fit in the slot.



**BLADE GUIDES**

The grooved tips that support the back of the blade are carbide, and will outlive the saw.

**CHECK THE ALIGNMENT OF THE BLADE WITH THE CARBIDE GUIDES**

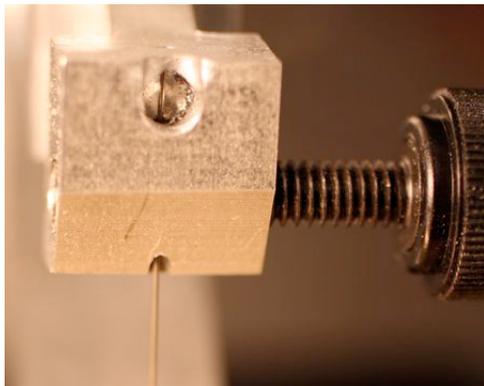
They are adjusted for correct alignment when assembled, and unless the saw is dropped, will stay in position. If the saw blade does not line up with the saw guides, please refer to the Troubleshooting section. Everything is adjustable for alignment, in case shipping knocked parts out of position.



### BLADE TENSIONER

Note: for shipping, the saw blade is not tensioned.

- The tensioner is the linkage mechanism at the upper rear of the saw frame.
- Turning the black knurled knob adjusts the tension of the blade.
- Pull the linkage forward to release tension on the blade or to change blades.
- If the saw blade is placed correctly (all of the way to the stops), the tensioner will usually not need to be adjusted. If blade tension feels slack, check to see if the blade is inserted all of the way into the carrier, or if the cable has slipped out of the pulleys.



### BLADE CARRIERS

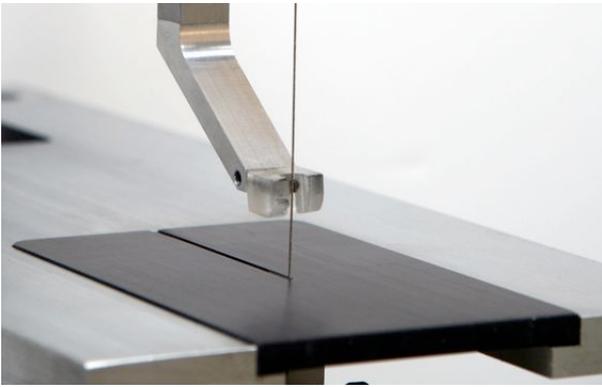
- Each carrier has a small hole through which the blade is inserted. The larger hole lets you see that the end of the blade is fully inserted. Be sure that the end of the blade is completely pushed into the carrier until it can go no further.
- If a blade breaks near the end, the hole allows access so that the broken end can be removed.

### INSTALLING A NEW BLADE

- **ALWAYS RELEASE THE TENSIONER** before changing blades.
- Remove the bench pin for access to the lower blade carrier.
- It is usually easiest to put the blade in the lower carrier first.
- Loosen the clamp knob, and remove the broken or worn blade.
- Put in the new blade, making sure that the end of the blade is completely inserted, and tighten the knob on the blade holder.
- Next, insert the other end into the upper blade carrier, making sure that the blade is fully inserted.
- Align the blade with the grooves in the blade guides, and push back on the tensioner.
- Check the blade tension.
  - If the new blade is the same size as the broken blade, and both the new blade and previous blade were fully inserted, the same tension should work, and no adjustment should be needed.
  - If the tension is not the same as before the blade broke, first check to see if the blade is fully inserted.
  - Do not adjust the tension without considering why it is not the same as before, since the tensioning does not ordinarily need changing. Re-insert the saw blade, and look to see that the blade ends are all the way to the end inside the blade carriers.

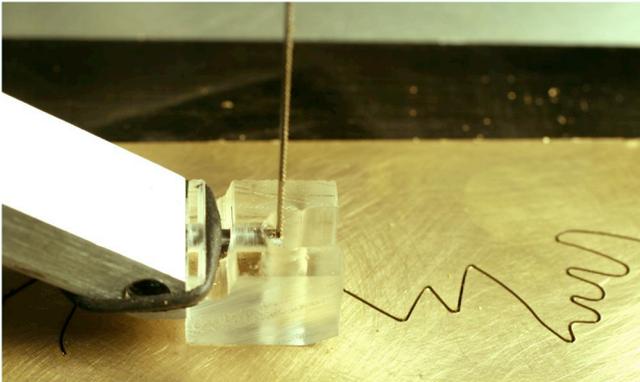
### BLADE LUBRICATION

For continuous lubrication, oil the felt that is adhered to the underside of the bench pin. Apply a small amount of *Liquid Bur Life* directly on the saw cut in the felt. Be careful to not use too much oil; excess oil can cause the metal cuttings to be clump, and be difficult to remove. The felt strip-with-oil eliminates the need to constantly re-apply a solid wax lubricant. Replenish oil as needed.



### **INSTALL THE BENCH PIN.**

Place metal to be sawn on top of bench pin.



### **ADJUST THE HOLD-DOWN FOOT**

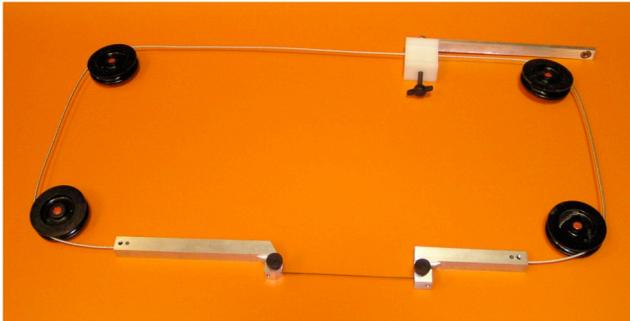
- The height of the hold-down foot is adjusted by loosening the black cross-bar knob that is behind the upper white plastic frame sections.

- The metal should be able to slide easily under the foot.
  - If the material to be sawn is not absolutely flat, it can be helpful to use a piece of paper to set up the appropriate clearance.
  - Place a piece of paper on top of the metal under the foot.
  - Let the foot down onto the metal and paper, and then tighten the knob to lock the foot in place.
  - Remove the paper.
- Saw!

## **SUGGESTIONS FOR BECOMING COMFORTABLE AND EFFICIENT WITH THE NEW CONCEPT SAW**

- Start by sawing simple straight lines and curves in a flat piece of metal with a thickness between 22 and 18 gauge (.64 to 1 mm thick).
- Practice on scraps of brass or bronze (rather than gold, steel or Plexiglas, for instance).
- Remember to let the tool do the work; don't press too aggressively.
- Rather than tensioning the blade as tightly as possible (as is commonly done with a hand-powered jewelers' saw) you may find that a lighter tension on the blade in the New Concept Saw works well, and breaks fewer blades.
- Remember how long it took to be comfortable hand sawing with a jewelers' saw? Give yourself a bit of time to become accustomed to this new tool. The New Concept Saw minimizes our exposure to repetitive motion and the injury it can cause. It is worthwhile to allow time to learn to be efficient with this new tool.
- Identify the instances where using the New Concept Saw is appropriate. For instance, it is ideal for complex sawing and piercing; for straight cuts, a shear is a more suitable tool.
- Be aware that when the user has become proficient at sawing, the teeth of the saw blade will wear down before the blade breaks. Changing blades frequently can be a time saver!
- The speed of the motor and the speed of the cut are not related in the same way that they are related when metal is hand-sawn. There is a very different cutting style with this new saw than cutting by hand.

- The speed of the motor does not directly convert into inches per minute of sawn material. Surprisingly, *on a straight cut*, a slow blade can cut much faster than a fast blade. The most efficient speed for straight cuts is a slow motor. Speed up to cut a corner while rotating in place, and then slow down for another straight cut. Slower sawing allows each tooth to engage and cut.
- If a jewelers' sawblade goes faster than 120 strokes per minute, it will wear out prematurely. For this reason, the maximum speed of the motor has been set at 120spm.
- The blade size and the pressure on the blade both have an effect on the speed of cutting.
  - Choosing a larger blade than might be used in a hand saw results in faster cutting and fewer worn blades.
  - Rather than speeding up the motor, test different sawblades in the metals you cut and use various pressures to attain the knowledge of how to saw with the best effectiveness.



### **UNDERSTANDING HOW THIS SAW OPERATES**

This image shows how the cable and saw blade make one continuous loop together. Because of this, the saw blade has very little power to hurt the operator if it breaks, adding to the safety of this tool.

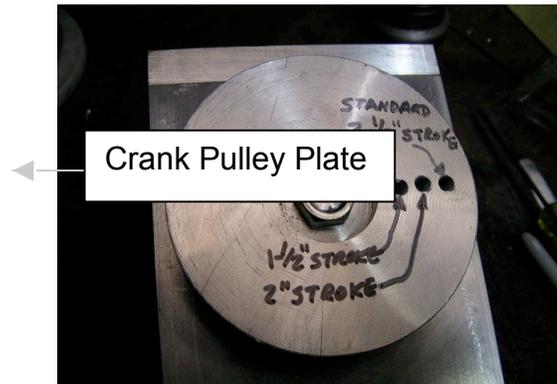
### **SPECIAL USES FOR THE NEW CONCEPT SAW**



### **SETTING THE SAW FOR ANGULAR CUTS**

- Loosen the hold-down foot and move it up before tilting the saw frame. Failure to do so will twist the arm that holds the foot, and cause the foot and blade guide to become misaligned!
- Loosen the black lever at the rear of the saw table by lifting the handle and turning it counter-clockwise.
- Tilt the entire saw frame to the desired angle, and tighten the lever.
- Check the angle with a protractor.
- The saw is capable of cutting up to 45 degrees in either direction.

- *If a tilt of more than 30 degrees is desired, the blade clamp knobs must be replaced with the 8-32 set screws included with the saw. If the knobs are not removed for tilts greater than 30 degrees, the knobs will hit the table when the machine is run, causing damage.*



### **ADJUSTING THE LENGTH OF THE SAW STROKE**

The Saw is shipped ready to saw up to a thickness of  $\frac{1}{4}$ " , using a saw stroke that is 2.5 inches long. In order to saw thicker material, a shorter saw stroke is necessary. To shorten the saw stroke, utilize one of the other two tapped holes in the crank pulley plate to re-connect the connecting rod, changing the connecting rod throw, which determines the length of the saw stroke. This is done by:

- Disconnect only the screw fastening the connecting rod to the crank pulley plate. Be sure not to lose the thin washer that is between the connecting rod and the plate.
- Reposition the connecting rod to the new hole position, and re-assemble.

Each time the saw stroke/connecting rod is changed, the cable clamp position must be re-set so that the blade carriers run freely without hitting the saw frame (maintain the 1mm clearance below the triangular piece).

Working heights for each setting:

- 2 1/2" stroke....1/4" thick material
- 2" stroke....1/2" thick material
- 1 1/2"....5/8" thick material

These dimensions are based upon using Rio Grande's Laser Gold blades, which have a consistent length of 5 1/8". In each case, there are a few saw teeth still remaining at the end of each direction of stroke to ensure a full cut.

### **TROUBLE SHOOTING and ADJUSTMENTS:**

#### **❖ Problem: It seems like the saw is moving slowly.**

- The maximum speed of the New Concept Saw is set to minimize vibration and blade breakage, and is set at 120 strokes per minute. This is faster than most people can saw by hand (on a continuous, sustained basis). Faster blade speeds wear the blade much too fast. Jewelers blades are so small they cannot dissipate the heat fast enough and quickly lose their temper and go dull. Faster is not always better!
- Try a coarser blade. Because of the regularity of the cutting, coarse blades leave a much finer finish than the same blade used with a hand saw. For example, try using a #1 saw blade for a job that might be done with a 2/0 blade when hand sawing.
- As users become adept with the New Concept Saw, they usually become more comfortable with the pace, and feel that the time savings are significant, due to
  - The smooth finish of each saw cut, minimizing the need for filing and finishing
  - The minimal time needed to insert a blade
  - Negligible time needed for blade tightening and loosening.