

The following procedure describes the installation of new seals and wipers for the larger top jaw cylinder rods.

Before you go through the installation procedure, first check that the guides are tight against the top jaw. If the cylinder rod seals are failing, sometimes it is due to loose guides that allow the top jaw assembly to move around. This will cause a side load on the cylinder rod bearings that can cause the seals to fail.

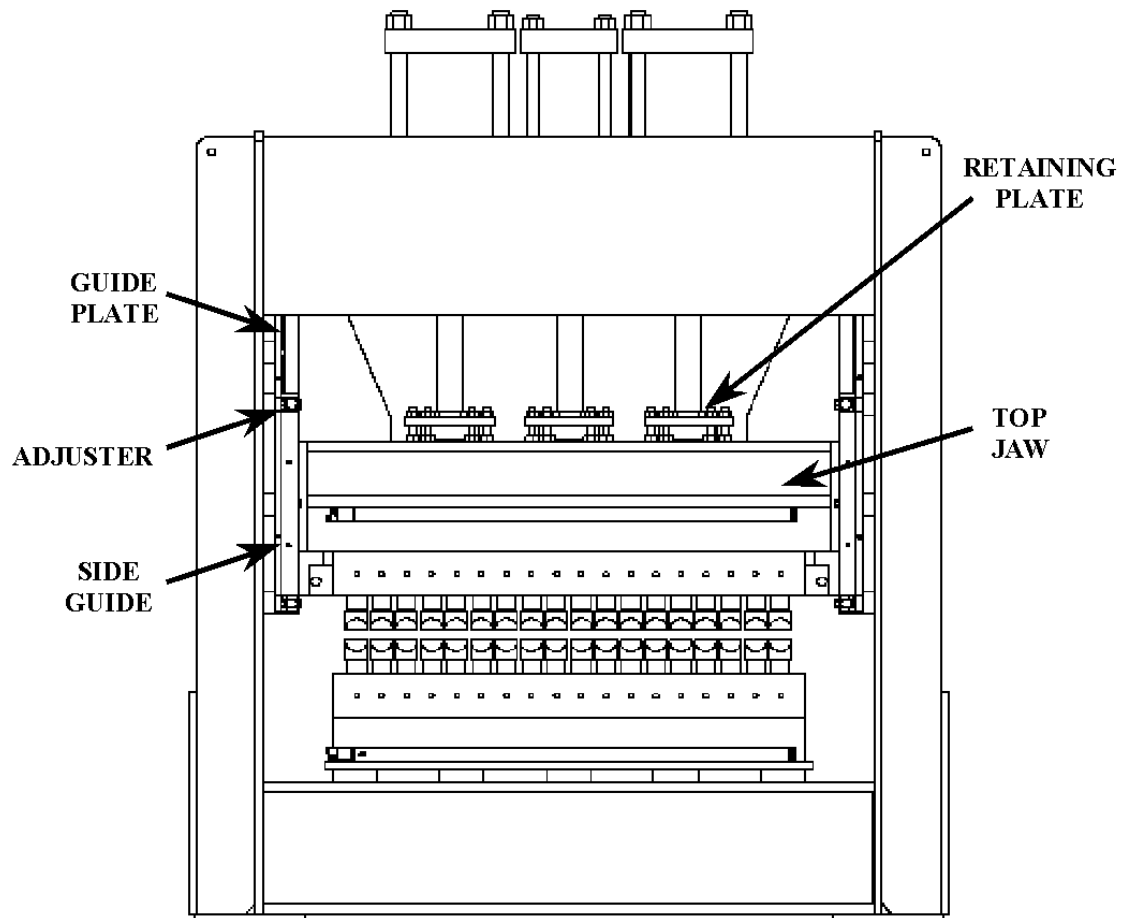


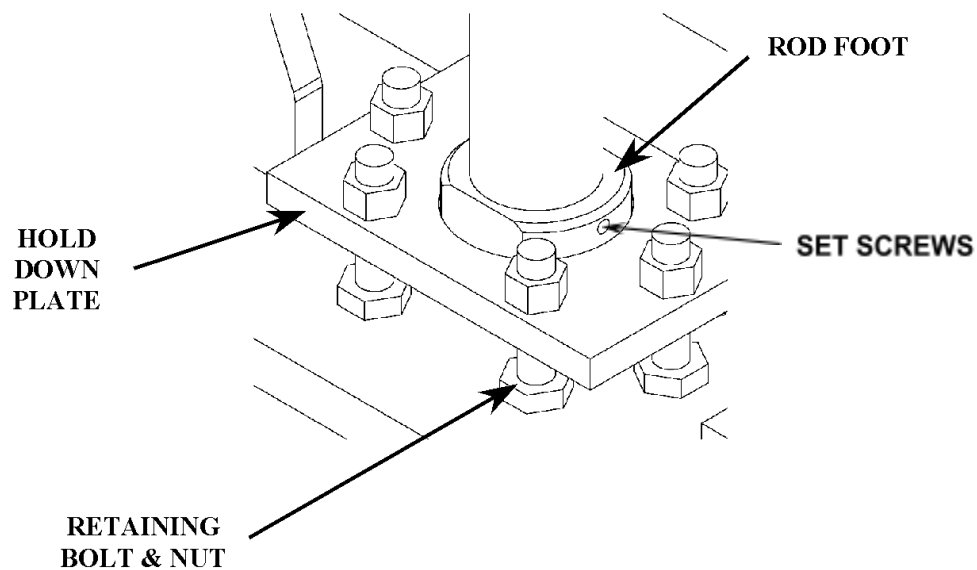
FIGURE 1

## 1. Check Top Jaw for Play

- 1.1 Raise the top jaw. Wipe excessive grease off from the guides. A thin film left on the guides is ok. When finished, lower the top jaw all of the way back down.
- 1.2 Inspect the position of the top jaw. It needs to be true to the bottom jaw and centered under the upper hydraulic cylinder(s).

The top teeth should be directly aligned above the bottom teeth. It may be helpful to take a mirror and look down the length of the teeth to verify that they are in line.

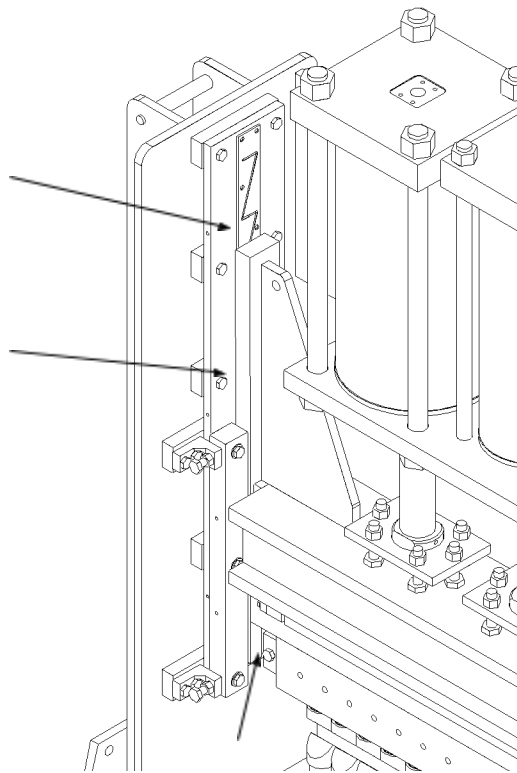
- 1.3 The rod foot needs to be centered within the hold down plate. See figure 2.



**FIGURE 2 – Retaining Plate Assembly**

- 1.4 The side guides should mate right up against the top jaw guide with no space in between. If there is space do not turn the adjuster bolts in to tighten them. This will move the top jaw out of alignment. Refer to the procedure in “shimming the top jaw” for directions on adjusting the side guides.

- 1.5 There shouldn't be any space between the end guides and the top jaw. To test this, use a 0.020" feeler gauge to fit between the top jaw and the guides. It shouldn't be able to fit between the guides and the brass. Try it in several spots when the top jaw is lowered all of the way down. Note figure 3.
- 1.6 Another check is just to load the top jaw on one end. Raise the jaw up and lower it onto a thick piece of wood. Lock the teeth then slowly bite into the wood. Does the top jaw rock excessively to one side? More than 1/8" is cause for concern and it is time to shim the top jaw. Refer again to the procedure for "shimming the top jaw" to do this.



**FIGURE 3 – use a feeler gauge to check tightness of the end guides**

Now that you have checked the top jaw and possibly tightened the guides, it's time to install the new seals. Only replace seals on the rods that leak, and do one rod at a time.

## 2. Center Cylinder - Seal Replacement

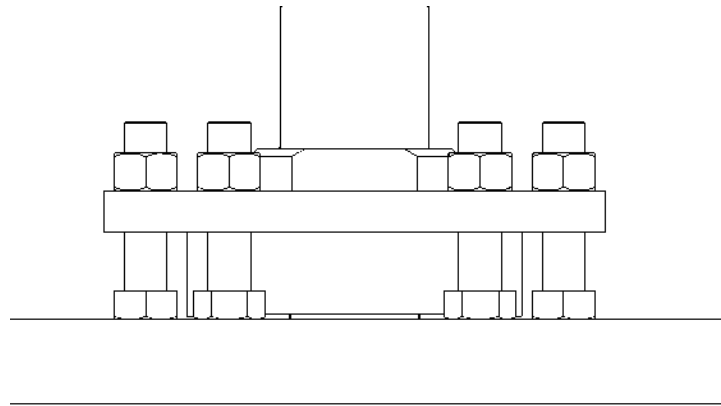
- 2.1 Lower the top jaw all of the way down. Clean off any dirt and oil from the cylinder rods and gland nuts.
- 2.2 Turn off the power to the cutter.
- 2.3 On the center cylinder only, remove the six nuts from the retaining plate assembly.
- 2.4 Turn the power back on and push the lever that raises the top jaw. Only the center cylinder should go up. Raise it as far as it will go. The top jaw should stay down.
- 2.5 Turn off the power to the cutter.
- 2.6 At the rod foot, remove the two set screws that fix it to the cylinder rod.
- 2.7 There are two set screws in the same hole. Make sure you get both of them!
- 2.8 Unscrew the rod foot and remove it and the hold down plate. Careful, it is heavy.
- 2.9 Make sure the gland nut area is cleaned so dirt will not get into the gland.
- 2.10 Remove the gland nut with a spanner wrench. We use a  $\frac{3}{4}$ " square drive adjustable face spanner wrench from McMaster-Carr # 69745A51. Be careful not to damage the threads.
- 2.11 Remove the seals. Be careful not to scratch the sealing surfaces inside the gland or the cylinder rod. A corkscrew type seal removal tool works best. They can be bought from hydraulics or seal vendors. Soft brass tools can also be used. Oil will come out!
- 2.12 Replace the seals according to the drawing provided. Be careful not to roll the edges when installing the chevrons and the seal.
- 2.13 Apply anti-seize compound to the gland nut threads. Re-install the gland nut.
- 2.14 Replace the hold down plate and the rod foot on the end of the cylinder rod. If there is a notch on the hold down plate, it must face the front of the cutter so it will clear the hydraulic fittings on the bottom of the cylinders.

- 2.15 The detent on the cylinder rod needs to match the rod foot set screw hole. This will prevent the set screws from damaging the cylinder rod threads if it tries to unscrew. Replace the two set screws in the side of the rod foot.
- 2.16 Turn on the power to the cutter. Watching so the rod foot does not hit the bolts, power the center cylinder all of the way down until it just touches the top jaw. If the rod foot is not aligned properly, you may use a pipe wrench to help twist it into position while lowering.
- 2.17 Replace the nuts to the hold down plate. Do not over torque these nuts! A maximum torque of 25 lb-ft is suggested. The end of the cylinder rod will touch the jaw beam, but the rod foot will not. The rod foot is designed to float within the hold down plate to adjust for alignment. It should be centered in the hole of the hold down plate as explained in figure 2 above. See figure 4 for a front view of the floating rod foot design.

### 3. Outer Cylinders – Seal Replacement

The method for installing rod seals in the outer cylinders is the same as the center cylinder except for the sequence used to remove and replace the hold down plates.

- 3.1 Lower the top jaw all of the way down and clean the cylinder rods and gland areas.
- 3.2 On the cylinder that needs maintenance, remove the nuts to the hold down plate.
- 3.3 SLOWLY Raise the top jaw to the top of its stroke, then slowly back down. The rod should stay in the up position.
- 3.4 Run through steps 2.5 through 2.14 above to remove the rod foot, replace the seals, and re-install the rod foot. Then proceed to step 5 here.
- 3.5 After replacing the rod foot, turn on the power to the machine and slowly raise the top jaw to meet up with the free rod foot.
- 3.6 Replace the nuts on the hold down plate.
- 3.7 Power the top jaw down.
- 3.8 Go to step 2.16 above to re-attach the hold down plate and correct the rod foot alignment.



**FIGURE 4 – note the space between the rod foot and the top jaw beam.**