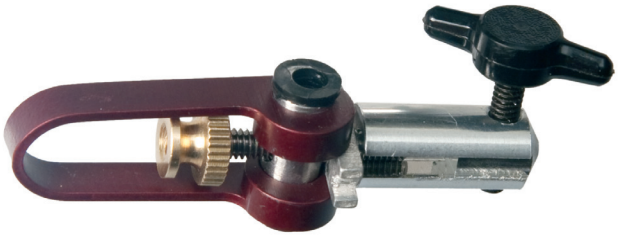
KNEW CONCEPTS

A Cut Above

Upgrade Kit to add lever tensioning to early model Knew Concepts Saws

V1.3



The upper blade clamp, lever, upgrade bridge, and knob, all threaded together as shipped. Note the upper clamp has a groove in one side of it. This groove faces towards the sawframe, so that the frame can slide along it.

The lower blade clamp. The lowermost screws clamp it onto the sawframe.

Kit Contents:

1 each: new upper and lower blade clamps. Revised with larger blade holes, and countersunk throats.

1: 5/64" hex wrench

1: Tension lever with pre-installed axle

1:"H" frame upgrade bridge

1: brass tension knob

Tools Needed:

Another jeweler's saw.

Fine point scribe

Small straightedge

This upgrade kit is designed to update early model Knew Concepts saws to add lever tensioning as well as the larger blade sizes and easy-thread countersunk throats added to later saws.

This kit will only fit early model saws that have a spring pressing against the upper clamp.

It will be necessary to modify the frame of the saw itself. This is best done with another jeweler's saw. If another saw is not available, the modifications can be made with a metal cutting file, albeit slowly.

Step 1:

Use the 5/64" hex wrench to remove the lower blade clamp from the sawframe to be upgraded. (*Very* early saws have the clamp pinned in place. Use a small punch or nail to drive the pin out, and then proceed normally.) Put the upgraded lower clamp in place, and then tighten the two clamp screws (the ones below the blade clamp screws.) When we assemble these ourselves, we find it helpful to keep our thumb on the clamp, pressing it down against the frame while tightening. Start with the one on the left side, as you look down at the open side of the sawframe. (It wants to rotate the clamp away from the frame.) Then do the right one, which wants to rotate the clamp back towards the frame. The clamp should end up straight, and with the frame pushed fully into the slot in the rear of the clamp.

Step 2:

Mark the uppermost corners of the hole where the tension knob was, as per Fig. 1, then saw them out.
The end goal is to make the hole bigger by removing the spring retaining tab, as well as the two corners of the hole on either side of it.

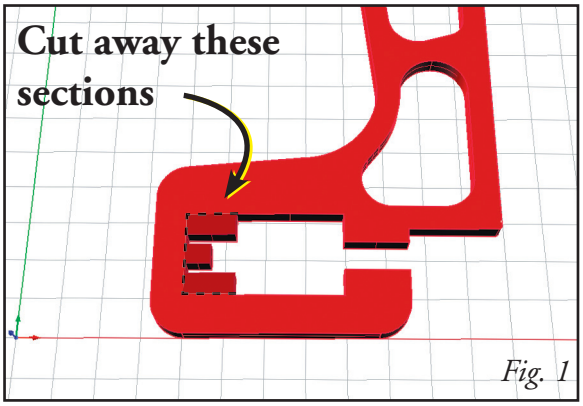


Fig. 1

Step 3:

Thread the lever and axle combo into the clamp frame. Check orientation by comparing with Fig. 4.

Step 4:

Find the upgrade bridge in the parts kit. (Small aluminum "H" shaped part.) Note that two opposite sides of the interior cuts of the "H" are angled. This matters.
Make sure the lever and axle are already in place.
Insert the upgrade bridge into the clamp frame. To do this, you must thread the upgrade bridge through the frame, angled so that one of the angled interior cuts of the "H" is down against the arm that makes the outboard edge of the frame hole. Once the "H" is in place against the lower face of the clamp frame, rotate it so that it ends up bridging the gap between the two sections of the clamp frame. It won't rotate in properly unless the angled cuts are facing the correct direction. (See Fig 2.) You'll probably have to push to snap it into place. We've found it helpful to put a small screwdriver or nail across the back of the bridge, and push with that.

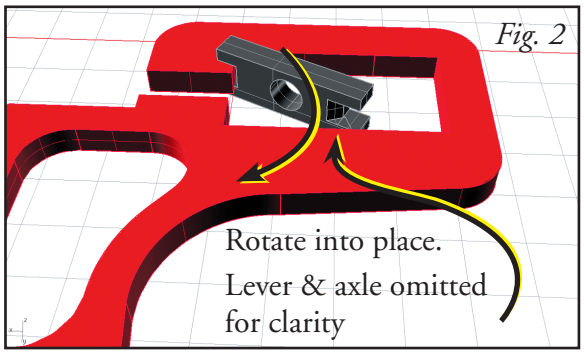


Fig. 2

Note which way the angled cuts face.

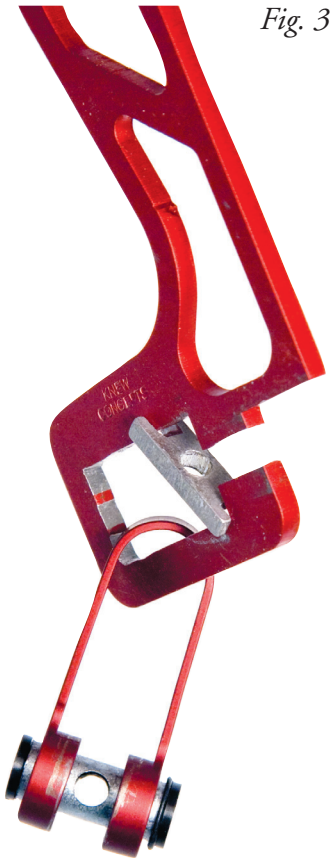


Fig. 3

Photo of bridge installed, but not fully rotated, Note the axle and lever already inside the frame.

Step 5:

Find the new upper blade clamp in the parts kit. (The clamp that had the brass tension knob threaded onto it.) Thread the screw through the hole in the center of the upgrade bridge. Then thread the screw through the hole in the center of the lever axle. Push the upper clamp as far up into the knob hole as possible.

Step 6:

Rotate the lever as far away as possible from the arm of the saw. It should end up sticking out into space on the side of the sawframe. (See Fig. 4) Thread the brass knob onto the end of the screw, with the wide side of the knob facing the lever. This matters: the wide side of the knob forms the bearing against the lever. It won't work properly facing the other way.
It is also very important to make sure that the knuckles of the lever, (the big rounded parts riding on the axle.) are wide enough apart to go around the upgrade bridge. They can shift too close together during shipment. Spread them apart if necessary. Note how they're sitting around the bridge in fig.4.

Step 7:

The saw is back together. All that remains is to put a blade in the clamps, and dial in the tension. The blade clamps were set before they were shipped, but they can shift in transit. Clamp a blade in the lower clamp, and check to make sure that when clamped tightly, the blade sticks straight out, and seems centered in the throat hole. If not, follow the blade adjustment instructions below until it does so. Repeat this with the upper clamp, until the blade is clamped properly by both clamps.

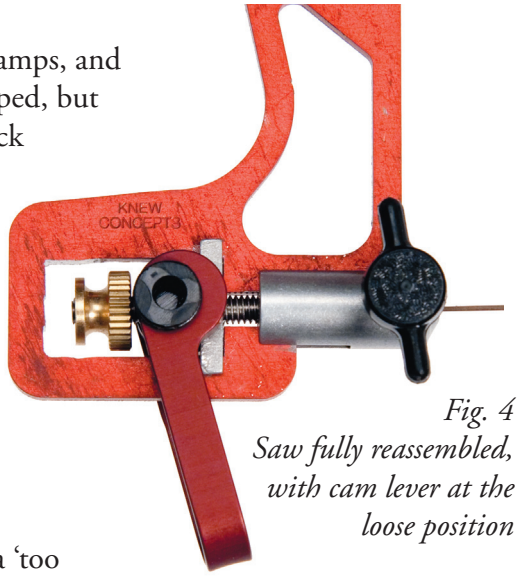


Fig. 4
Saw fully reassembled, with cam lever at the loose position

Fine tension is adjusted by screwing the brass knob closer or farther out from the upper clamp, exactly as the original tension knob functioned. The difference is that the lever allows for fast changes between fully taut, and completely loose.

It is possible to pull blades apart with the lever, especially fine ones. Therefore, it is best to start off with the knob at what appears to be a 'too loose' setting, and then increase tension over a couple of trial pulls with the lever until the blade 'pings' at the desired pitch. With experience, this process becomes automatic. It's also important to remember to pull the upper clamp down all the way towards the lower one when seating a new blade. The clamps grab at the very ends of the blade, so if the upper clamp is partly up in the frame, it has almost nothing to hang on to. It is also important to remember that you will have to adjust the tension knob when changing blade sizes. You wouldn't pull an 8/0 blade nearly as hard as you'd pull a #4, for example.

Going Forward:

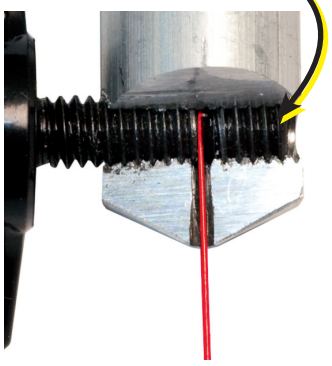
Next are the blade tensioning instructions that come with new saws built with the lever. Please review them. There are also adjustment instructions for the blade clamps. The original Knew Concepts saw you own didn't ship with much in the way of instructions: there weren't any at the time. Now that we have them, we thought you should too.

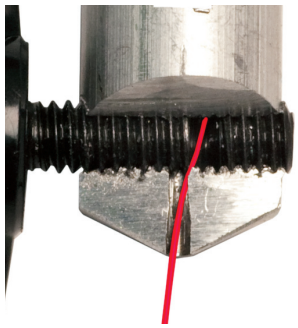
Blade Clamp Adjustment

Correct alignment

The alignment of the anvil screw is important. This cut-away provides a visual of what is going on inside the blade clamp. When properly aligned, the blade will go in easily, and when the clamp knob is tightened, the blade will be clamped firmly between the two screws, sticking straight out of the clamp.

Anvil Screw



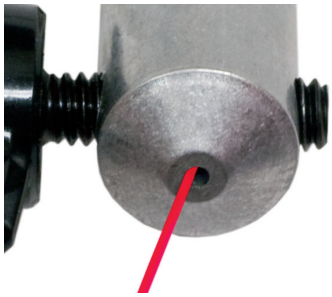


Anvil screw out too far

This shows what usually causes bent or broken ends. Adjust for correct alignment.

Mis-alignment

This shows an extreme example of the anvil screw out of adjustment. As you tighten the clamp knob, notice blade movement. If it wants to angle to one side or the other, the anvil screw must be adjusted. The loose end of the blade usually tilts toward the side that's in too far. Use the 5/64" hex key to adjust it.



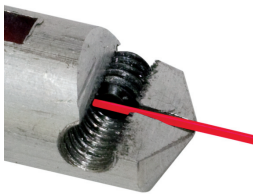
Original instructions written by Lee Marshall and Cynthia Eid,
Upgrade kit instructions, photography & graphics by Brian Meek.

Blade Installation

1. Flip the lever forward to release the tension.

2. Check that the saw blade is 5 1/8 inches long.

3. Insert blade into one of the holders, making sure that it is fully inserted, and tighten the clamp screw. Touching the threads at the bottom of the blade hole stops the end of the blade.



End of blade fully inserted

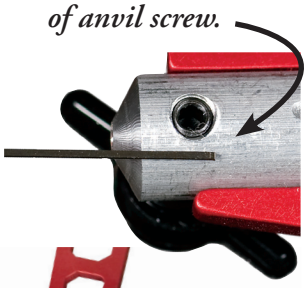
The end of the blade is stopped by touching the threads at the bottom of the blade hole. *(The blade has been colored red to make it easier to see.)* As you can see in this cut-away view, the blade is gripped at the very end. The tension must be relaxed before inserting a blade so that the blade will touch the end of the hole

4. If you are piercing, thread the blade through the hole in the metal.

5. Pull the blade clamp barrel down towards the handle.

Check the other end of the blade with the blade clamp screw. After clamping the blade in one clamp, the loose end of the blade should cover the threads of the screw. This makes sure that the blade will be clamped properly before tensioning, as shown to the right. If the blade is 5 1/8", but does not extend as shown, loosen the tension more.

End of blade should extend just past end of anvil screw.



6. The blade will bow slightly when the ends of the blade contact the bottoms of the holes, when the lever in the forward/loosened position.

The image at right shows a blade bowed after inserting into the clamps, before the blade is tensioned. This sort of flexing shows that the blade will be tensioned and clamped well and correctly. If the blade isn't bowed, check that the lever is in the loosened position, and try gently moving the blade carrier downwards a bit.

7. Tighten the clamp screw into the blade holder.

Tensioning the blade:

Tension the blade by flipping the lever back, above the frame.

- If it feels difficult to move the lever all the way, ***STOP***, and then loosen the tension by turning the gold tension knob counterclockwise. If you see thread sticking out of the back of the tension knob, it's in too far, and is about to try to bend the frame. Check to see if the blade is clamped correctly.
- Flick the blade with your finger — a taut blade "sings".
- If the blade is the same size number as the previous blade, no further adjustment should be necessary. If desired, the tension knob can be turned to fine-tune the tension.

Installing the next blade, after a blade wears or breaks:

Remember to loosen the tension, by flipping the lever to the front, which lowers the blade-holding barrel. This is essential, so that the clamp screws can grab the blade ends.

Tensioning the New Saw Blade:

If the new blade is the same size as the previous blade, the same tension is achieved simply by flipping the lever.

- If the tension is not the same as before, then check that the blade is installed fully and correctly.
- The tension can be adjusted by turning the gold tensioning knob. It is difficult to turn with the lever in the tensioned position. flip the lever, turn the knob, and then re-tighten the lever. Repeat as needed.