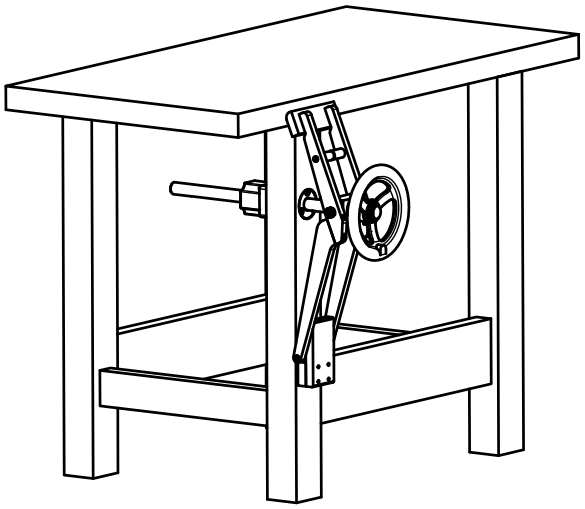


NOT ALL ITEMS PICTURED IN ILLUSTRATION ARE INCLUDED

CHEETAH™ LEG VISE ASSEMBLY & INSTALLATION DIRECTIONS

Basic operation of the VX21 mechanism and Cheetah™ leg vise.

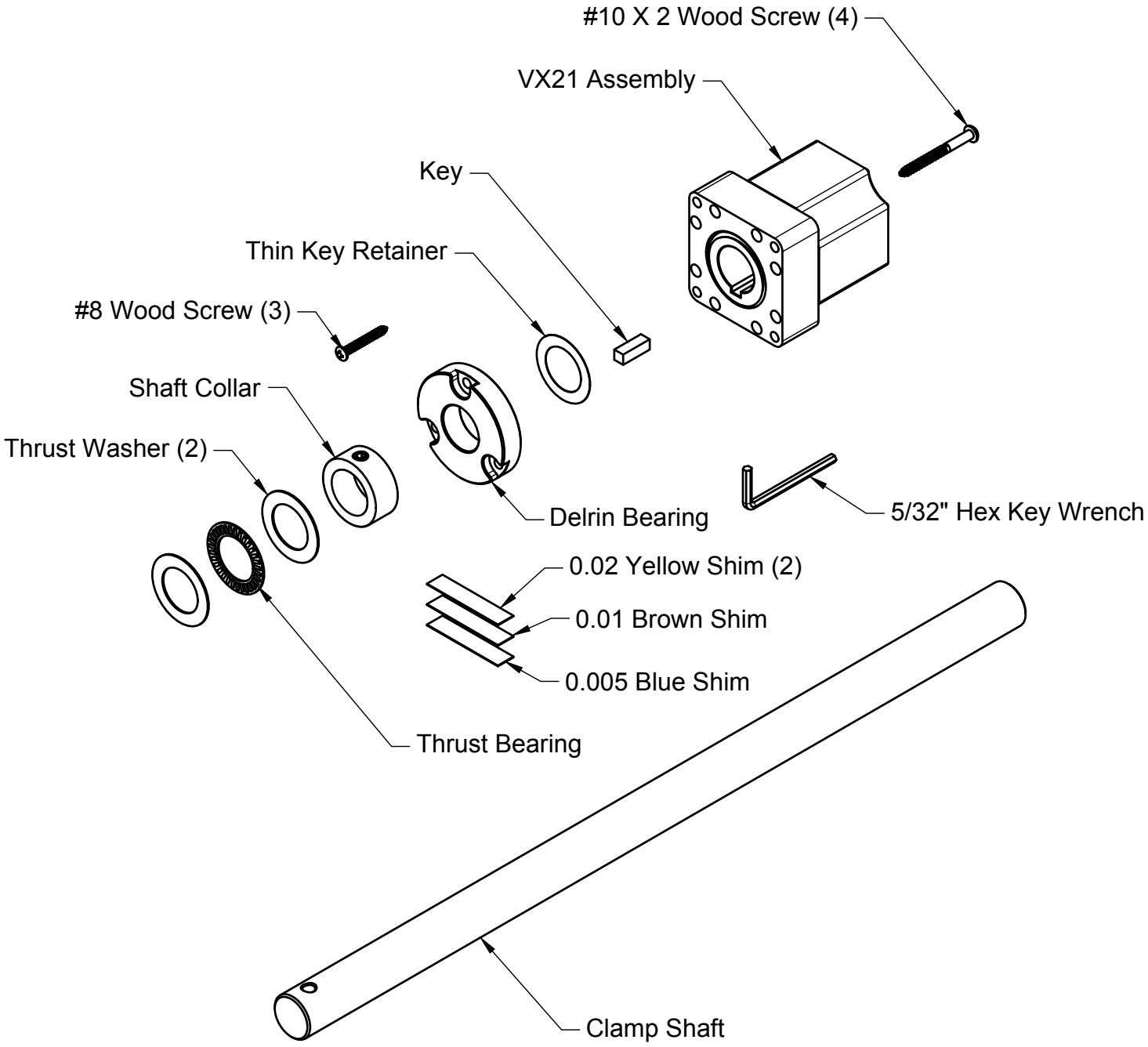
The VX21 mechanism has a keyway slot that accepts a small rectangular steel key which also engages a long keyway slot in the clamp shaft. The rotational force through the handwheel goes through this key and rotates the threaded collar in the mechanism. When the clamp shaft is rotated fully counter-clockwise against the internal stop the clamp shaft is unclamped and will slide freely. When attached to the Cheetah™ jaw you simply slide the jaw against your work and rotate the clamp shaft clockwise and an internal clutch automatically grips the clamp shaft and begins to clamp your work. You may apply as much force as you desire just by varying the force you apply on the handle just like a screw operated vise. The VX21 can be rotated approximately 3 turns before it stops. To unclamp, rotate the handle counter-clockwise until it stops and the jaw will be free to slide. To further reduce the amount of force needed to clamp your work the VX21 includes a thrust bearing which greatly reduces the friction force of the handle to the jaw. More of the force you apply goes towards clamping and not fighting friction. The unique Cheetah™ jaw utilizes a sliding fulcrum pivot at the lower end and a curved wooden clamping jaw to effectively clamp your work with minimal clamping input from the user.

Alignment of clamp shaft to Delrin bearing.

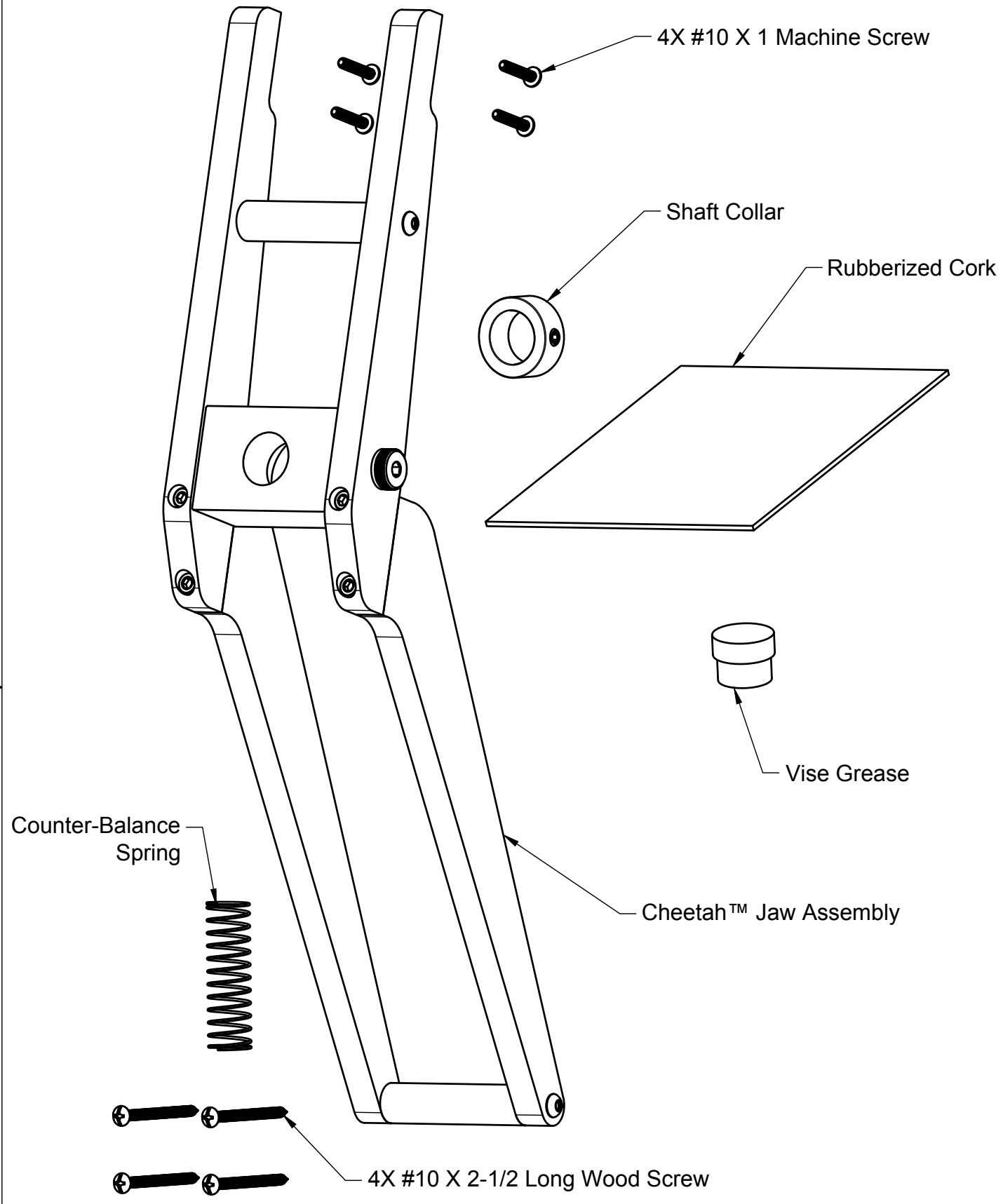
The VX21 mechanism contains a rear bearing and a front threaded collar. The clamp shaft is additionally supported at the front by the black round Delrin bearing. It is important to follow the alignment procedure in the instructions to make sure the clamp shaft is able to slide freely. Take extra care in drilling all the holes and the placement of the mounting holes. It is important that the bottom of the counter-bore that houses the Delrin bearing is flat and parallel to the rear of the leg where the VX21 mechanism is mounted

Maintenance

Clamp shaft – No need for oil or wax, just keep clean using alcohol.
Needle Thrust Bearing – Occasionally lubricate with a drop or two of light machine oil like sewing machine oil or hair clipper oil. Inspect and clean annually if necessary.
Cheetah™ leg vise – Every 2 years remove the shoulder pivot bolts, clean and apply a small amount of grease to the ground shoulder surface. Remove the Cheetah™ jaw from the clamp shaft and clean the bore in the pivot block. Apply a small amount of grease to the pivot block bore and reassemble.
VX21 mechanism – Internal grease will not break down due to usage. The grease will oxidize over time and need to be replaced. We estimate a ten-year life on the grease but this could vary based on environmental conditions. Grease is replaced by removing and dis-assembling the mechanism. Contact us prior to dis-assembly.



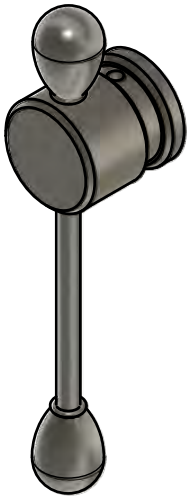
The above parts are included with the Cheetah™ leg vise hardware purchase. All parts except the clamp shaft are packaged together in a small box. Please contact us if you find anything missing.



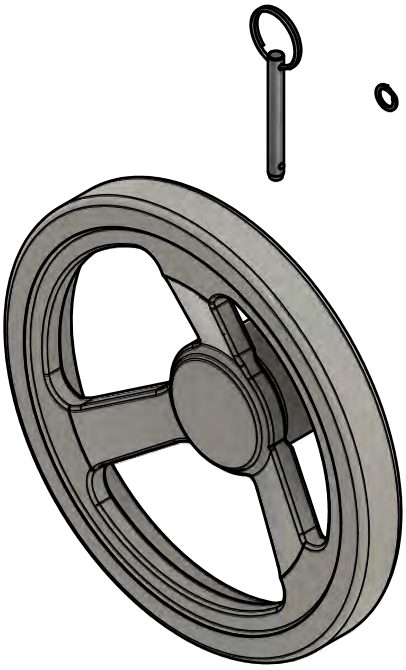
The above parts are included with the Cheetah™ leg vise hardware purchase. Please contact us if you find anything missing.

Handle Options

8" Dia. Round Profile Polished
Rim Metal Handwheel

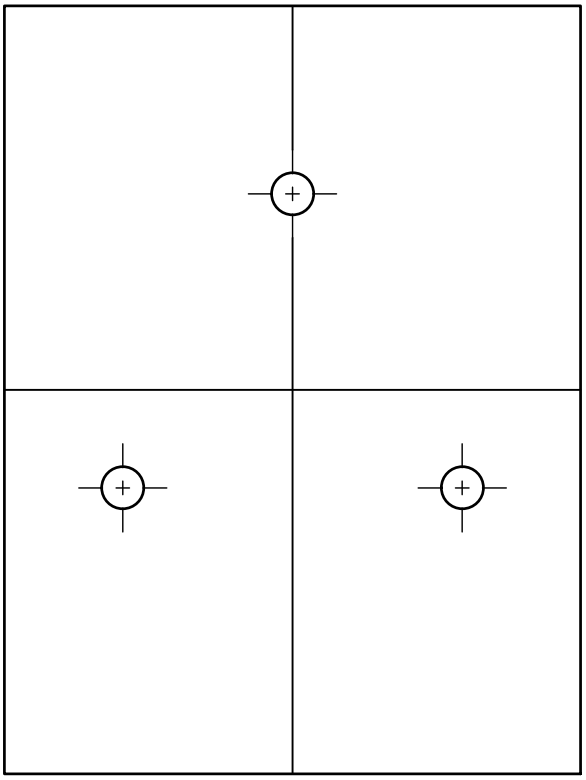


Metal Hub and Handle



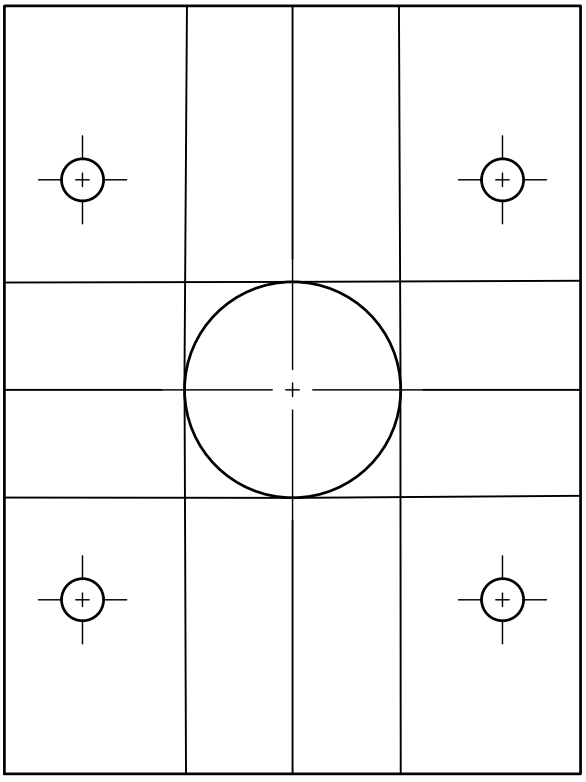
8" Dia. Square Profile Turned
Rim Metal Handwheel

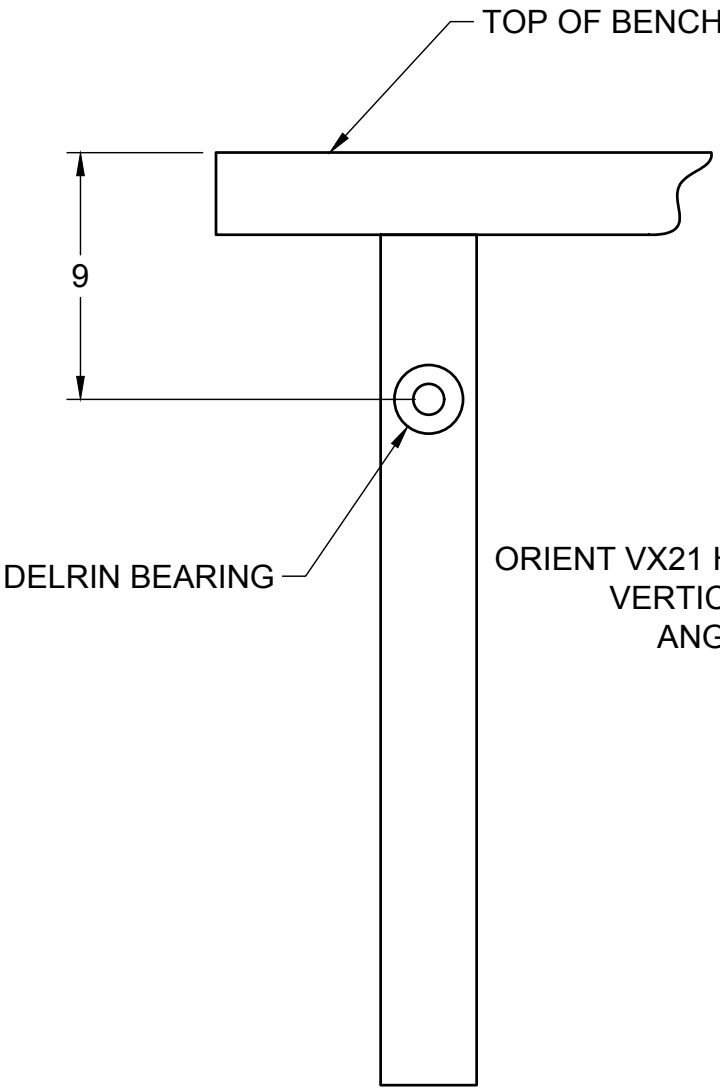
DELRIN BEARING TEMPLATE:

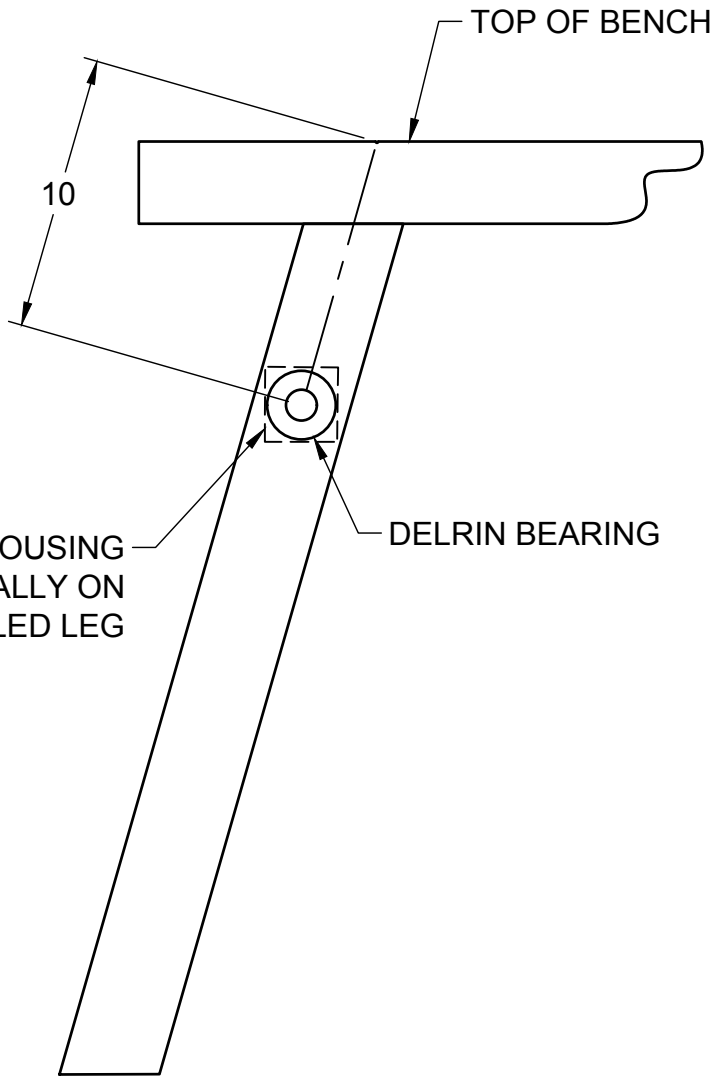


CHECK SCALE - BOXES ARE 3 INCHES WIDE BY 4 INCHES HIGH
SET PRINTER SCALE TO FULL SIZE 100%

LEG VISE HOUSING MOUNTING TEMPLATE:





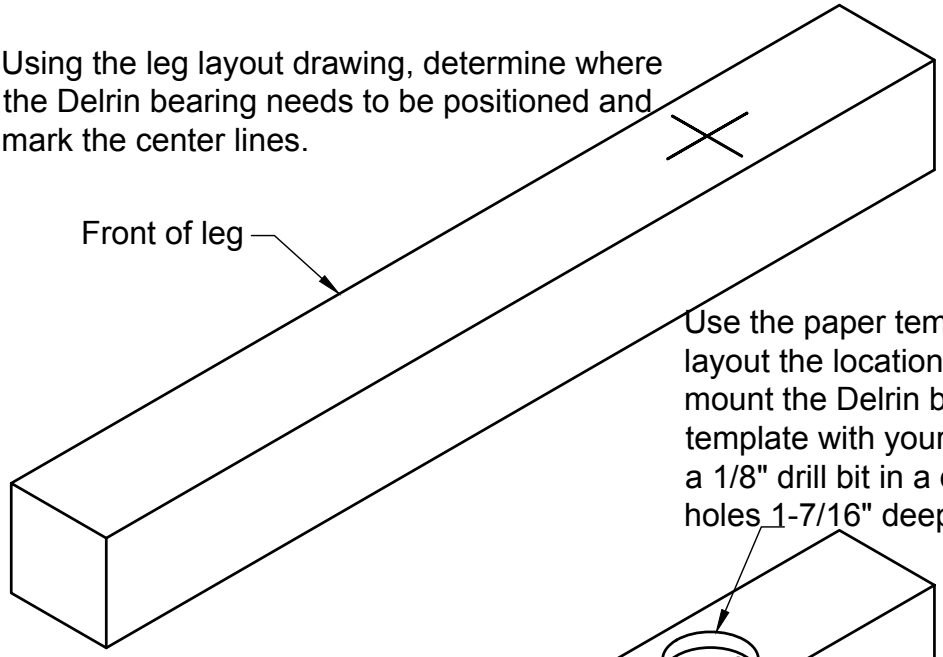


DELRIN BEARING LOCATION - STRAIGHT LEG

DELRIN BEARING LOCATION - ANGLED LEG

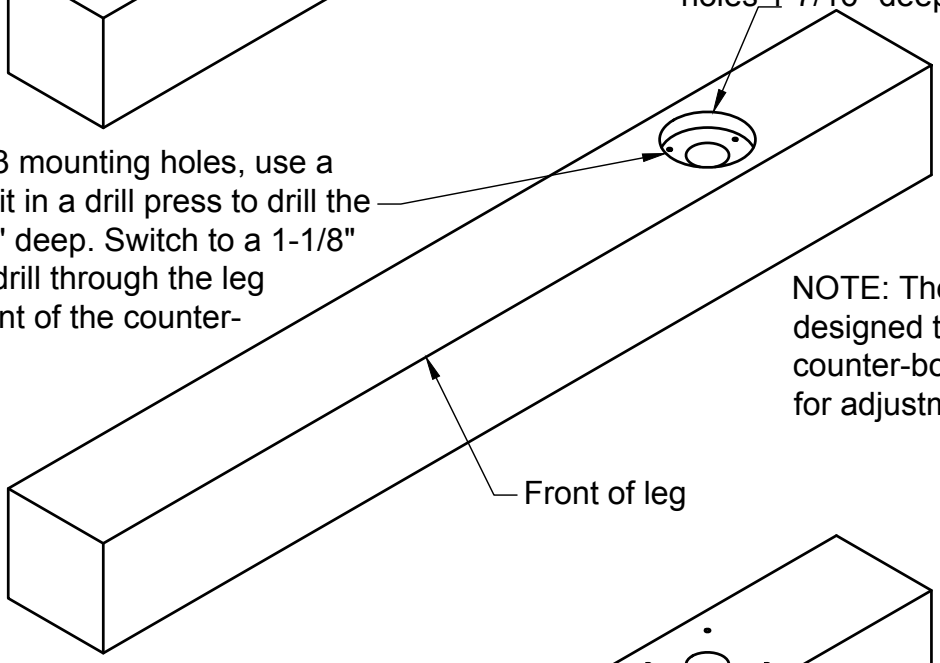
The following steps require the holes to be placed with an accuracy of 1/32". The use of paper templates is an excellent way to achieve this. As an option the hole positions may also be transfered directly from the parts using a transfer punch.

Using the leg layout drawing, determine where the Delrin bearing needs to be positioned and mark the center lines.

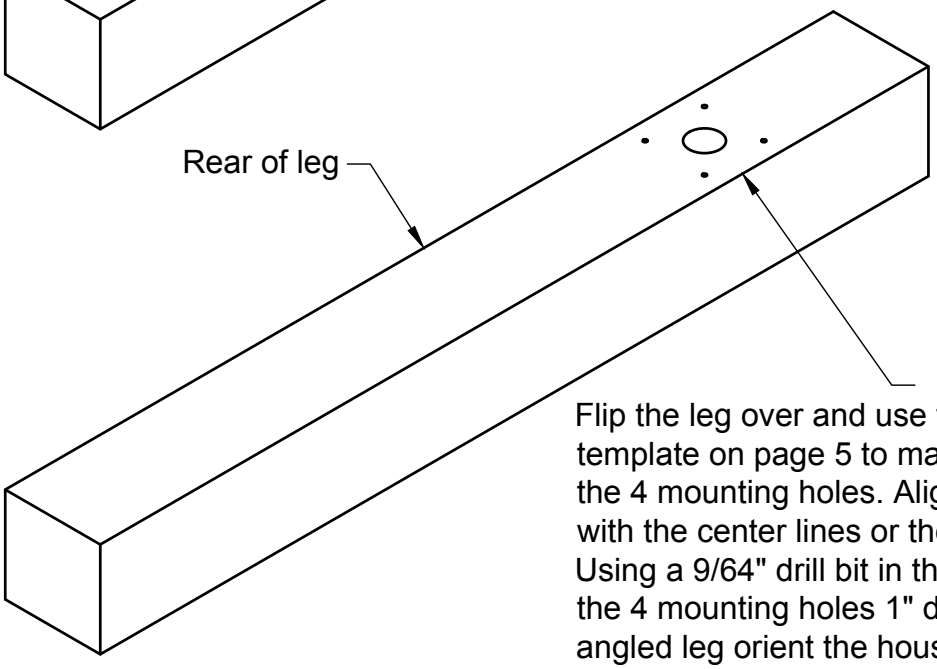


Use the paper templet on page 5 to layout the locations of the 3 holes to mount the Delrin bearing. Align the template with your layout lines. With a 1/8" drill bit in a drill press drill the 3 holes 1-7/16" deep.

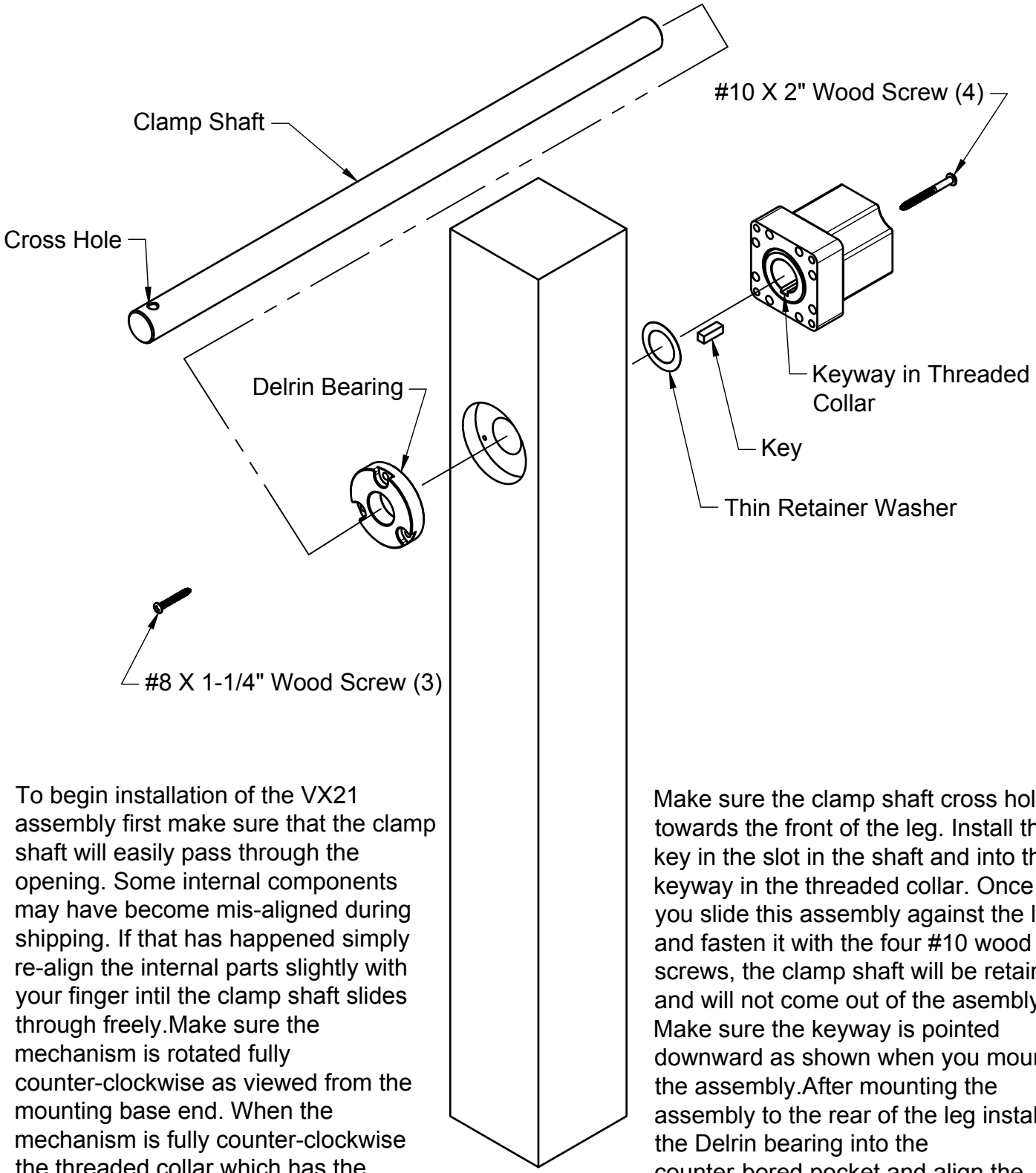
After drilling the 3 mounting holes, use a 2-1/2" Forstner bit in a drill press to drill the counter-bore 1/2" deep. Switch to a 1-1/8" Forstner bit and drill through the leg on the center point of the counter-bore.



NOTE: The Delrin bearing is designed to fit loosely in the counter-bored hole to allow for adjustment.



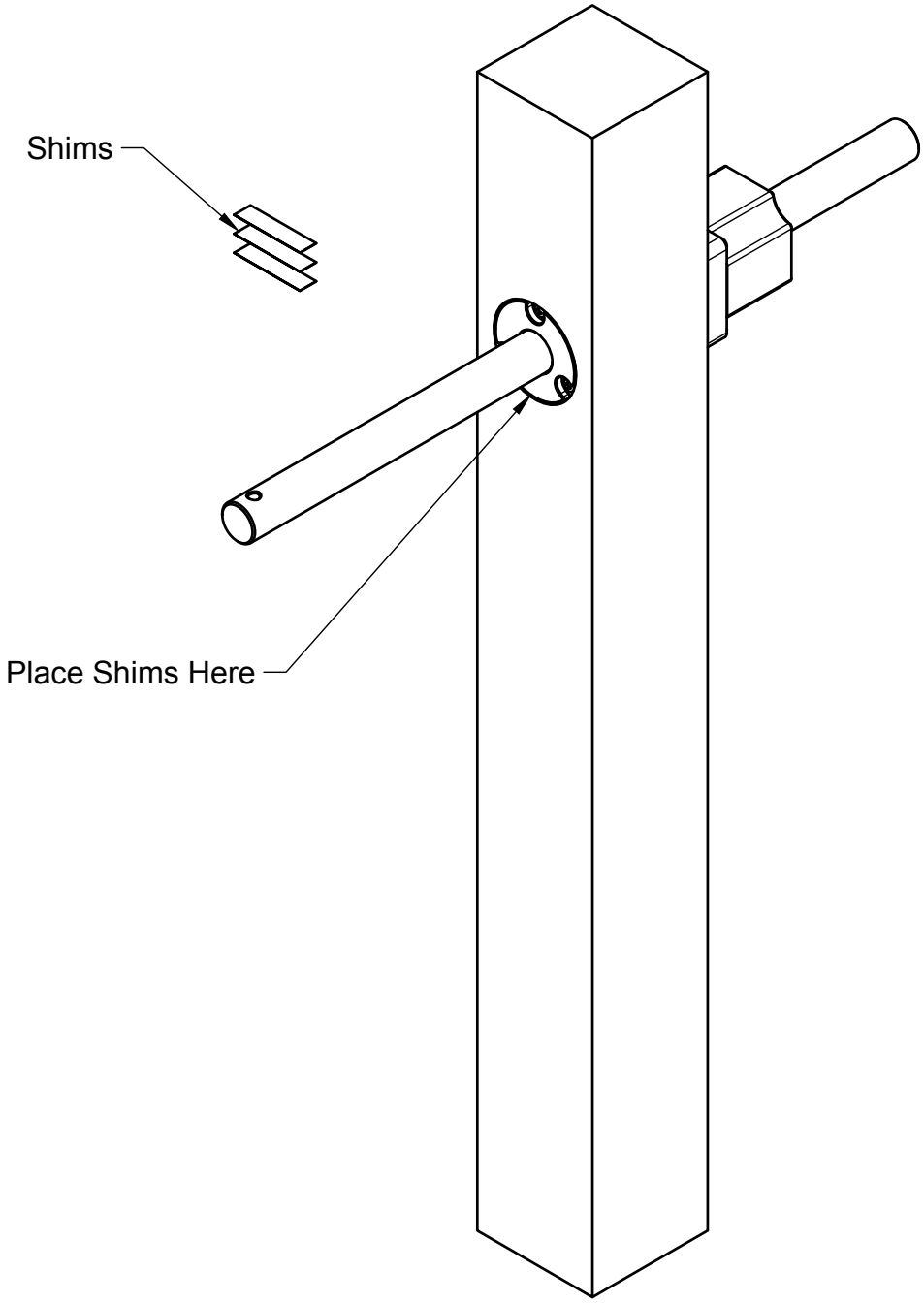
Flip the leg over and use the paper template on page 5 to mark the locations of the 4 mounting holes. Align the template with the center lines or the hole edge lines. Using a 9/64" drill bit in the drill press, drill the 4 mounting holes 1" deep. On an angled leg orient the housing so it is vertical.



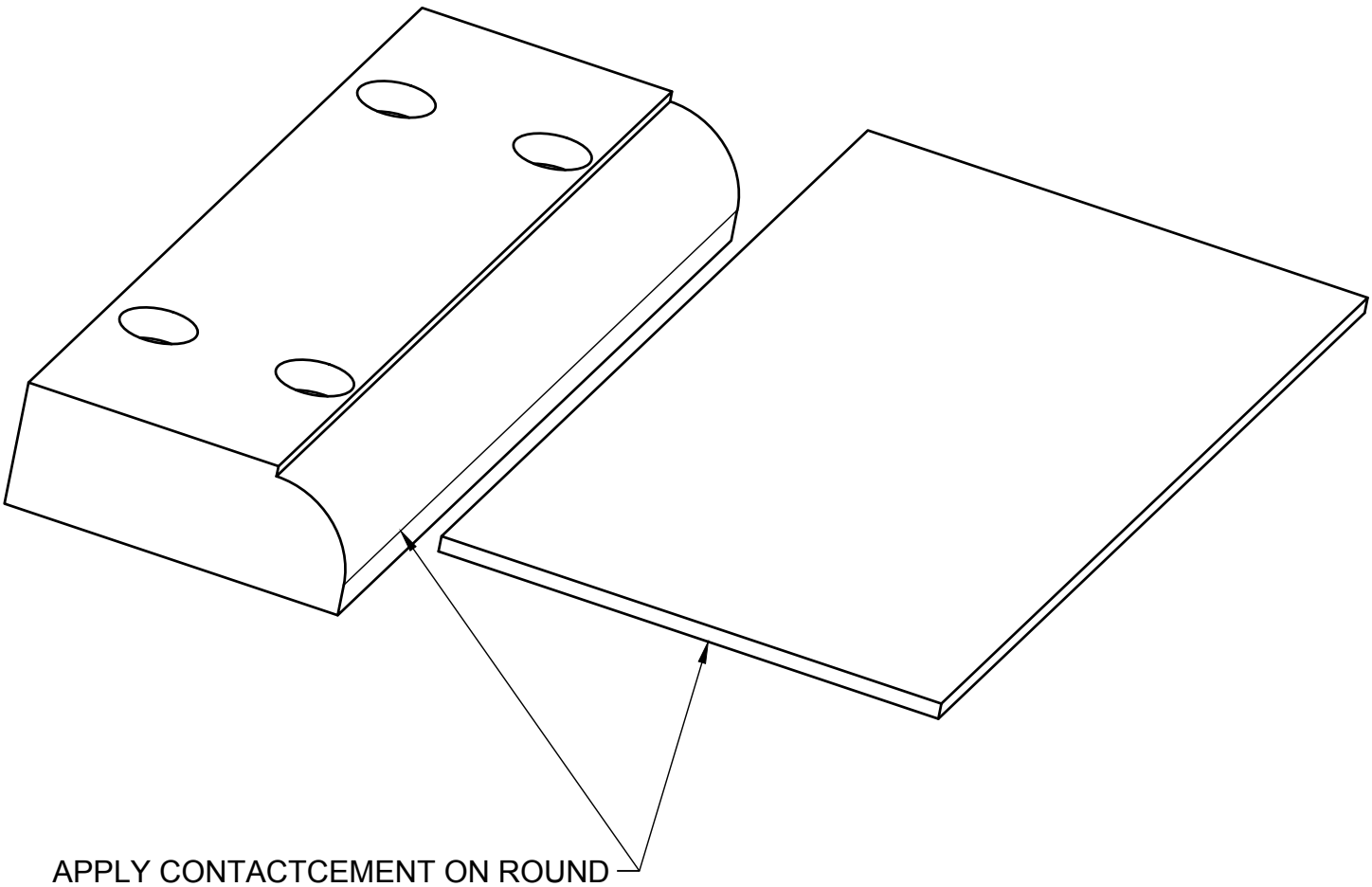
To begin installation of the VX21 assembly first make sure that the clamp shaft will easily pass through the opening. Some internal components may have become mis-aligned during shipping. If that has happened simply re-align the internal parts slightly with your finger intil the clamp shaft slides through freely.Make sure the mechanism is rotated fully counter-clockwise as viewed from the mounting base end. When the mechanism is fully counter-clockwise the threaded collar which has the keyway in it will be almost flush with the mounting base and the keyway will be aligned with the slot machined in the back of the orange anodized housing. Insert the clamp shaft through the leg and then through the thin retainer washer and through the housing.

Make sure the clamp shaft cross hole is towards the front of the leg. Install the key in the slot in the shaft and into the keyway in the threaded collar. Once you slide this assembly against the leg and fasten it with the four #10 wood screws, the clamp shaft will be retained and will not come out of the asembly. Make sure the keyway is pointed downward as shown when you mount the assembly.After mounting the assembly to the rear of the leg install the Delrin bearing into the counter-bored pocket and align the three mounting holes. Install the three #8 mounting screws but leave them slightly loose so that the Delrin bearing is able to be moved around in the pocket for alignment.

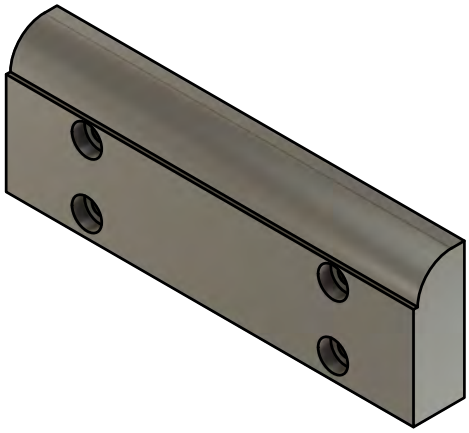
Place shims under the Delrin bearing to align the bearing. The shims come in various sizes to move the bearing up or down as needed. Install shims and test the sliding action of the clamp shaft. When the clamp shaft slides freely without a lot of resistance you have good alignment. Tighten the mounting screws and double check that you have free movement of the clamp shaft.

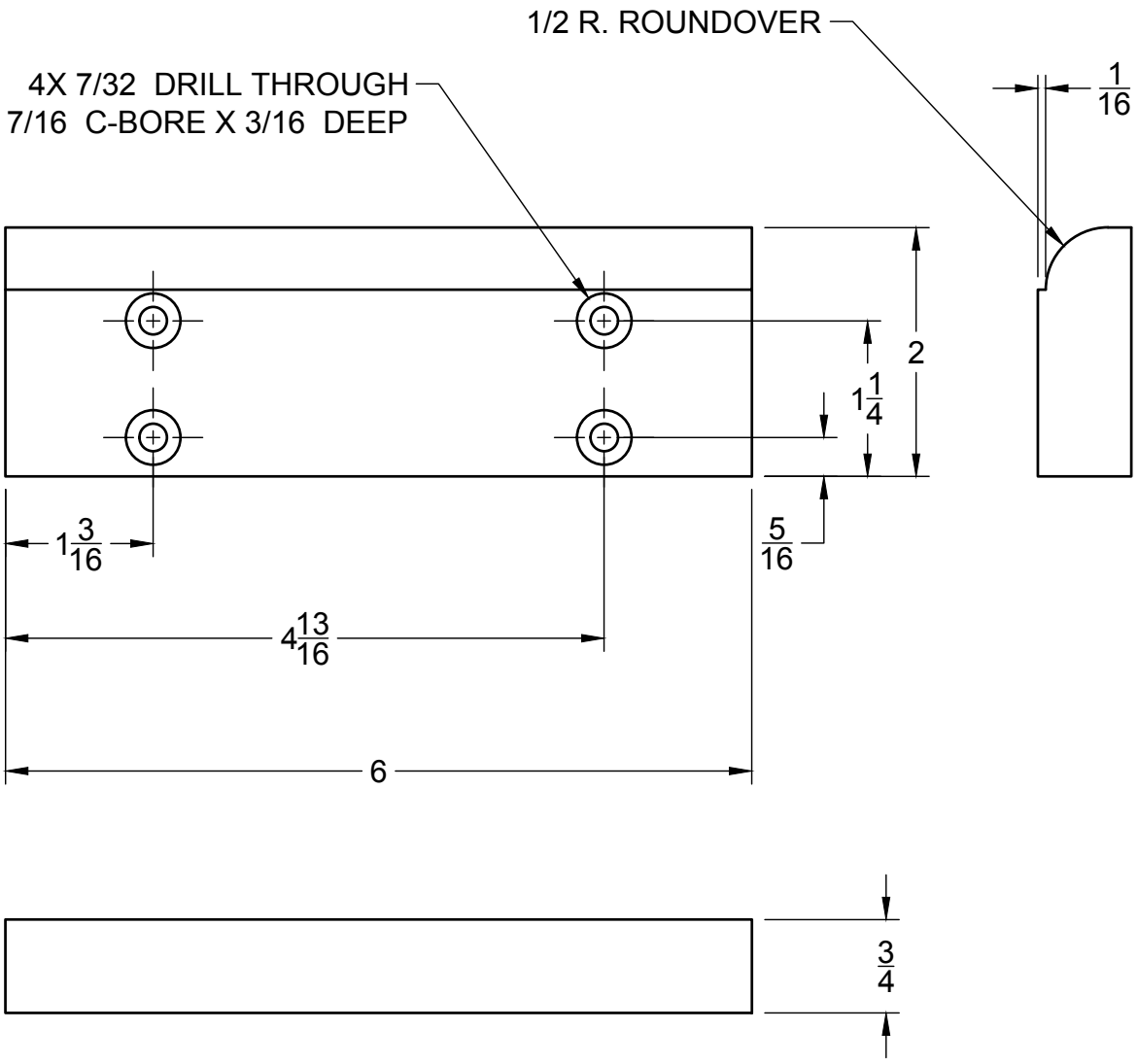


Make a wooden clamping jaw following the drawing on page 11 (for a straight leg) or page 12 (for an angled leg). Use a hardwood for the jaw. Create the roundover using a 1/2" radius roundover bit in a router. Drill the through holes and counter-bores at the location shown in the drawing.

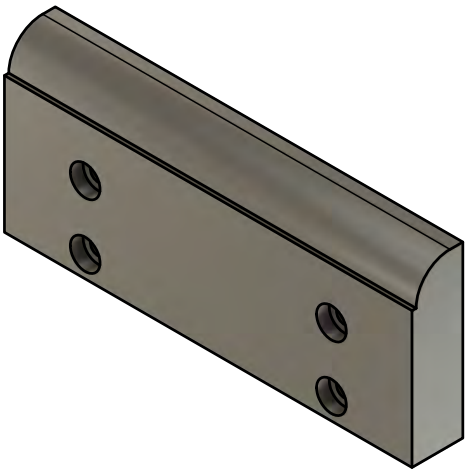


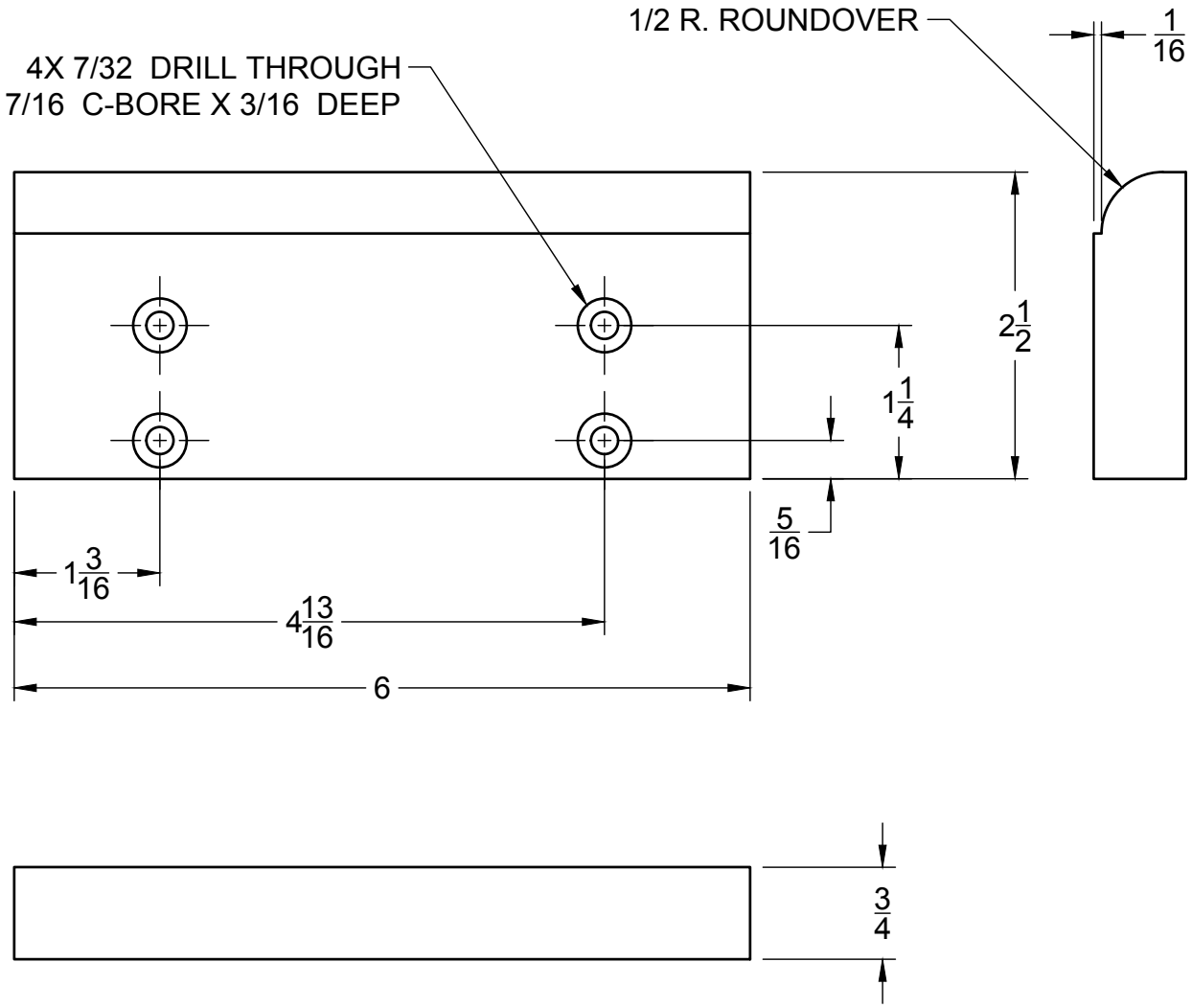
Affix the cork rubber to the rounded area of the wooden jaw using contact cement. Mask off all areas of the jaw that should not be covered with contact cement. Apply contact cement to both the cork rubber and the jaw following the contact cement directions. Make sure to apply contact cement to the 1/16" high step on the jaw and the corresponding edge of the cork rubber. After the contact adhesive has dried, carefully align the cork rubber edge to the jaw edge and push together. After the edge is adhered place the cork rubber on a flat hard surface surface, apply pressure and roll it to finish the installation. Using a utility knife trim the cork rubber to the edges of the jaw.



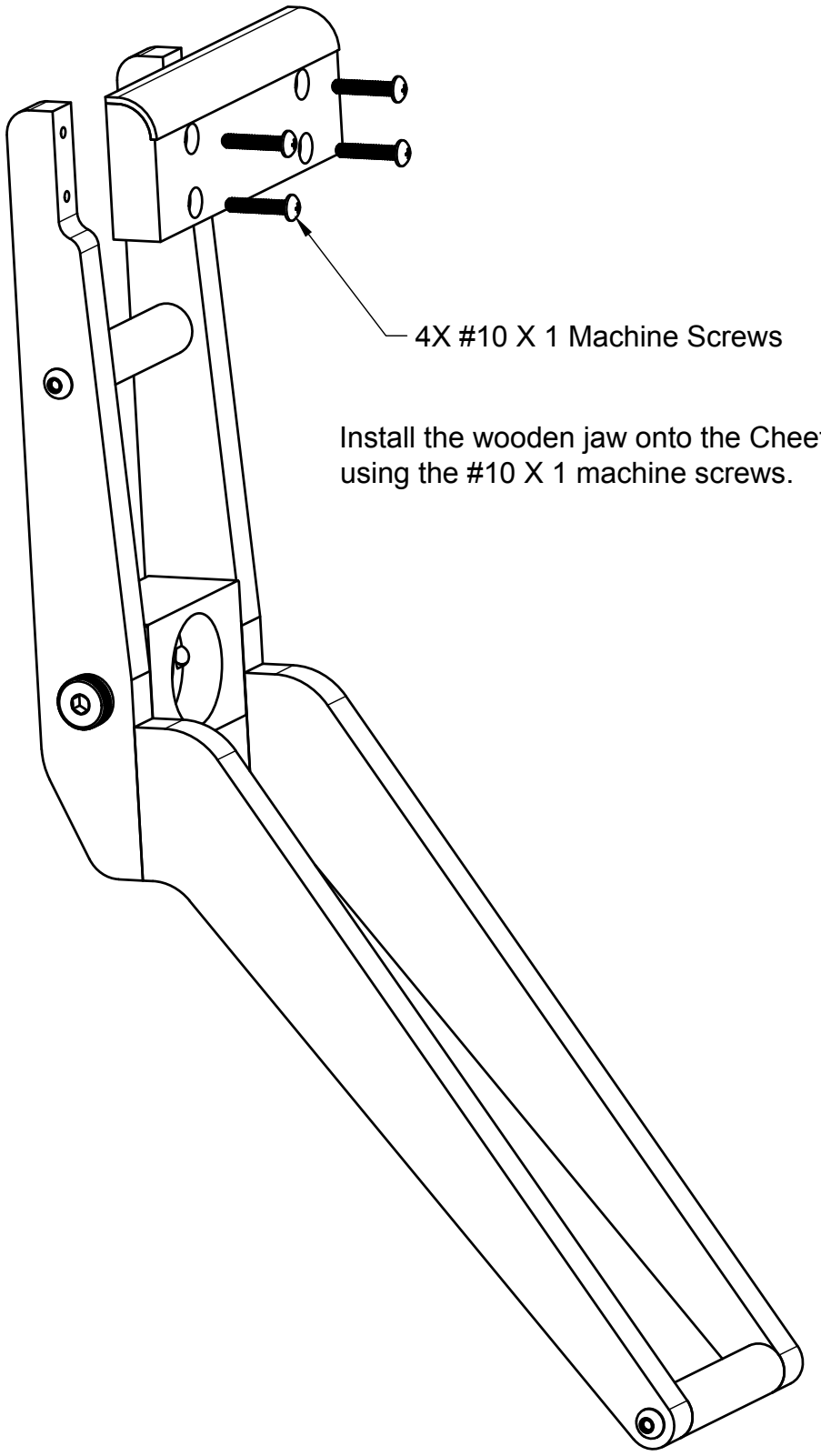


Standard Jaw Hole Layout

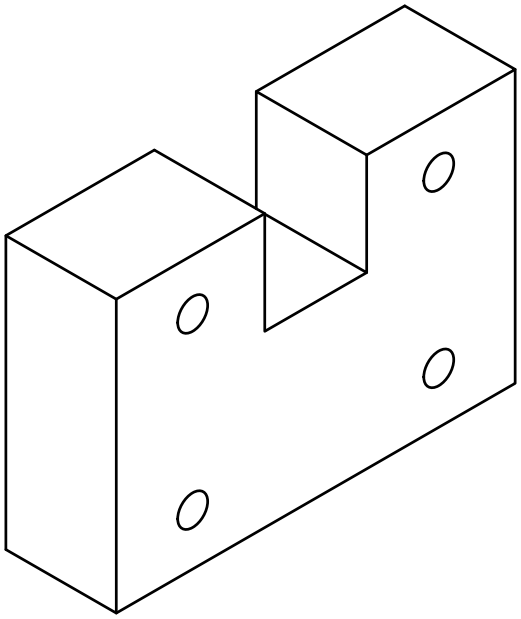




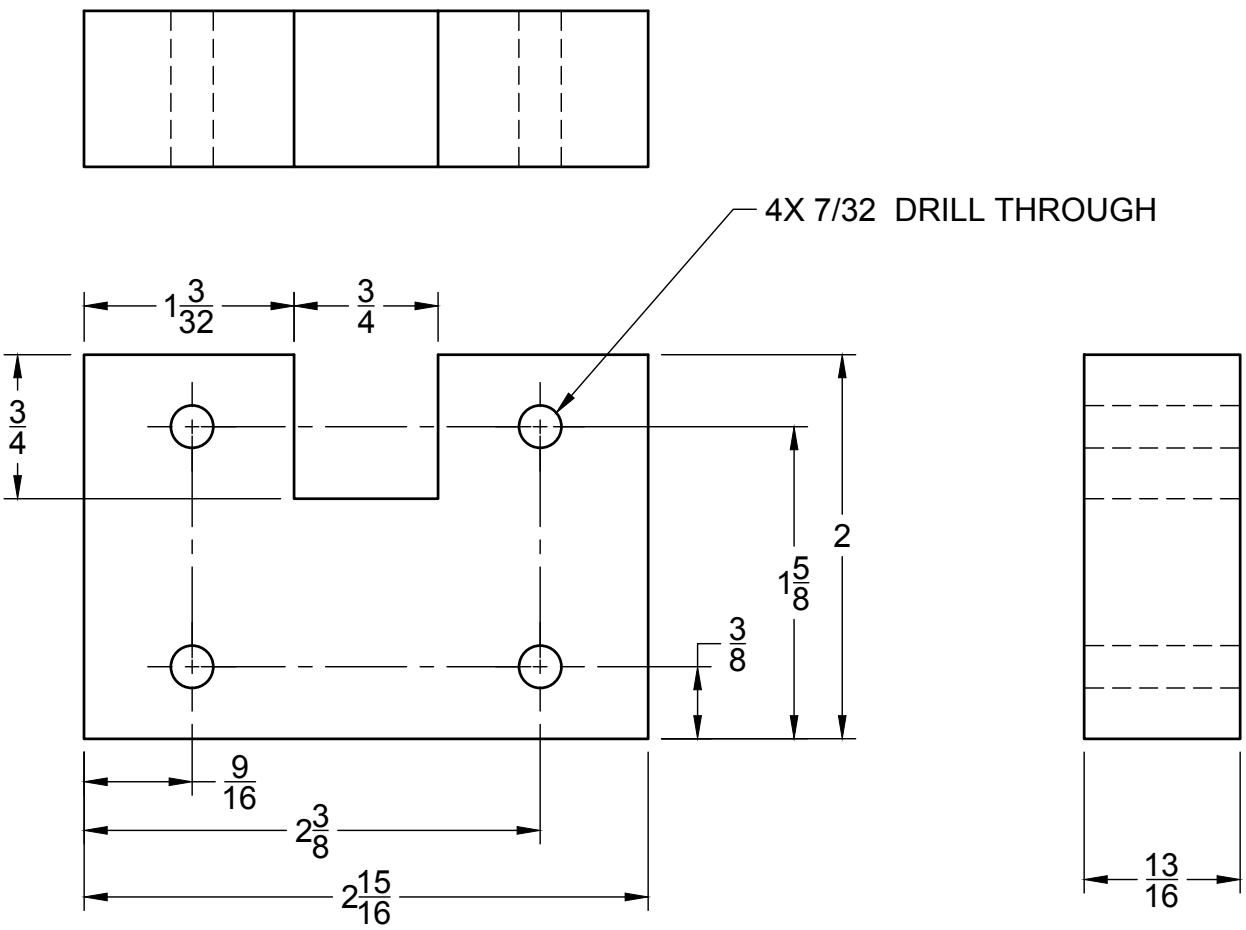
Angled Leg Jaw Layout



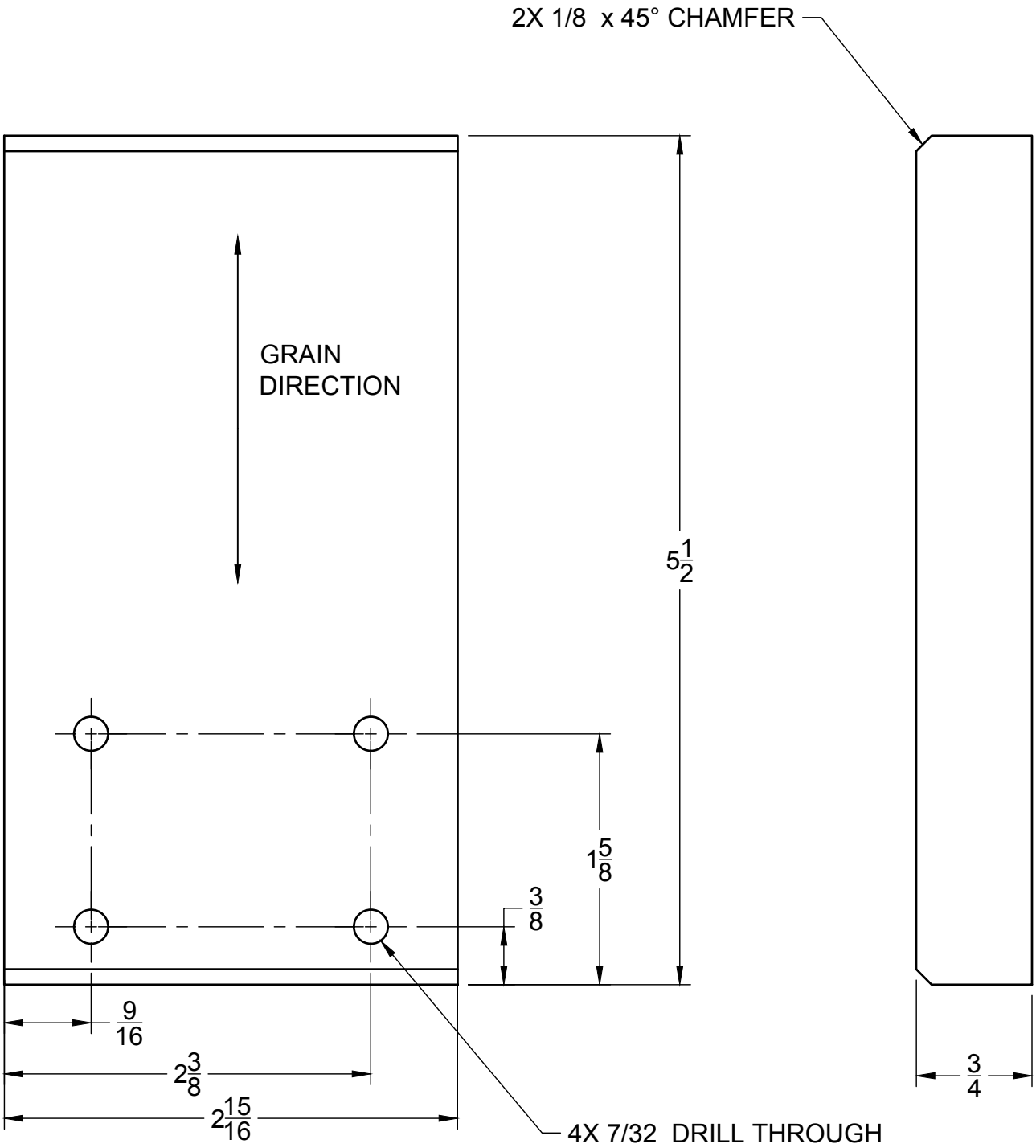
Install the wooden jaw onto the Cheetah™ assembly using the #10 X 1 machine screws.



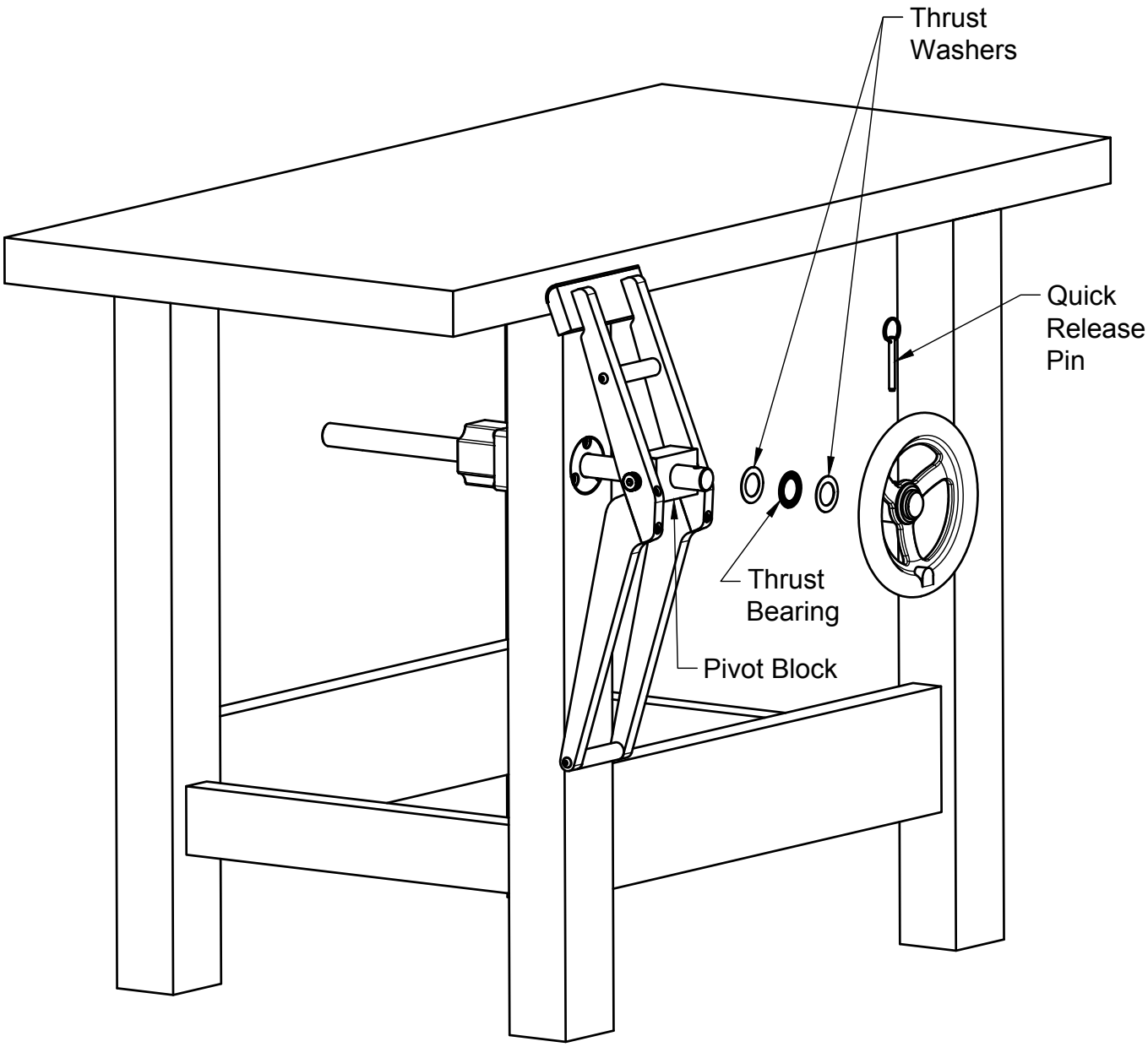
Use hardwood to make the riser block (p. 14) and the jaw retainer block (p. 15). The 13/16" riser block thickness (p. 14) and the 2-15/16" jaw retainer block width (p. 15) are important to the function of the vise so take extra care when making them.



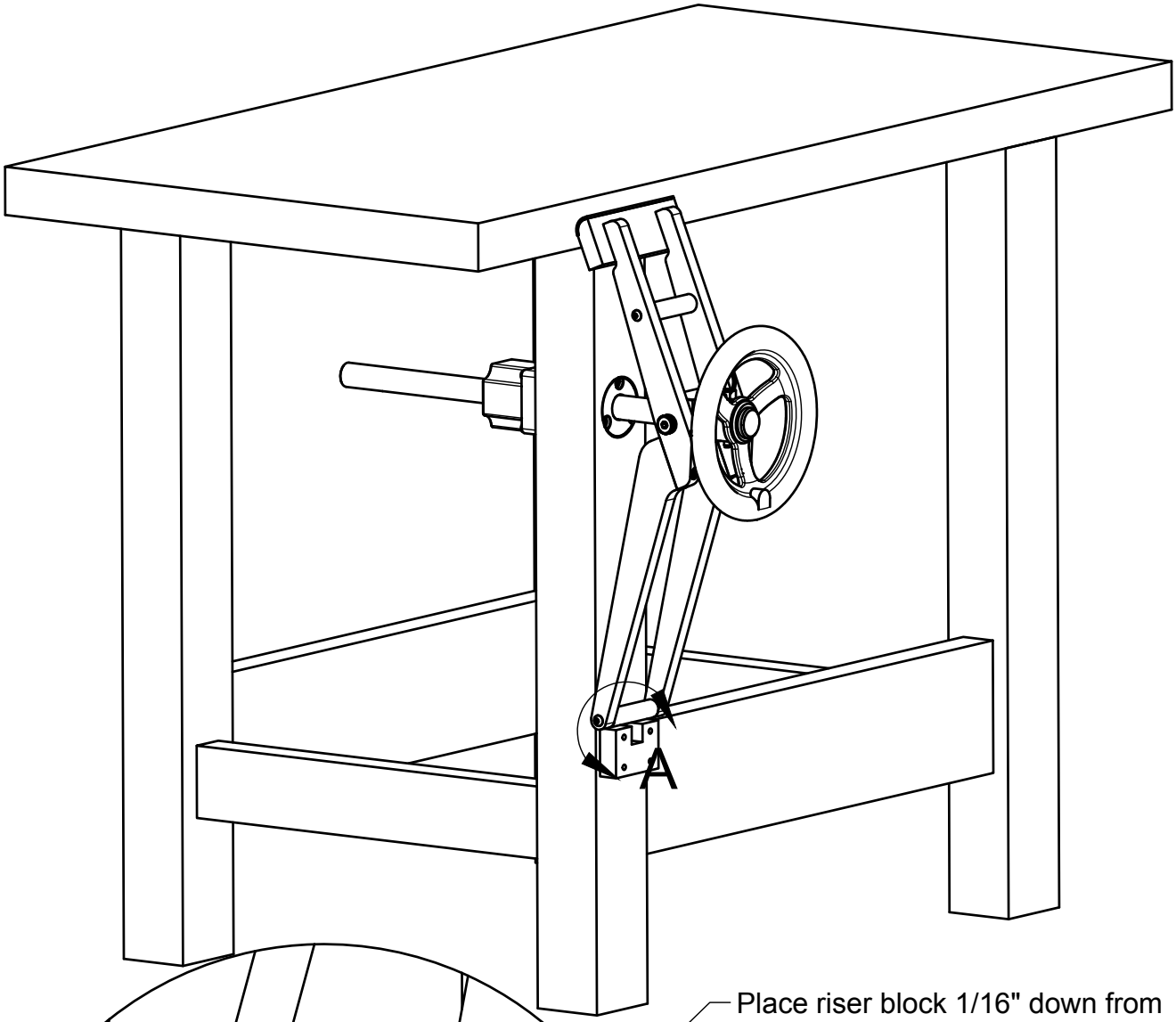
Pivot Retainer Riser Block

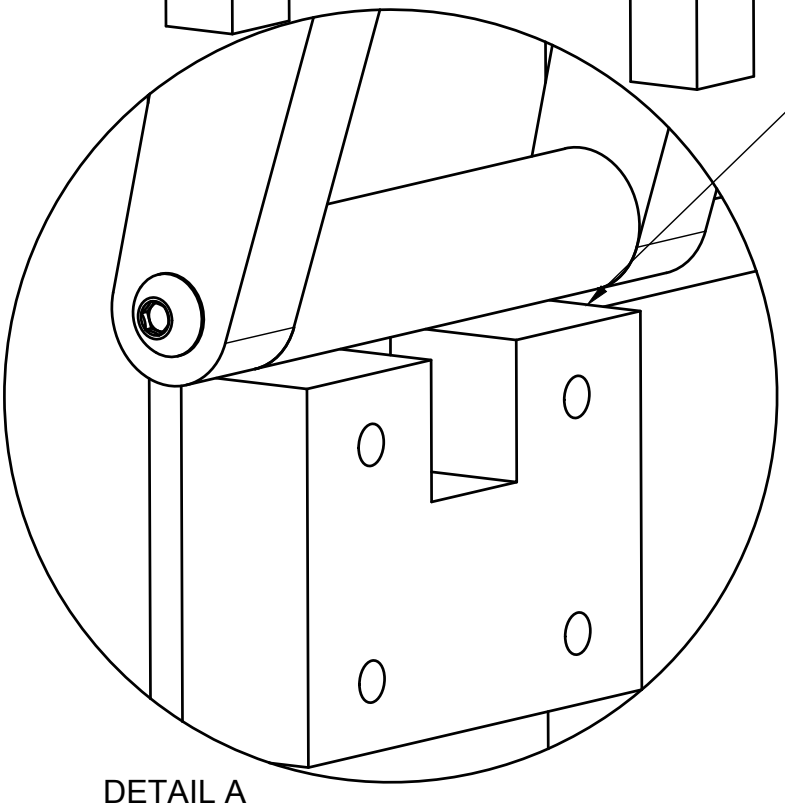


Jaw Retainer Block



Temporarily place the Cheetah™ leg vise onto the clamp shaft. Make sure the counter-bored hole of the pivot is facing the leg. Place the thrust washers and thrust bearing onto the shaft against the pivot block. Install the handwheel onto the shaft and secure to the shaft with the quick release pin installed through the cross hole in the end of the shaft. Push the handwheel in so the Cheetah™ assembly is pushed against the leg. Use a square to make sure the bottom of the Cheetah™ is perpendicular to the leg and then rotate the handwheel clockwise to clamp and hold the Cheetah™ leg vise in position.

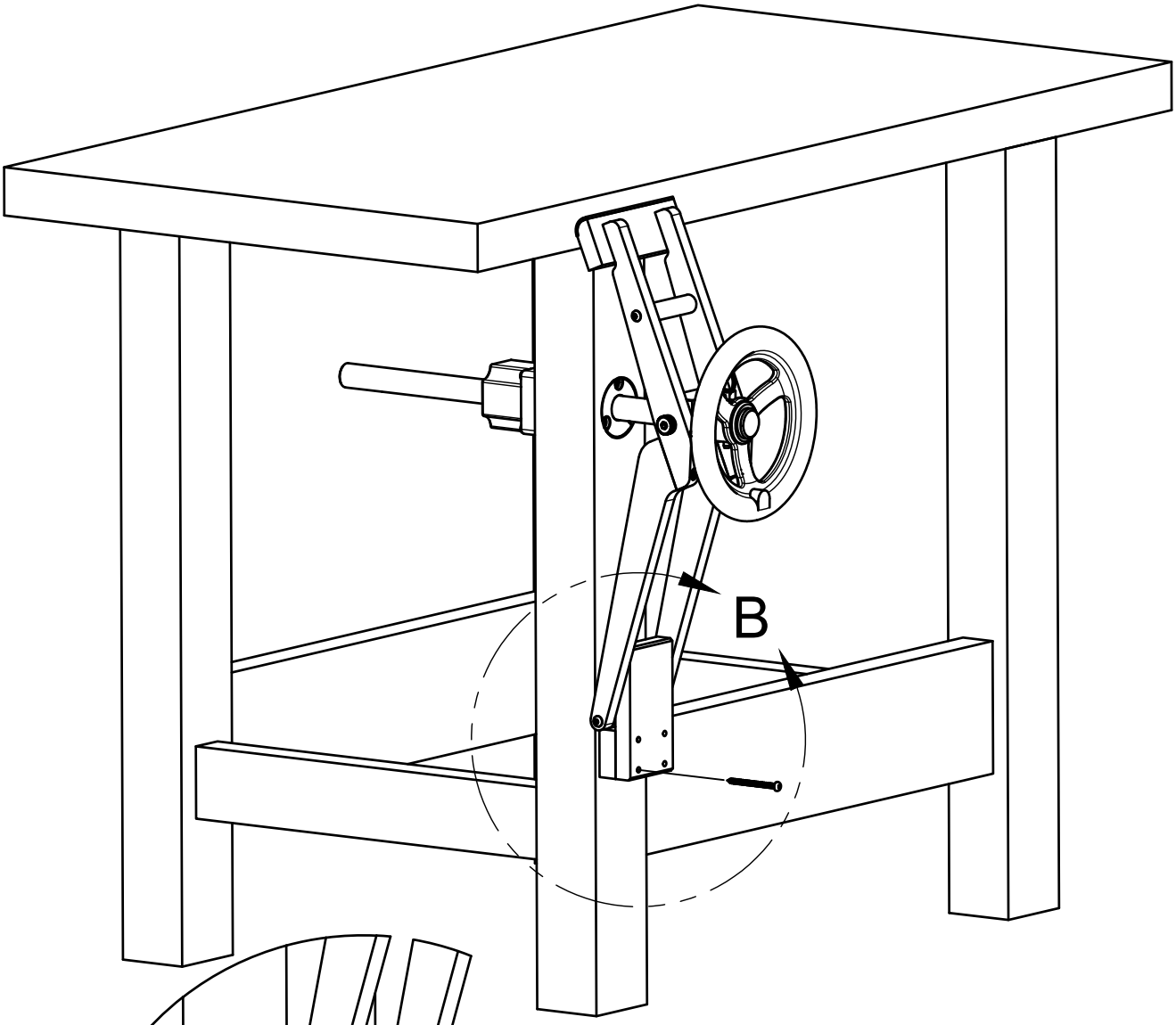


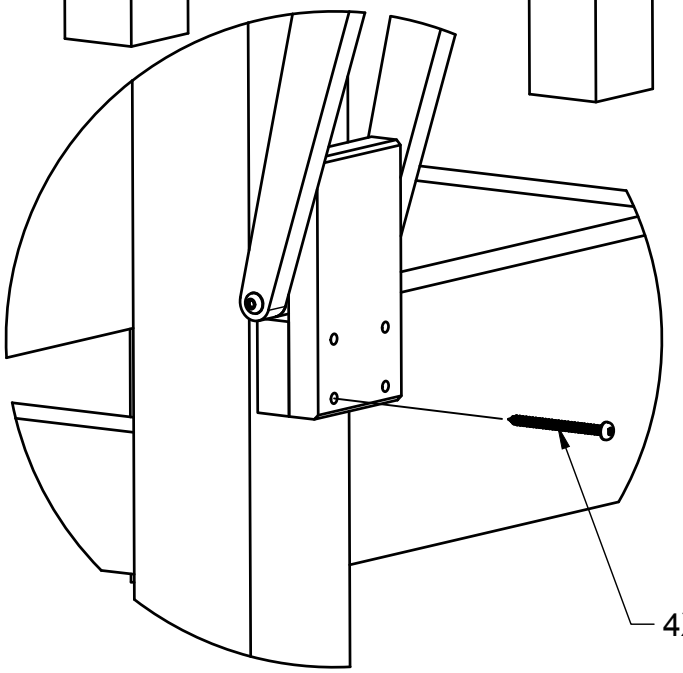


Place riser block 1/16" down from bottom of Cheetah™.

Place the riser block as shown and locate it 1/16" down from the bottom of the Cheetah™ assembly. Make sure it is perpendicular to the sides of the leg and centered and then transfer the four mounting hole locations onto the leg.

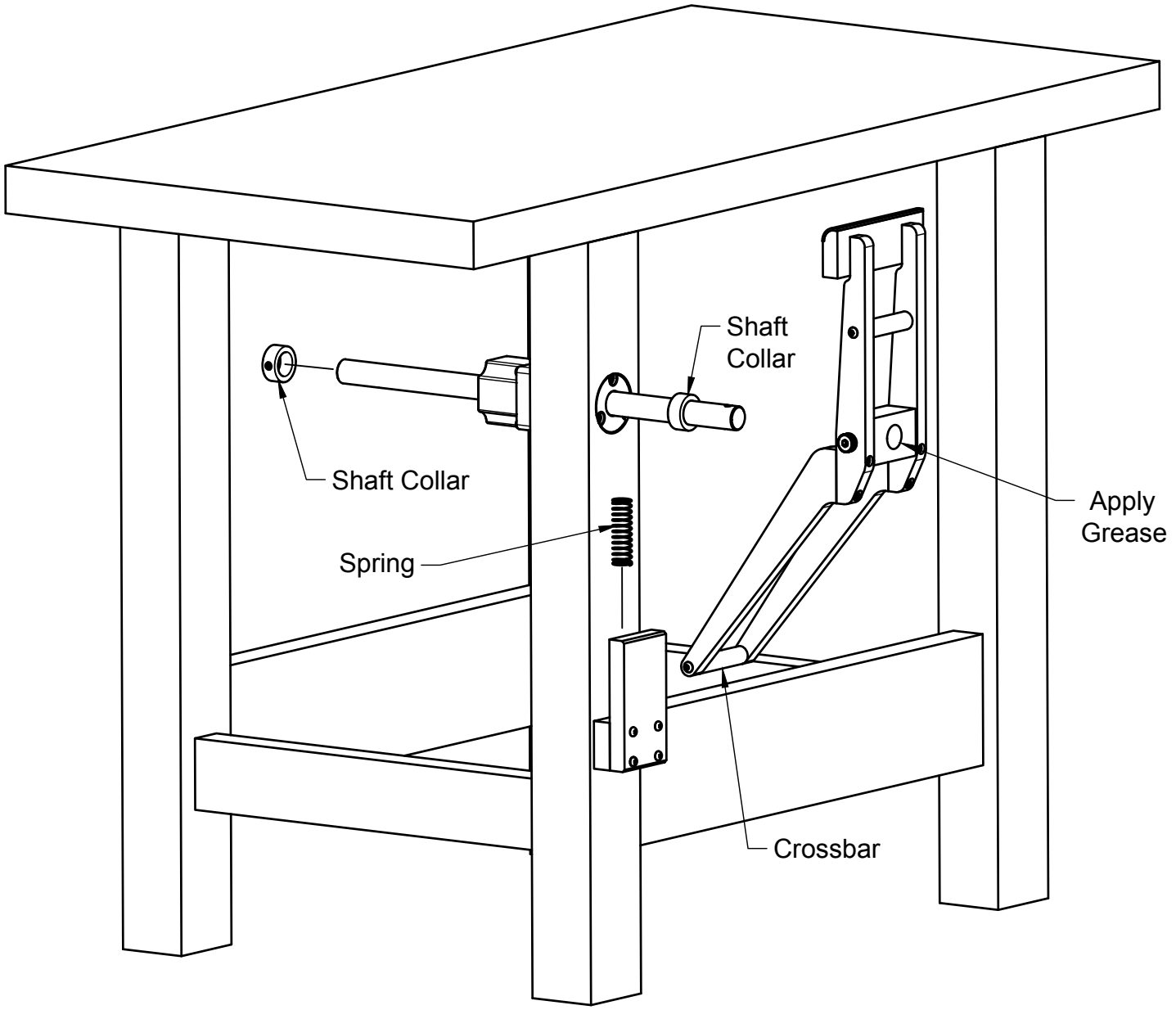
DETAIL A
SCALE 1:1





DETAIL B
SCALE 1:4

Drill four 9/64" diameter holes 1" deep at the marked locations. Install the pivot retainer block with four #10 X 2-1/2" long wood screws as shown in Detail B. The Cheetah™ leg vise may now be removed to begin the final assembly.



Drop the counter-balance spring into the pocket in the standoff block. Place the front shaft collar onto the clamp shaft. Insert the crossbar of the Cheetah™ into the wooden retainer block and install onto the clamp shaft. Re-install the thrust washers, bearings, hand wheel and secure with the quick release pin.Slide the shaft collar into the counter-bore in the back of the pivot block so it is tight against the pivot block and mark the location of the shaft collar with a felt tip marker. Remove the hand wheel and slide the pivot block forward enough so the set screw can be tightened. Line the shaft collar up with the mark that was made and tighten the set screw. Re-assemble everything and check the free play of the pivot block. Shoot for 1/64" of free play. You don't want the shaft collar too tight against the pivot block and you don't want to have a lot of free play. Adjust the shaft collar slightly until it is acceptable. Remove the hand wheel one last time and apply a small amount of grease to the hole in the pivot block where the shaft turns and re-assemble everything. Open the Cheetah™ jaw so the top of the crossbar is even with the top of the jaw retainer block. While maintaining this location install the other shaft collar onto the rear of the clamp shaft and slide against the black rear housing bearing. Secure the shaft collar. This will act as a stop to prevent the crossbar from pulling out of the pivot retainer block when fully open. The Cheetah™ is now ready for work.

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