GEMINI SAW CO.

Taurus 3 Ring Saw

INSTRUCTION MANUAL

GEMINI SAW CO.

GEMINI SAW COMPANY
18105 S. HOBART BLVD. • GARDENA, CA 90248
310-891-0288 • www.geminisaw.com • e-mail: info@geminisaw.com

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GEMINI SAW CO.

Our Mission Statement:

To provide machines to the industry which are different, dependable, long-lasting, attractive, and innovative beyond the state of the art. To listen to our customers, to provide the best possible customer service and treat all persons with whom we come in contact with dignity, integrity and respect.

To all Taurus 3 owners,

We want to thank you for choosing Gemini Saw, manufacturers of the most advanced shape cutting machinery today. We believe that you will find the Taurus 3 Ring Saw to be the most important key to unlocking your imagination and speeding you on your way to creating new and wonderful shapes never before possible.

The Taurus 3 incorporates many new capabilities, most of which have come from listening to you, our customers. We believe you will find these machines easy and fun to work with. To further develop confidence in your new machine we would like to suggest that you familiarize yourself with the manual. Please take the time to read about the machine's basic operations and functions.

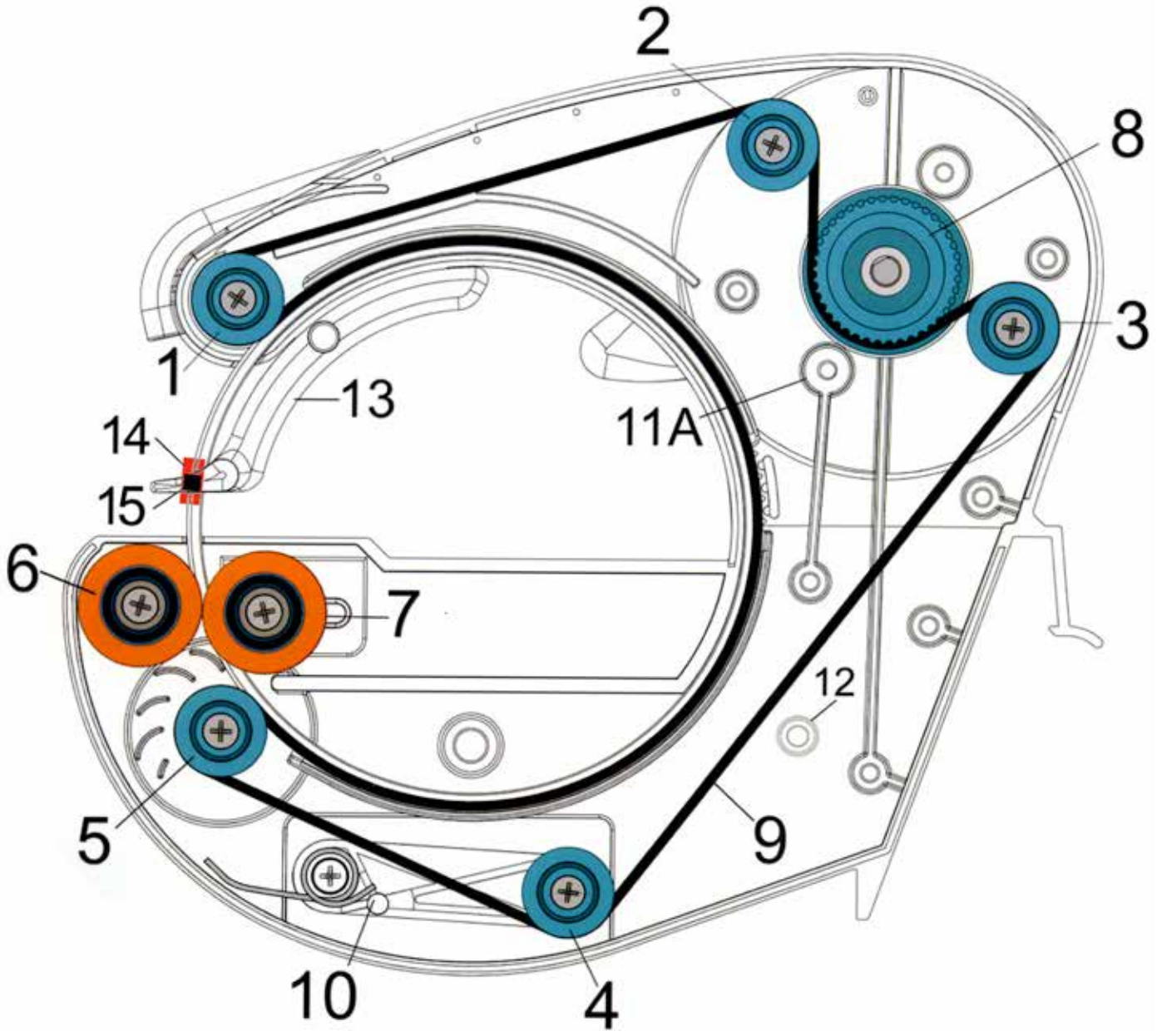
Please feel free to call us if you have any questions or grey areas concerning your new saw and its operation. And also if you have time to send us a picture of what you have done with the saw — both functional and artistic photos are welcome.

Thank you. We appreciate your business.

Respectfully yours,

Jesse G. Cogswell
President

Taurus 3 Ring Saw Internal Parts List



1 — **Blue Pulley Assembly** #1067
2 — **Blue Pulley Assembly** #1067
3 — **Blue Pulley Assembly** #1067
4 — **Blue Pulley Assembly** #1036
5 — **Blue Pulley Assembly** #1067
6 — **Orange Groove Grommet Assembly** #1070
7 — **Orange Groove Grommet Assembly** #1070
8 — **Drive Pulley** #0035
9 — **Drive Belt** #0070
10 — **Tension Arm** #1031
13 — **Foot Assembly Stabilizer** #1034
14 — **Red Gear Grommet** #Y0049
15 — **R-2 Bearing** #Y0050

Note — Orange Groove Grommets should always face in opposite directions as shown on the diagram above.

Unpacking your machine

Lay the box down with the logo facing up. Pull the saw out by the tub; the unit will come out as one piece.

Lift off the work surface, which will be resting on top of the molded pulp.

NOTE: For ergonomic machine use, the working table height should be a minimum of 31.5" (0.8 m).

Remove the top packing piece.

Figure 101 shows your saw with all the parts it comes with (work surface not shown in this photo).

Remove the saw from the plastic bag. (Figure 102). Observe the warning sticker — the bottom cover of the saw must be removed to install saw into the water tub.

Remove thumb screw and bottom cover of saw (Figure 103). Store the bottom cover in a safe place *and reinstall the thumb screw.* You will need the bottom cover if you wish to operate the Taurus 3 freehand.

Insert the saw into the tub. Note that the bottom of the saw must sit flush on the inside of the tub, and that the side clip must be securely fastened. Figures 104-105. (Note: to remove the saw from the tub, disengage clip (Figure 105) by pulling it away from the tub, then follow the previous steps in reverse order.

Fill the tub with water to the middle of the lowest blue wheel (Page 4, Part #4). **NOTE! NEVER RUN THIS SAW WITHOUT WATER!** See note warning about water and water level below.

Note: Never run this saw without water!

Water: Level, Conditions and Care

Water conditions vary from region to region. Areas with “hard water” will have an adverse affect on the saw’s moving parts, especially the bearings. The best environment for the saw is distilled water. Distilled water is not always the most cost effective way to go but there is another alternative, Add two to three tablespoons of vinegar to your tap water, or add two drops of ordinary dish washing liquid.

When the saw is being used for an extended period it is always a good idea to add an ice pack to the water, or change it, to keep it cool. With this saw it is better to use the ice packs rather than ice cubes as the cubes will float freely throughout the saw and may get jammed in the inner workings. It is not recommended to use any type of antifreeze. The use of coolants is at the user’s discretion. Long-term exposure to coolants can be hazardous to your health.

Care: Always keep the water in your saw cool and clean as possible. It is acceptable to leave the water in the saw for a few days or even a week but it is never a good idea to leave the water sitting idol in the saw for weeks or months on end. The contents in the water (minerals and debris from cutting) will tend to settle in and around the moving parts and cause rapid wear.

Slide the work surface onto the water tub. (Figures 201-202-203). Push down on the work surface to make sure it is seated on the water tub.

NOTE: The machine must be switched on and operated only and exclusively with the grey work surface installed on the water tank. DO NOT insert the power plug before the motor body and grey work surface are positioned on the tank.

Install the face shield — insert the tabs on the face shield into the indentions on the upper door and body. (Figure 204).

The face shield should look like Figure 205. It will flip up when not needed. Note that the face shield needs to come off to remove door.

NOTE: Always use the face shield in the down position when the saw is operating.

Removing/Installing Upper Door

The rear side of the upper door has a finger tab. Pull the tab toward you to pop the upper door off (Figure 206).

To put the door on, snap the front part of the upper door on and hold it in position (Figure 207). Then snap the back portion of the upper door into position while still holding the front together (Figure 208).

Removing Blades

Note: Be careful handling the Drive Belt. It contains fiberglass strands which may be damaged if belt is pinched or scrunched.

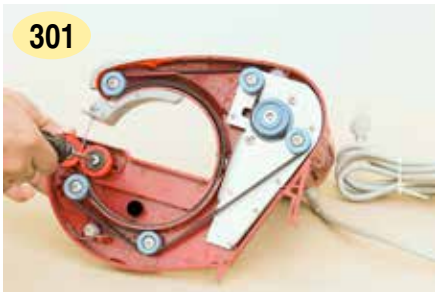
Loosen Orange Groove Grommet #7 and slide it to the right. (Figures 301-302).

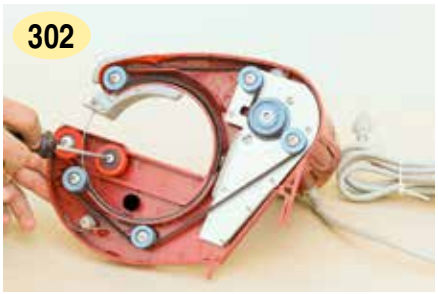
Slide Belt #9 off Tension Arm Pulley #4 (Figure 303).

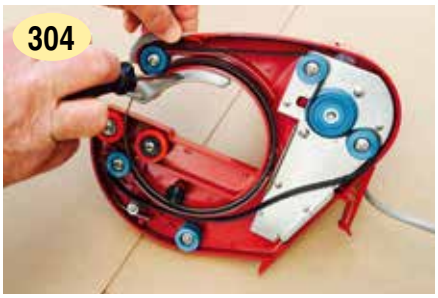
Unscrew and remove stabilizer foot (Figure 304). Note that the stabilizer foot rolls on and off.

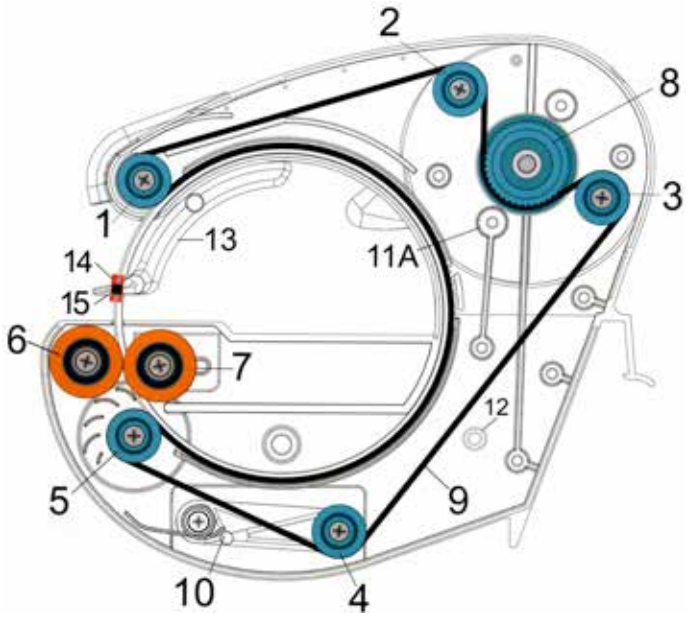
Unscrew Blue Pulley #1 and set it aside. (Figure 305).

Unwrap belt from pulleys, gently removing the belt and blade from the saw (Figures 306-307-308).









Installing Blades

Note: following these steps will make the starting of the process of replacing the blade much easier.

Wrap the drive belt snugly around the blade and hold it with your thumbs and forefingers (Figure 401).

While still holding, slip the drive belt and blade into position (Figure 402).

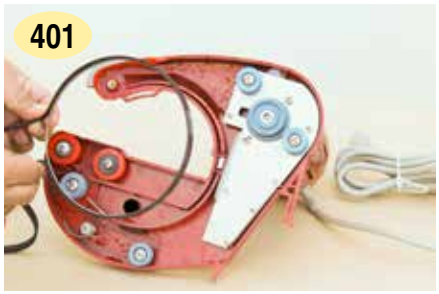
Wrap drive belt around Blue Pulley #5 (Figures 403-404).

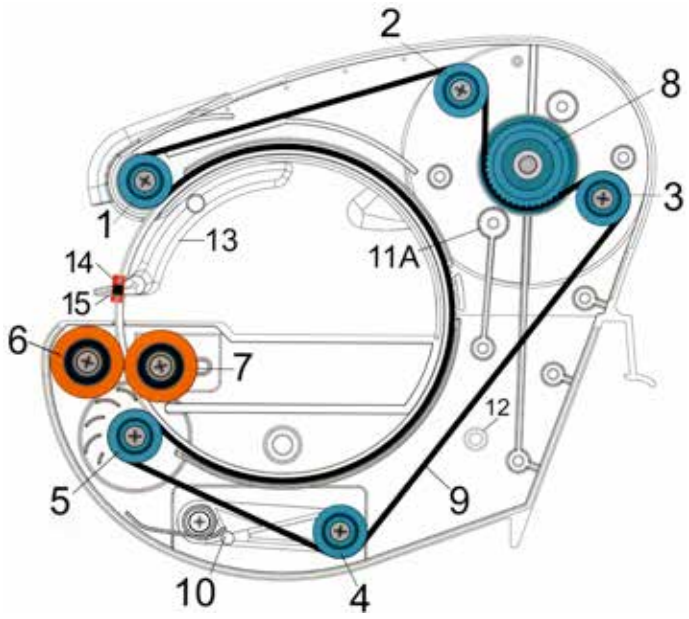
Retrieve and reinstall Blue Pulley #1 (Figures 405-406).

Wrap belt around Blue Pulleys #2, 8 and 3 (Figures 407-408).

Wrap belt around Blue Pulley #4 (Figure 409).

Turn Blue Drive Pulley #8 counterclockwise to make sure the belt is seated correctly and everything rotates (Figure 410).





Installing Blades (continued)

Slide Orange Groove Grommet Assembly #7 to the left and screw it in place (Figures 501-502).

Rotate Blue Pulley #8 counterclockwise (Figure 503).

Install stabilizer foot, making sure that it as close as possible to Blue Pulley #1. Always keep this in the highest position (Figures 504-505-506-507).

Snap the front part of the upper door on and hold it in position (Figure 508). Then snap the back portion of the upper door into position. (Figure 509).

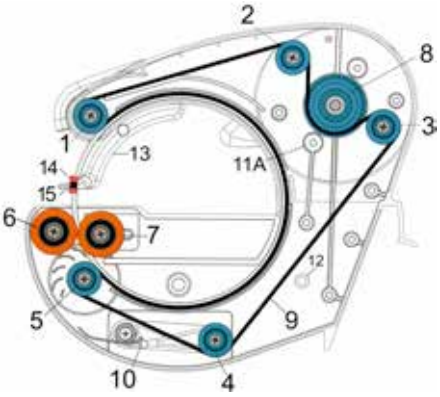
Note: When installing Separating Blade (Part No. 1043), make sure that the female side faces up (Figures 510-511).

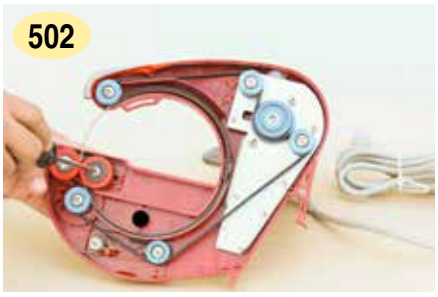
Note: when installing Mega Blade (Part No. 1045):

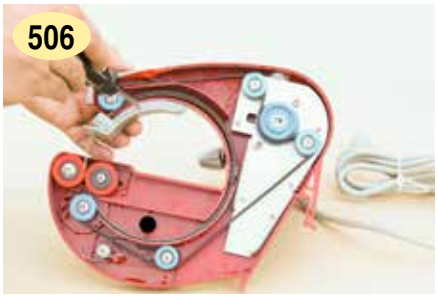
Remove Blue Pulley #1; Slide belt and blade into machine using the same method described on pages 7 and 8.

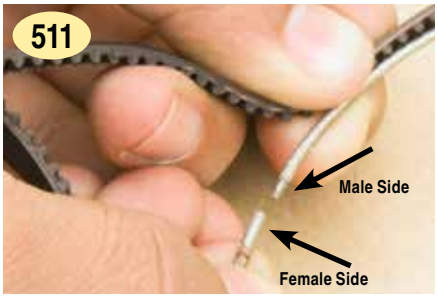
Wrap drive belt around Blue Pulley #1 and slip them into position. Insert screw in Blue Pulley #1 and tighten.

Wrap drive belt around Pulley #5 and slip them into position. Slide Orange Groove Grommet Assembly #7 to the left and screw it in place.









Replacing Blade Stabilizer Red Gear Grommets

Note: Blade Stabilizer should always be used in the highest possible position.

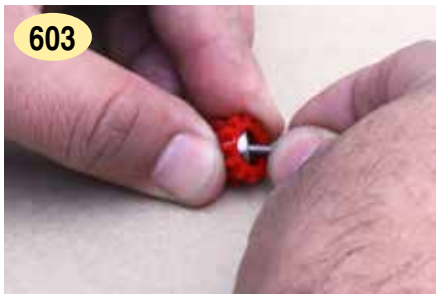
To replace the Blade Stabilizer Red Gear Grommets, unscrew them from the Blade Stabilizer. (Figures 601-602).

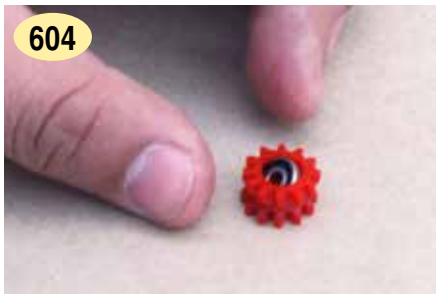
Gently pry out the inner bearing. (Figure 603).

Insert the bearing into the new Blade Stabilizer Red Gear Grommet and reinstall (shiny side out*), leaving the screws loose until the stabilizer is installed in the saw with the blade between the grommets. (Figure 604).

* Note: Blade Stabilizer Red Gear Grommets have a shiny side and a matt side. (Figures 601-604).

It is usually recommended to change both Grommets at the same time. Many customers prefer to purchase a new Blade Stabilizer instead.





Replacing Orange Groove Grommets

Remove the Orange Groove Grommet from the hub by cutting it off with an X-Acto knife or razor blade (careful, cut a little at a time). (Figures 605 and 606).

Peel the Orange Groove Grommet off of the hub. Inspect bearings for wear or damage. If the bearings are damaged, you will need to purchase a new Hub Assembly. (Figure 607).

If you have a BLUE ALUMINUM HUB, snap new groove grommet over the hub. (Figures 608 and 609).

If you have a BLACK PLASTIC HUB, you will need to glue the grommet on using Krazy Glue Gel or equivalent. (Figure 610).

Using the Taurus 3 as a Hand-Held Saw

The inside of the bottom cover has a die cut sponge to hold water inside. ***Soak it in water prior to assembly*** (Figure 701).

Snap the bottom cover to the saw; tighten the thumb screw to keep the water from leaking out prematurely (Figures 702-703-704).

NOTE: The bottom cover MUST be installed when using the Taurus 3 as a hand-held saw.

Adjust the stabilizer foot down so that the space between it and the base of the saw is slightly larger than the thickness of the material being cut (Figure 705).Make sure that the screw is tightened properly.

Rest the foot on the material when cutting. Do not hold it above the material.

Note: When cutting, the sponge will give 5 to 10 minutes of use; then the cut will start to show powder. **DO NOT KEEP CUTTING!** ***Add water by unplugging the saw from power and dipping the lower part of the saw into a bucket of water. Clean the sponge often, especially after use.***

Taurus 3 Hole Reducers

Taurus 3 hole reducers come on a sheet (figure 706) and are useful on both the underside of the saw and where the blade exits for water reduction and on the work surface for inhibiting debris from entering moving parts.

Before applying the hole reducer, clean the areas around the blade thoroughly and dry completely.

To apply, peel a hole reducer off of the sheet. Open the slit and wrap the hole reducer around the blade. (Note, when applying the hold reducer to the underside of the saw it is best to make it overlap). Figures 707-708-709-710-711.

A Little About The Saw

The Taurus 3 ring saw is a completely unique machine and its operation is very different than any other machine. For this reason persons who have been using band saws tend to lead the material into the front of the saw blade and rotate the material to make a curved cut. This works well on our Slicer Blade (#1046)— both backwards and forwards — but not with the Round Blade which comes standard on most saws.

The Round Blades — Standard (#1042), Slim (#1044), Dichro (#1049), and Separating (#1043) — can make curves by moving the work piece forward, back, left, and right. Because rotation is not needed to make a curve, chances are you will not run into the back of the saw while you do so. In fact, ring saw users have found that huge shapes can be accomplished with the use of these types of blades. All that is needed is for the neck of the saw to fit into the design to be cut. It almost always does, allowing for depth of cuts to be much greater than blade size! This is why these particular blades are used for stained glass and the flat blades, which are better for jewelry and precious stones, are used more for smaller, thicker pieces.

Ice can be used with Taurus 3 Ring Saw. Ice packs or "Blue Ice" are safer and also last much longer. This is useful as cold-water works wonders for blade life and cutting speed. This is not necessary at all unless the saw is being used for extended periods of time such as all day. If the cutting of slates such as boulder opal is being performed, change the water every few hours. Slates make a slurry that can, if left, attack and shorten bearing life.

Coolant is optional but not necessary for the Taurus 3 as it rotates enough water through the cut to make it the coolest cutting saw on the market today. Coolants can extend part life and improve cutting speed, and will not hurt the saw. That said, it might not be good for you! Cutting on Ring Saws is fun and doing so for hours at a time can feel like minutes. Breathing in some air-born aspect of whatever coolant you decide on is in the saw's best interest but possibly not yours! There are some coolants that are considered safe for cutting devices. Personally we would suggest using a fan and possibly a mask, depending on how much you use. Never use OILS!

Cutting Other Materials

The Taurus 3 will cut all kinds of materials; these materials will not load the blade. They include, but are not limited to, tile, silver, brass, bronze, aluminum, copper and plastics (such as Lucite and plexiglass), composites and all types of stone, including agates, and jaspers (with the use of the Slicer Blade, #1046).

The Taurus 3 can be used as a high speed coping saw and will greatly reduce your metal cutting time. Slight loading can occur with aluminum over a period of time. Periodic cutting on a piece of brick will remove it from the blade.

When cutting thin metals it is best to put a backing under the metal so that the burrs created by the saw action will not catch on the work surface. This backing can be the kind of cardboard found on the back of a writing pad. Another backing that works well is foam core (white), which can be found at artists supply stores everywhere. The blade of the Taurus 3 will not be affected by any material you choose as a backing because it cuts plastics as well as metals and will not load on these either.

When removing the blade from a cut where you are not separating two pieces (so that you must find your way out of a maze) it is sometimes a good idea to leave the saw running, as this will help it slip through easier. ***Be careful here!***

Helpful Hints

1. To apply patterns onto your work piece a copying machine is helpful. The print can be sprayed with Scotchguard fabric protector, covered with a film of rubber cement, or simply copied onto Mylar, which makes the print waterproof. The print can then be affixed to the material with the use of rubber cement.
2. Although cutting stacked glass can be accomplished better with the Taurus 3 Saw than any other saw, we want to discourage people from thinking this is faster. Blade life is severely hampered by this process and it should not be done unless it is imperative that all the pieces be exactly the same shape. Cutting is actually faster one at a time.
3. Straight lines can be cut by snapping the straight edge onto the table. See our Accessory Kit, No. 1024. The Taurus 3 will give you a straight line at any angle with any of the round blades.
4. When cutting intricate shapes it is best to begin the cut with the most intricate part and end the cut on the thickest part. This will greatly reduce the chances of the piece breaking off at the end.
5. When doing lots of tiny little pieces which would be difficult to pick up and keep track of, it is sometimes best to leave them attached to the main piece by a small section that you can break off and grind later.
6. When guiding the saw around a fine point it is usually better to cut past the end of the point on one side and then come back on the other side as though you wanted a longer point than you actually need. This will help develop your skill.
7. When you are first starting to cut out shapes, do not try to cut right on the line as this will come with a little practice. At first stay away from the exact line by a hair and come back afterwards and lightly grind it with the saw blade.
8. When you want to grind off a bump, go right to the bump and grind it right in the middle and slowly move side to side.

The Magnificent 7 Blades of the Taurus 3

There are 7 blades available for the Taurus 3 ring saws and there are often questions arising as to what they are for, how long they last, and how to use them. There are universal truths about all of the blades that hold true for all of them.

1. All of our blades are carved from solid steel. We have no welds or weak points to worry about. It is the special nature of a ring blade to have almost no centrifugal force, as we have eliminated the center of what could have been a disc. Instead of throwing water off, ring blades suck water in, causing the water to rotate with the blade. Therefore all of our blades run cool and clean, without any kind of pump needed.
2. All blades cut the same materials: glass, tile, stone, shell, nonferrous metals, hard plastics (such as acrylic and Lexan), and anything that has a similar density to these materials.
3. All blades use the same belt and grommets. Blades are interchangeable with the same belt and grommets and do not need to be changed unless they are excessively worn.
4. ***Always let the blade do the cutting.*** Forcing the blade through the material in a hurry will not only cause a slower cut but can also shorten the blade life. There is an optimum speed for each blade in each material; you can feel it while you are cutting. Sensitivity to this causes extremely long blade life — it is that point at which you get maximum cutting speed for minimal pressure.

The Magnificent Seven Serious Blades

Note: When describing blade abilities it is wise not to confuse the ability of a blade to cut a certain material of greater thickness once in awhile as opposed to that same blade being used to cut only that thickness all the time. For this description we will refer to blade capacity vs. normal use. When we speak of blade shape it is what is called a cross section which is like snipping off a piece of the blade and looking directly at its end.

Standard Blade *(Part No. 1042)*

Sometimes called the **Stained Glass Blade**, this is an all around multi purpose cutting blade. Its action is omni-directional — forward, back, left and right. This is to say that it cuts the same speed and kerf, (swath left by the blade), in any direction. This blade was the first blade to be put on saws and makes pattern cutting very easy because the user does not have to turn the piece while cutting, but simply move it in any direction.

Blade Shape: Round .072" Diameter. Grit is aggressive.

Material Thickness Capacity: ⅜", normal use is ⅛" art glass, ¼" soft wall tile, or soft stone such as turquoise.

What to Avoid: Do not use for ceramic tile, ⅜" fused glass pieces, or thick material in general.

Average Blade Life: 40-60 hours.

Separating Blade *(Part No. 1043)*

This blade is the same as the Standard Blade but comes apart for cutting out the center of something without using an entrance cut. You must first drill a hole. Consult your DVD for hole drilling instructions.

Blade Shape: Round .072 Diameter. Grit is aggressive.

Material Thickness Capacity: ⅜", normal use is ⅛" art glass, ¼" soft wall tile, or soft stone such as turquoise.

What to Avoid: Do not use for ceramic tile, ⅜" fused glass pieces, or thick material in general.

Average Blade Life: 40-60 hours

Slim Blade *(Part No. 1044)*

Originally developed for the original Taurus series as a thinner version of the standard blade. It has the same dimension as a standard or separating blade front to back but is thinner as you look at it straight on. For this reason it is just as strong as a Standard Blade but can cut quicker front to back and leave a slightly smaller kerf (.062"). It cuts the same as a standard blade left to right and its action is omni-directional.

Blade Shape: Oval .062" x .072" (front to back). Grit is aggressive

Material Thickness Capacity: ⅜", normal use is ⅛" art glass, ¼" wall tile.

What to Avoid: Do not use for ceramic tile, ⅜" fused glass pieces, or thick material in general.

Average Blade Life: 40-60 hours

Dichroic Blade *(Part No. 1049)*

This is the slim blade but it is coated in super-fine grit so that it does not chip even the thinnest of dichroic glass. It is our most intricate cutting round blade and is super quick and leaves the smoothest edge, allowing the use of lower firing temperatures in the manufacture of jewelry. Neat crisp edges adds a note of professionalism with this blade. Its action is omni-directional.

Blade Shape: Oval .047" x .062" (front to back). Grit is finest.

Material Thickness Capacity: ¼", normal use is ⅛" or thinner art glass, or thin soft stone.

What to Avoid: Do not use for ceramic tile, ¼" fused glass pieces, or thick material in general.

Average Blade Life: 40-60 hours

Mega Blade *(Part No. 1045)*

Also called the **Student Blade**, this heavy duty blade is hungry for whatever you can feed it. It is almost unbreakable, so it is great for class settings. It has an opinion about which way it likes

to cut because of its tear dropped shape. The round part of the tear drop faces outward and the pointed part faces inward. This means it cuts faster when pulling towards yourself and slower pushing away and slowest sideways. Its kerf is the same as a standard blade when pushing and pulling, but it leaves a wider swath when used sideways. That said, you can cut whatever you can fit into the mouth of the saw and the shape allows for creative shaping.

Cutting action is omni-directional in thin material like stained glass, but more forward and backward cutting for thicker harder materials. The blade leaves a smooth edge.

Blade Shape: Tear Drop .072" diameter (front) x .125" (front to back); inside is pointed. Grit is aggressive.

Material Thickness Capacity: ¾"; normal use is fused glass, stained glass, ceramic tile, or stone. You may have to remove the stabilizer foot to use the full 1¼" capacity.

What to Avoid: Do not cut thin dichroic glass, as it will chip easily. When teaching, demonstrate its action prior to letting students use the blade, explaining the tear drop shape and its unique action.

Average Blade Life: 50-100 hours

Slicer Blade *(Part No. 1046)*

Often called the **Jewelers or Lapidary blade** because it is our thinnest blade, .037, is virtually unbreakable and cuts more intricately than the round blade. Its blade life is unexpectedly long even in hard stone such as agates, jaspers, jades, and literally any stone used in the lapidary field including corundum. You can cut both forwards and backwards with this blade in curves so tight it will turn on its own center leaving a hole. This blade will not jamb, has no weld or weak point, and always cuts cool and clean. Because this blade is used forward and back it does not necessarily need the stabilizer foot, #13, which holds blades from left to right. Care should be used when using this blade without the stabilizer not to shove the blade left or right because this can cause it to come off the track. The advantage is that without the stabilizer foot you have a full 1½" of clearance allowing it to slice small stones into slabs or curves; it also cuts fused glass with ease! Note: The thicker the material, the gentler the curve.

Blade Shape: Flat .037" width x .125" length. Grit is fine.

Material Thickness Capacity: 1½" (stabilizer removed) Normal use is cutting of precious stones, ⅛" to ¾" glass, (fused and stained). Also cuts non-ferrous metals.

Average Blade Life: 30 hours if used only on agate, 50-100 hours general use.

Speed Blade (Part No. 1052)

Sometimes known as the **Inverted Mega Blade**, we turned a mega inside out and made it thinner. The result is a tear dropped shaped blade that is almost unbreakable, with the round part on the inside and the point on the outside. Its thinner profile makes it our fastest, most aggressive blade yet. When pushing forward into this blade, it glides through the thickest, toughest materials with ease. It comes with a "flocked belt" only, as this is the only belt that can handle its aggressive nature. Its action is omni-directional in stained glass or soft wall tile and forward and backward for thicker or harder materials. When pushing or pulling the material through with this blade it has a thinner kerf than a Standard, Mega, or Slim Blade. (.055").

Blade Shape: Tear Drop .045" inside x .125" (front to back). Grit is aggressive.

Material Thickness Capacity: ¾", normal use is fused glass, stained glass, ceramic tile and stone. *Note: you will have to remove the stabilizer foot to use the full 1¼" capacity.*

What to Avoid: Do not cut thin dichroic glass as it will chip easily. Demonstrate to students its action prior to letting them use it, explaining the tear drop shape and its uniqueness. Average Blade Life: 50-100 hours

Taurus I, II and II.2 Blades

These saws can use four of the previously mentioned blades. They have different part numbers because the grommets are different. The description and action of these blades is the same for all saws.

Standard Blade *(Part No. 1039)*
Separating Blade *(Part No. 1041)*
Slim Blade *(Part No. 1040)*
Dichroic Blade *(Part No. 1038)*

Taurus 3 Accessories

Slicer Blade and Belt Kit (Part No. 1051)

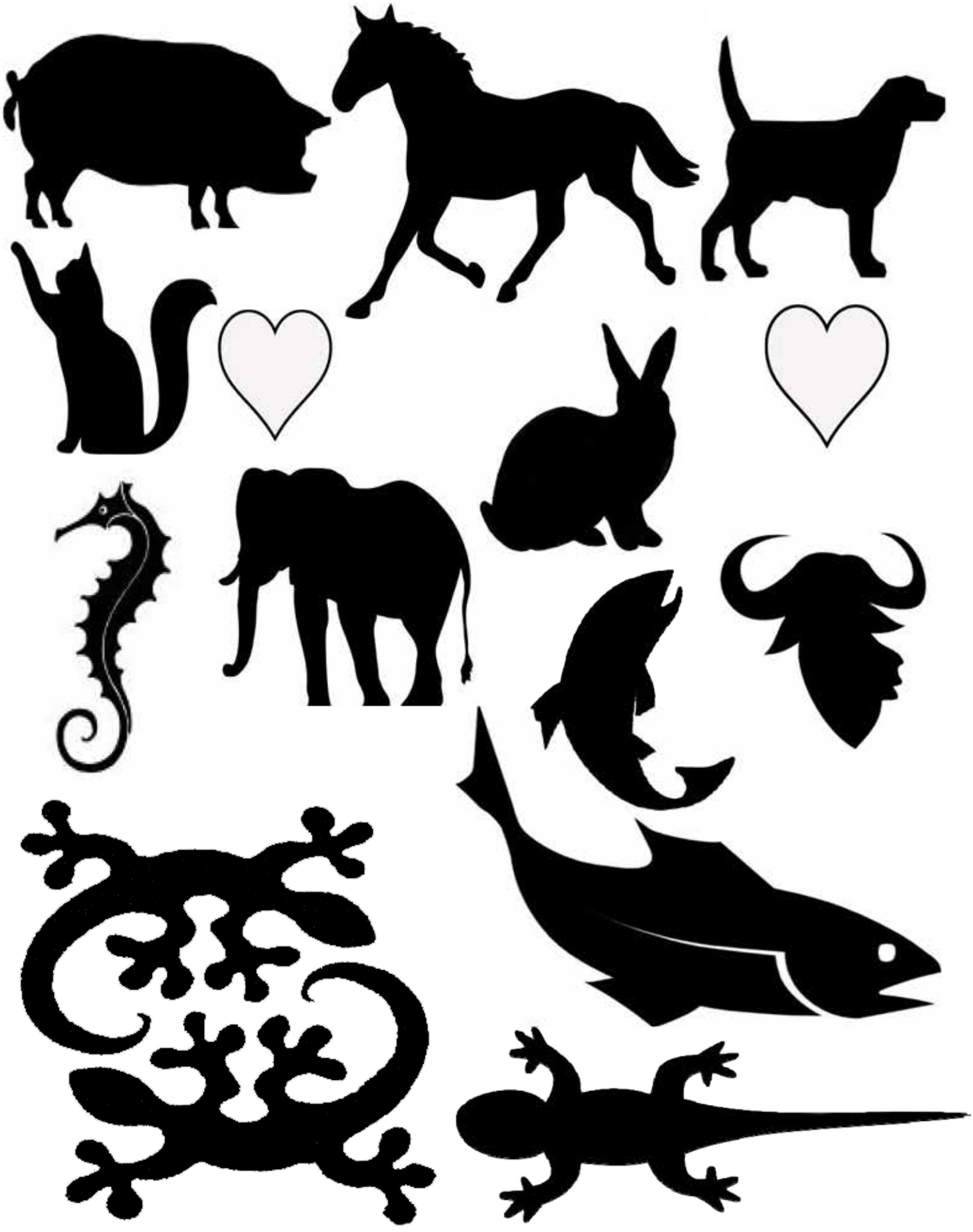
Speed Blade and Belt Kit (Part No. 1052)

Flocked Belt (Part No. 0108) — Made especially for slicer blade and speed blade, this belt is probably overkill for all other blades and it costs a little more. It has a Kevlar flocking or crisscrossed webbing that holds the rubber together so that it can't easily split.

Accessory Kit (Part No. 1024) — This includes a straight edge, circle maker, lamp wedge, 45 degree mitre, and angles.

Note: Always be sure to order genuine Gemini Saw parts as this assures your warranty and that you will get maximum life out of the parts you purchase.

Accessory Kit (Part No. 1024)



Other “cutting edge” products from Gemini Saw Company...

Apollo Ring Saw

Revolution XT Ring Saw

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18105 S. HOBART BLVD. • GARDENA, CA 90248

310-891-0288 • www.geminisaw.com

e-mail: info@geminisaw.com

GSC-TAU3-922 Rev. 5 (110524)