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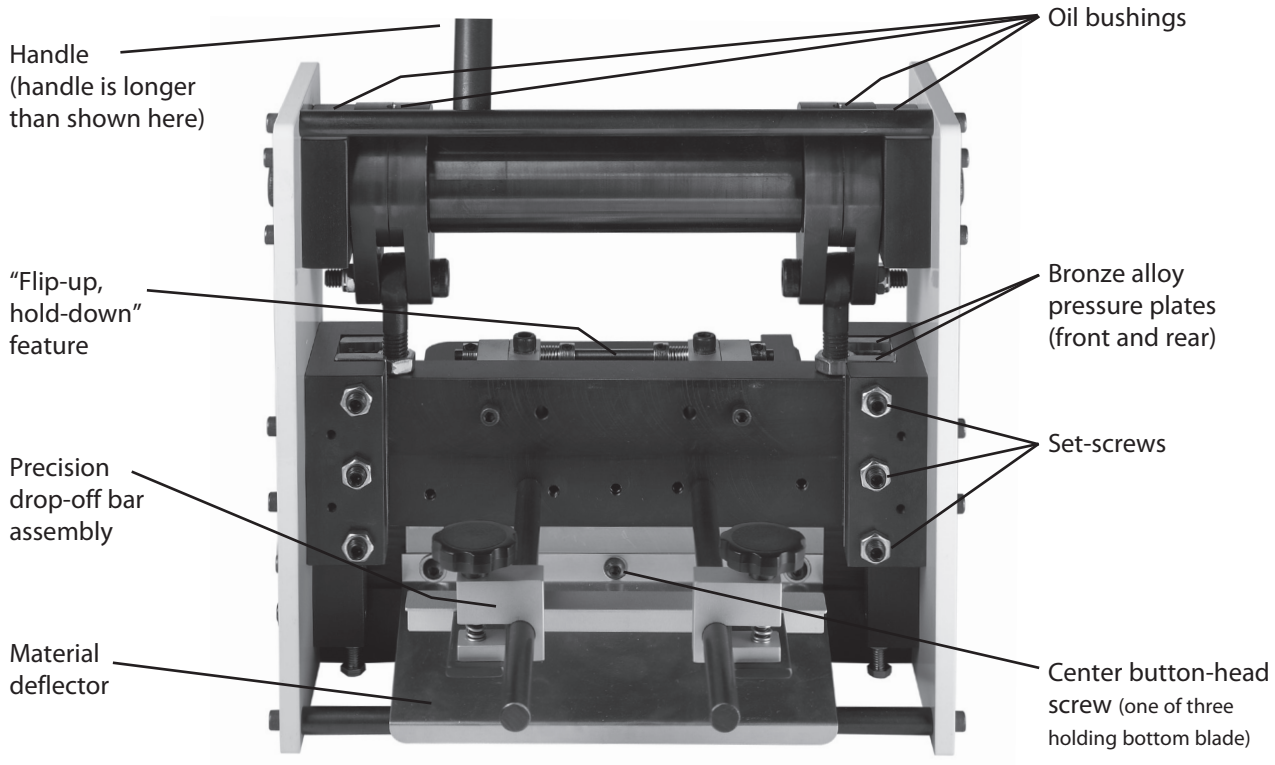
Rio 7" Precision Guillotine Shear

About this Shear

This guillotine-style shear is made entirely of precision-machined parts with careful attention to the design and construction of the shear and its components. With proper care and maintenance, this shear will produce flat cuts of exceptional accuracy. The precision drop-off bar provided is used to make repetitive cuts. By providing a stop for the material, several cuts of the same length may be made without measuring before each cut. You don't need to install the bar prior to using the shear.

- Cut metal sheet up to 7" wide
- Cut ferrous metal up to 12 ga. thick, non-ferrous metal up to 16 ga. thick, mild steel up to 19 ga. thick.



back view

Unpacking the Shear

Unpack the shear carefully. For easier shipping, the shear is semi-disassembled. To reassemble the shear for safe operation, it is essential that you locate all of the parts for the shear before any packing materials are discarded. ⚠ **Important:** If any of these parts are missing, please call us. Do not attempt to assemble the shear without all of its parts.

Your package should include the following items:

1. Main body of the shear
2. Shear handle with plastic knob
3. Precision drop-off bar and rods
4. Material deflector with hardware (may be attached to the shear)
5. 1/8" hex wrench
6. 5/32" hex wrench
7. 3/16" hex wrench
8. Operator's handbook

Work Surface

Make sure your work surface is clean and free of debris. Set the shear on a flat, reasonably level surface with enough room on all sides to ensure that nothing will interfere with its safe operation.

Assembling the Shear

Install the Handle

The handle may be installed either on the right or left side of the shear according to operator preference. To install the handle, remove any shipping stops from the threaded holes for the handle and screw the handle into the desired location until it is tight. Do not attempt operate the handle at this time.

Install the Precision Drop-Off Bar

The precision drop-off bar is attached to the top blade carrier and moves up and down when the shear is operated. In this position, it is above the material being cut and will not interfere with the cut-off piece clearing from the machine.

The pecision drop-off bar consists of an angled aluminum bar with two extension arms, two glide blocks with a rosette knob, and two threaded rods. Assemble the drop-off bar using the picture on page 1 as a guide, but don't slide the threaded rods into the glide blocks at this time.

There are two holes located on the top blade carrier. A threaded rod is screwed into each hole. Use a lock-washer on each threaded rod to ensure that it will remain tight during use. The assembled drop off bar is then placed on the rods. Please Note: When correctly mounted to the top blade carrier, the main assembly of the drop-off bar is below the rods.

After the shear is assembled, verify this set-up before using the shear.

Proper Set-Up of the Shear

Though we make every effort to protect the shear during shipping, the transit can sometimes be rough. Check the following features on your shear before you use it.

Examine the Blades

Examine the blades for nicks or other damage that may have occurred during shipping. If there is any damage, call us immediately.

Test the Shear Action

Two stops, placed in the holes for the shear handle to prevent it from moving during shipping, should have been removed to install the handle. Raise the blades to the up (or open) position. Slowly lower the handle, closing the blades. The blades should close smoothly. If you hear a grinding noise or feel unusual or excessive resistance or stiffness, stop immediately—moving the handle farther could cause serious damage to the blades. Examine the

Test the Shear Action (continued)

shear for obstructions. If there are no obstructions, lift the handle to open the blades and adjust the blades following the "Adjusting the Blades" instructions on page 3. If the shear action feels too stiff, read the section "Adjusting the Shear Action" on page 3. **Please Note**: A properly adjusted shear will feel firm, but operate smoothly.

Adjust The Blades

The bottom blade may have been moved away from the top blade to protect it from damage during shipping. If the bottom blade has been moved, the blades must be adjusted for the shear to operate properly. To adjust the blades, read the section "Adjusting the Blades" (page 3).

Square The Ruler

For proper cutting, the ruler must be square to the blades. To check this, lower the upper blade to the closed position. Use a carpenter's or drafting square to check the angle between the ruler and upper blade. If it is not a right angle (90°), loosen the screws in the ruler and adjust it to be a right angle. After you check the angle of the ruler, verify that the ruler itself is placed accurately. You can do this by verifying that the 6" mark on the ruler is actually 6" from the upper blade when it is in the down position. If it isn't, adjust the ruler accordingly, then recheck that the angle remains at 90°.

Using the Precision Drop-Off Bar

To use the precision drop-off bar, place a piece a material on the table so that the portion to be cut is the desired size. Loosen the thumbscrews and slide the drop-off bar against the material to be cut. Tighten the rosette knobs. Make a test cut and adjust as necessary by loosening and tightening the thumbscrews. **Tip:** You can make a cutting aid using the extra ruler and instructions included with your shear.

Install the Material Deflector

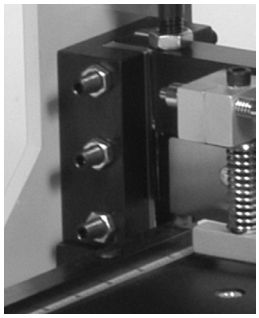
The material deflector is the Z-shaped piece of aluminum included with your shear. The purpose of the deflector to direct the cut material away from the back of the shear so that it is easier to pick up. If it is not already installed on your shear, follow the instructions below, referring to the photo on page 1 as needed.

1. The material deflector has three holes for mounting to lower blade at the rear of the shear. Remove the outside button-head screws from the lower blade.
2. Position the material deflector so that it is flush with the rear blade and above the rear connector rod.
3. Re-install the three button-head cap screws. When properly installed, cut material will drop onto the deflector and slide away from the machine.

Adjusting the Shear Action

The shear action of your Precision shear is tested, properly adjusted and lubricated prior to shipping. It should not require any initially adjustment; however, if your shear is misaligned, follow these procedures (refer to photo below).

Four bronze-alloy pressure plates control the stiffness of the shear action and the location of the top blade.



Two pressure plates are located at either end of the top blade holder. Each plate is controlled by three set-screws. The picture at right shows the location of one group of set-screws. Over time, with normal use, the pressure plates will wear and require adjusting.

Keeping the pressure plates properly adjusted is important for two reasons. First, the quality of the cut of the shear depends on maintaining the proper relationship between the top and bottom blades. Second, when properly adjusted, the pressure plates prevent the shear from closing accidentally.

If the shear is cutting properly, but the shear action feels too tight or too loose, adjust the rear pressure plates first. ⚠ **Caution!** Test the action every time you change one setting so you know how you are progressing. To adjust the set-screws, loosen the locking nuts and turn the set-screws using the hex wrench supplied with the shear. Use the following procedure:

1. Adjust one set-screw at a time.
2. Move the set-screw no more than ⅛-turn at a time.
3. Test the shear action after each adjustment.

⚠ **Caution:** A shear that's too tight is just as dangerous as a shear that's too loose. Learn to adjust your shear properly and maintain that adjustment.

Removing, Installing and Adjusting the Blades

The blades on the shear are both mounted vertically. The top and bottom blades are identical. The cutting edge on each blade is on the side of the blade facing the opposite blade on the shear. ⚠ **Caution!** Always consider the blades as very sharp even if they have been used. They can cause serious harm to you or to bystanders.

Removing the Blades

1. Flip the "flip-up hold-down" feature up out of the way.
2. Loosen the bolts/screws holding the top blade. After all are loosened, remove them one at a time using care to prevent the blade from dropping as the screws/bolts are removed. Wear a leather glove and hold the blade while removing it. The top blade may be in either the open or closed position.
3. From the rear of the shear, loosen the three button-head screws holding the bottom blade and remove it from the shear. These screws also fasten the material deflector to the shear. Refer to the photo on page 1 for an illustration of their location.

Installing the Blades

1. Install the bottom blade first; carefully place the bottom blade in the milled pocket of its carrier. Wear a leather glove while installing the blade.
2. Insert and finger-tighten the middle screws to hold the blade in place. The cutting edge of the blade should face the top blade. If the top of the bottom blade is not level with the blade carrier and work table, place shims under the blade to make it level.
3. Align the material deflector and insert the final two screws in the bottom blade. Tighten all screws evenly. Refer to the photo on page 1 for an illustration of the proper location of the blade and material deflector.
4. Before installing the top blade, open the shear fully. Place the top blade in the milled pocket with the top edge against the top of the pocket. The cutting edge of the top blade should face the bottom blade. Insert the four bolts/screws and finger-tighten.
5. With the top blade in its proper location, tighten all four bolts/screws. Slowly close the shear while observing the blades. If the top blade is going to touch, hit or come down on top of the bottom blade, stop immediately.
6. Open the shear and refer to the section below on adjusting the blades. If the blades close without touching each other, follow the test procedures below before using the shear.

Adjusting the Blades

Because the blades move up and down parallel to each other, a gap is required to keep them from striking each other and damaging one or both blades. The following instructions are for adjusting the blades of the shear to a .001" gap or clearance. If tasks involve heavier materials (see maximum gauge limits on page 1), you may need a greater clearance. ⚠ **Caution!** Proceed slowly and in small increments when adjusting the blades.

1. Slowly close the shear while observing the blades.
   - If the top blade is going to touch, hit or come down on top of the bottom blade, stop immediately. Open the shear and go to step 2.
   - If the blades close without touching each other, go to step 3 to verify the blade settings and to test the shear before using it.
2. To provide clearance between the top and bottom blades, the top blade must be moved away from the bottom blade by adjusting the four bronze alloy pressure plates. Start with the rear plates.
   - Loosen the locking nuts and then *loosen* the set-screws about ¼-turn (each plate has three; refer to

the photo on page 1 if needed).
- Then, adjust the front plates. Loosen the locking nuts and then *tighten* the set-screws about ¼-turn.
- Following the procedure in step 1, above, close the shear slowly while observing the blades. If additional clearance is needed, repeat the adjustment procedure in this step. When there is sufficient clearance, proceed to step 3.

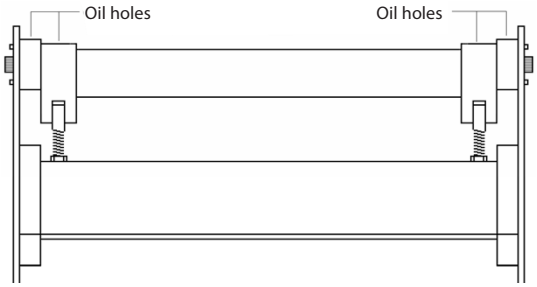
3. With the top blade in the down position, check the gap between the two blades. If it is greater than .001" (or the gap you want to set), the top blade must be adjusted. For the initial setting, the top blade can be moved using the middle set-screws.
   - Move the blade in small increments and adjust both ends at the same time. Check the gap constantly with feeler gauges.
   - When the desired gap is achieved, tighten the set-screws, first in the front, then in the back.
   - Slowly move the blade up, checking for problems. If there are any, stop and start the process over. It is important to keep the top and bottom blades parallel to each other so they do not make contact with one another.
   - When you are satisfied with the adjustment, check the set-screws and locking nuts to make sure all are tight.
4. Once the proper gap is set, test the shear before putting it into service. Start with a thin piece of material and slowly make a test cut. If the cut is clean and smooth, progress through the materials you will normally cut. If the material has a bur after cutting or is bending, the gap is too great and the blades need to be re-adjusted. ⚠ **Caution!** When you are making your test cut, if you hear an unusual or grinding noise or you feel unusual or excessive resistance or stiffness, stop immediately—moving the handle farther could cause serious damage to the blades. Raise the top blade and start the adjusting process over. Refer also to the "Adjusting the Shear Action" section on page 3.
5. Re-install safety shields or guards.

Maintenance

Maintaining the Shear

Properly maintained, this shear will operate effectively and efficiently for many years. Inspect the shear periodically, and be aware of the normal operation of the shear, so that any change in the operation of the shear is detected immediately. Establish a regular maintenance routine that includes the following:

1. Clean the shear and surrounding work area. Do not use harsh chemicals or solvents on the shear; they may damage the appearance or operation of the shear.
2. Ensure that the work area is flat and reasonably level.
3. Check for loose bolts or fittings.
4. Check the blade adjustment.
5. Check the blades for sharpness.
6. Lubricate pivot points and glides (light grease or oil).
7. Four oil-impregnated bronze bushings in the shear require periodic lubrication through the two oil holes on the top of the shear (see illustration below). Oil these regularly with a machine grade or heavier oil.



Maintaining the Blades

Many shear owners have more than one set of blades. Store extra blades properly when they are not being used. To store properly store blades:

1. Coat blades with rust-inhibiting oil.
2. Store blades in a dry area.
3. Store away from heavy objects that could drop or fall on them accidentally.
4. Inspect each blade carefully before installing on shear.

⚠ **Caution:** Blades will wear over time and can be damaged by carelessness or improper use. Always treat blades as pairs. When replacing a damaged or worn blade, replace both top and bottom blades. When sharpening a dull blade, sharpen both blades. By treating them as pairs, both blades will be in the same general condition, and the risk of placing a new blade against a worn blade, ruining the new blade, is virtually eliminated.

Safety Instructions

1. Always wear safety glasses.
2. Complete all installation and set-up operations prior to operating the shear.
3. Check all bolts, nuts, screws, fittings, shields, etc. for proper tightening.
4. Keep the shear and work area clean.
5. Do not remove the safety shields except for maintenance and adjustments.
6. Do not operate the shear without the safety shields in place.
7. Do not operate the shear if it is not functioning properly.
8. Do not operate the shear if the blades are damaged or not sharp.
9. Do not operate the shear without reading these instructions.