

# **Operator's Manual**

## **Model 3001 7" - 25" Bench Shears**

### **About the Shear**

The Model 3001 Bench Shear is a guillotine style shear made entirely of machined parts. Great care has been taken in the design and construction of the shear and its components. It is designed specifically for use with lightweight metals, plastics and other materials. With proper care and maintenance, the shear will produce flat cuts of exceptional accuracy.

The shear is made in the United States of America by Accucutter.

\* \* \* \* \*

## **Safety Instructions**

1. Do all installation and setup operations prior to operating the shear.
2. Do check all bolts, nuts, screws, fittings, shields, etc. for proper tightening.
3. Do not remove the safety shields except for maintenance and adjustments.
4. Do not operate the shear without the safety shields in place.
5. Do not operate the shear if it is not functioning properly.
6. Do not operate the shear if the blades are damaged or not sharp.
7. Do not operate the shear without reading the Operator's Manual.
8. Do keep the shear and work area clean.
9. Do wear safety glasses.

\* \* \* \* \*

### **Unpacking the 3001 Shear**

Care should be exercised unpacking the Shear. To facilitate proper packing, the Shear was partially disassembled. In order 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. The following is a list of the parts or assemblies included with your Shear:

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1. Main body of Shear
2. Shear handle with plastic knob
3. Precision Drop-off Bar and rods
4. Material Deflector with hardware
5. 1/8" Ball hex or Allen wrench
6. 5/32" Allen wrench
7. 1/4" Allen wrench
8. 3/16" Allen wrench

If any parts are missing, please call Accucutter before attempting to reassemble the Shear.

\* \* \* \* \*

## Work Surface

Make sure the work surface is clean and free from debris. The Shear should sit on a flat surface that is reasonable level. There should be sufficient room on all sides of the Shear so nothing will interfere with the safe operation of the Shear.

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## Assembling the 3001 Shear

**1. Install the Handle.** The handle may be installed on either the right or left side of the shear according to operator preference. To install the handle, simply screw it into the desired location until it is tight.

**2. Install the Precision Drop-Off Bar.** The Precision Drop-Off Bar is used to make repetitive cuts. By providing a stop for the material, several cuts of the same length may be made without measuring each cut before it is made. It is not necessary to install the Precision Drop-Off Bar prior to using the shear. However, before you do install it, read the directions below.

The Precision Drop-Off Bar may be mounted in two different positions, on the bottom blade carrier or on the top blade carrier. If mounted to the bottom blade carrier, the drop-off bar remains in a fixed position and does not move when the shear is operated. If mounted to the top blade carrier, the drop-off bar moves up and down when the shear is operated. It is suggested that you try the top position first since it will not interfere with the piece after it is cut off.

### A. Installing The Precision Drop-Off Bar on the top blade carrier.

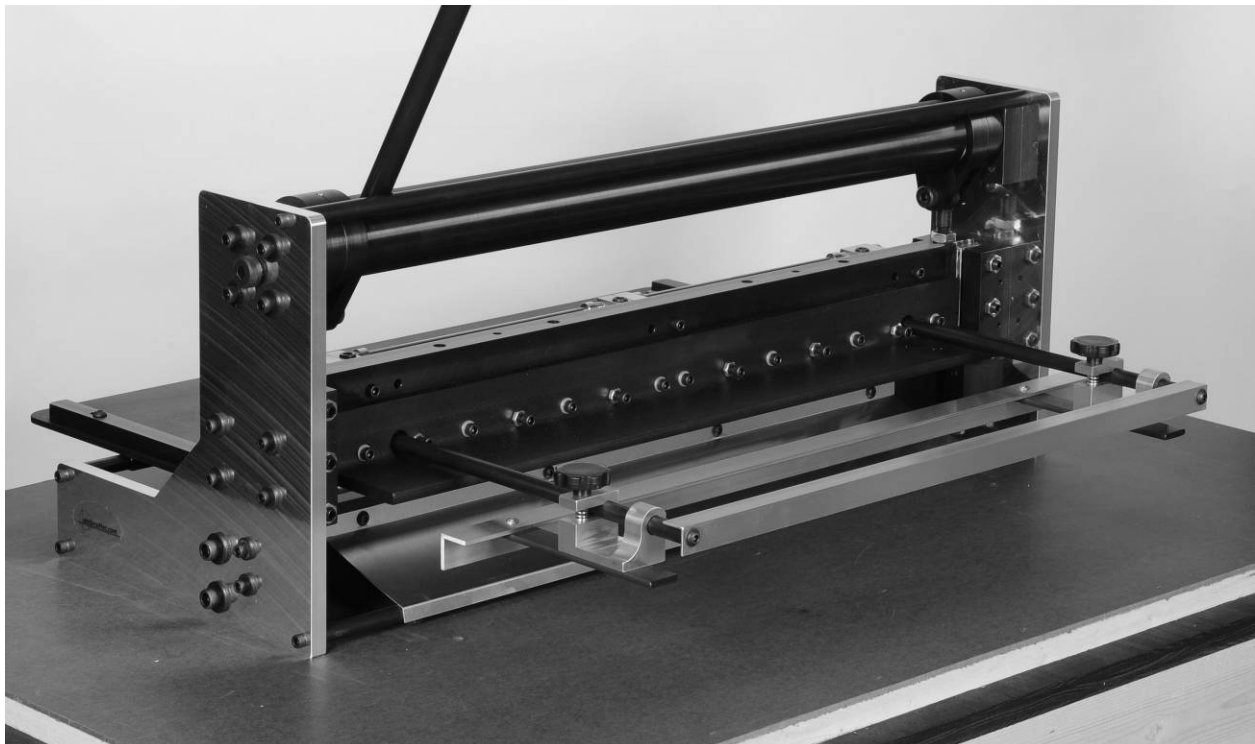
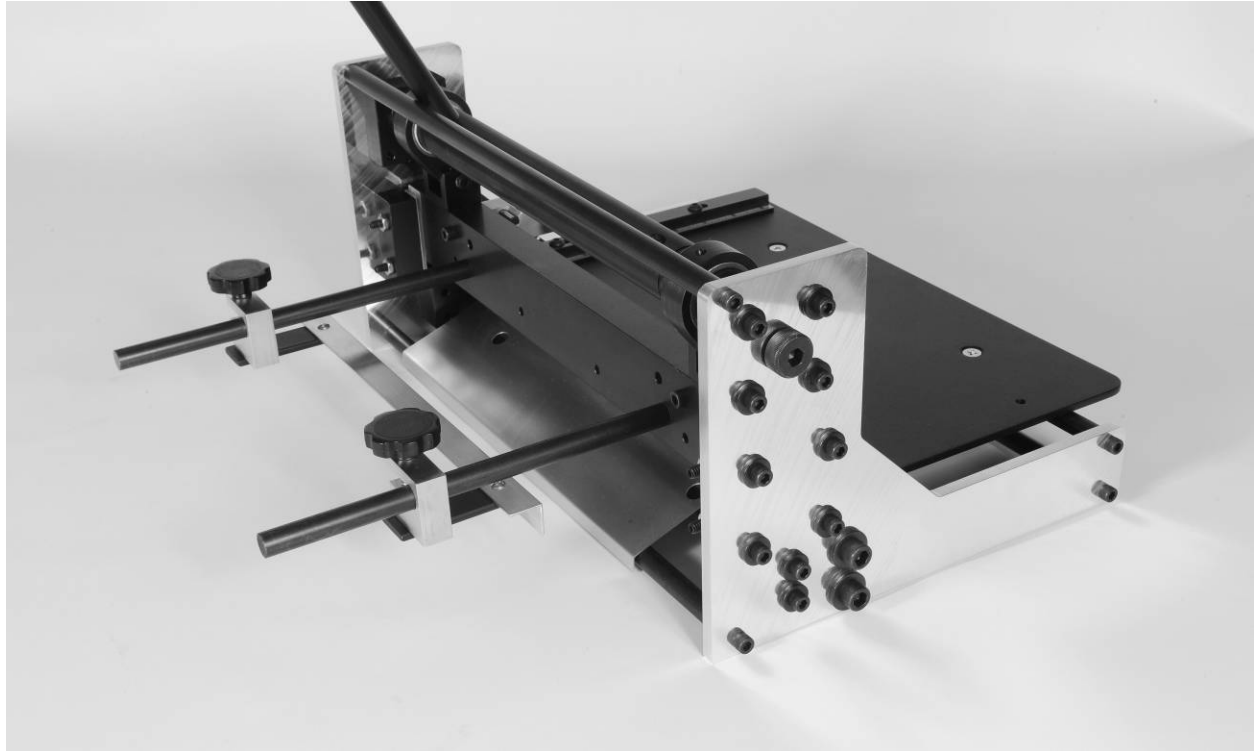
The Precision Drop Off Bar consists of an angle bar with two extension arms, two glide blocks with a rosette knob, and two rods with threaded ends. Assemble the drop off bar using the pictures on the next page as a guide, but do not slide the rods into the glide blocks at this time.

The top picture is of the 3001EVO/13 shear, and the bottom picture is of the 3001/25 shear. Although the details of the drop-offs are different, the installation of the drop-offs for the shears is typical.

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## B. Installing The Precision Drop-Off Bar on the bottom blade carrier.

The Precision Drop Off Bar may be installed on the bottom blade carrier of some 3001 shears. To do so, it must be configured or assembled differently. Assemble the drop off bar using Figures 1 & 2 as a guide, but do not slide the rods into the glide blocks at this time.

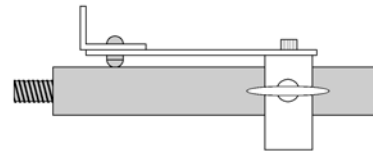


Figure 1. – Side View



Figure 2 – Top View

There are two holes located on the bottom blade carrier that are drilled and tapped. The spacing is the same as the holes shown in the pictures above. A threaded rod is screwed into each hole. The assembled drop off bar is then placed on the rods. **NOTE:** When mounted to the bottom blade carrier, the main assembly of the drop-off bar is above the rods when installed correctly. Refer to Figure 2 above.

**C. Using the Precision Drop-Off Bar.** To use, place a piece a material on the table so that the portion to be cut is the desired size. Loosen the knobs and slide the drop off bar against the material to be cut. Tightened the knobs. Make a test cut and adjust as necessary by loosening and tightening the knobs.

**Hint:** Make and use a Cutting Aide using the extra ruler and instructions included with your shear. It is the easiest way we know to set up the drop-off bar.

**3. Install the Material Deflector.** The material deflector is the “s” shaped piece of aluminum included with the shear. As the name implies, its purpose is to deflect the cut material away from the back of the shear so that it is easier to pick up. If it is not installed on the shear, follow the instructions below and refer to the pictures on page 3.

The material deflector has holes for mounting to the rear of the shear. When properly installed, material will slide away from the machine after it is cut off.

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*Now that the Shear has been assembled,  
You must verify the setup before using the Shear.*

## Proper Setup of the 3001 Shear.

Prior to shipping, the Shear was examined and tested. It was in good working order. However, shipping can sometimes be eventful, so it is necessary to perform some tests on the Shear before you place it in regular service.

**1. Examine The Blades.** The blades should be examined for nicks or other damage that may have occurred during shipping. If there is any damage, call Accucutter immediately. If the blades appear okay, you should next check the shear action.

**2. Test the Shear Action.** Stops have been placed in the upper cylinder to prevent it from moving during shipping. Locate and remove these stops. The blades should be in the up or open position. Slowly lower the handle closing the blades. You should be able to do so without incident. However, 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 shear for obstructions. If none are found, lift the handle to open the blades and adjust the blades following the instructions in this Manual. If the Shear action feels too stiff, read the section "Adjusting The Shear Action" in this Manual. (**Note:** A properly adjusted shear will feel stiff but operate smoothly.)

**3. Adjust The Blades.** To protect the bottom blade from damage during shipping, it may have been moved away from the top blade. If the bottom blade has been moved, the blades must be adjusted for the shear to now function properly. To do so, read and follow the instructions in the section "Removing, Installing and Adjusting the Blades" in this Manual.

**4. Square The Ruler.** The ruler must be square to the blades for proper cutting. With the upper blade in 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, loosen the screws in the ruler to adjust it. When tightening the screws, be sure the washers are still in place and be careful to not damage the Mylar portion of the ruler. At the same time you are checking the angle of the ruler, verify that the ruler measures correctly. You can do this by verifying that the 6 inch mark on the ruler is actually 6 inches from the upper blade when it is in the down position. If it is not, adjust the ruler accordingly being sure to maintain the correct angle.

\* \* \* \* \*

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## Mounting to the Work Surface

It is not necessary to mount the Shear to the work surface. However, many operators prefer to do so. Accucutter has a kit for mounting the Shear to the work surface which is available by contacting the company.

\* \* \* \* \*

## Adjusting the Shear Action

The Shear Action is set prior to shipping the Shear. It is tested and properly adjusted and lubricated. Under normal conditions, it should not require adjustment by you. However, if you are having a problem, follow the procedures in this Manual carefully while referring to the pictures and figures. If doing so does not resolve your problem, call Accucutter for assistance.

Pressure plates control the stiffness of the shear action. They are located on the backside of the top blade holder and controlled by the setscrews visible in the pictures on page 3. They were adjusted before the shear was shipped. With use they will wear and require periodic adjusting. (Note: The model 3001 shears have pressure plates in the rear only except for the model 3001/25 which has pressure plates in both the front and rear. Under normal conditions only the rear pressure plates of the 3001/25 should be adjusted.)

It is important to keep the pressure plates properly adjusted for two reasons. First, they affect the quality of the cut of the shear by maintaining the proper relationship between the top and bottom blades. Second, when properly adjusted they prevent the shear from closing accidentally.

To adjust the setscrews, loosen the locking nuts and turn the setscrews using the 1/8" Allen wrench supplied with the shear. Use the procedure below.

1. Adjust one setscrew at a time.
2. Do not move the setscrew more than 1/8th of a turn at a time.
3. Test the shear action after each adjustment.

**Note:** A Shear that is too tight is just as dangerous as a shear that is too loose. Learn how to adjust your shear properly and maintain it in proper adjustment.

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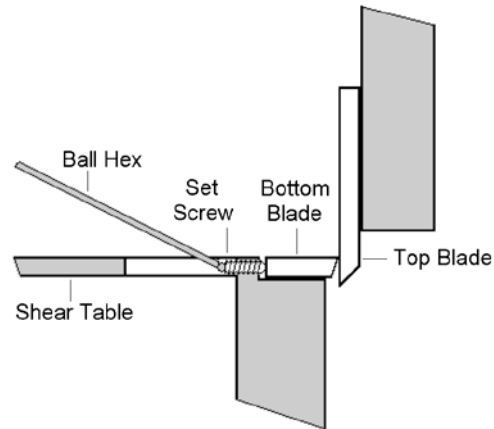
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## Removing, Installing, and Adjusting the Blades

The drawing to the right is a cross section of a portion of the Shear. It shows the general relationship of the shear table, top and bottom blades, and the set screws used to adjust the bottom blade. Refer to it as you read the instructions below. It will help you visualize the instructions.

**When working with blades, they should always be considered very sharp even if they have been used. They can and will cut you and can cause serious harm to you or someone working with you.**



### Removing the Blades

1. Remove the finger guard or flip up the hold down as appropriate.
2. Remove the ruler from the shear table.
3. Using the ball hex provided with the shear, loosen the set screws so they are no longer touching the bottom blade.
4. Loosen the button head screws holding the bottom blade. Use the 5/32" Allen wrench provide with the shear.
5. Move the bottom blade away from the top blade so there is a small gap.
6. Loosen the hex bolts holding the top blade. After all are loosened, remove them one at a time using care so the blade doesn't drop as they are removed. A leather glove is recommended for holding the blade while removing it. The top blade may be in either the open or closed position depending on your preference. Use the 5/32" Allen wrench provide with the shear.
7. After the top blade has been removed, remove the button head screws holding the bottom blade and remove it from the shear.

### Installing the Blades

1. Remove the ruler, and remove the finger guard or flip up the hold down as appropriate.

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2. Carefully insert the bottom blade in its carrier. If the top of the bottom blade is not level with the blade carrier and work table, place shims under the blade to raise it until it is level. Align the holes and insert but do not tighten the button head screws. Note the orientation of the beveled edge of the blade in drawing above. A leather glove is recommended for holding the blade while installing it.
3. With the Shear handle in the open position, align the holes in the top blade with the holes in the carrier for the top blade. Note the orientation of the beveled edge of the blade in drawing above. A leather glove is recommended for holding the top blade while installing it.
4. Insert the hex bolts. Do not tighten any of them until they have all been inserted. Once they have all been inserted, tightened the end bolts and then the middle ones. Be careful to not over tighten any of the bolts.
5. After installing the top blade, lower the handle so the top blade is in the closed position.
6. Slide the edge of the bottom blade against the top blade and lightly tighten the button head screws. When lightly tightening the button head screws, remember you want the bottom blade to move or slide on the blade carrier surface while you are adjusting it, but you do not want the blade so loose that it will rock or one edge lift off of the carrier surface.
7. Read the section below on Adjusting Blades beginning with Step 6.

## Adjusting the Blades

The following instructions are for adjusting the blades of the shear to a “zero” gap or clearance. This is the preferred setting for lighter materials like .020” brass, .025” aluminum, and .060” flexible plastic. If your application is for heavier materials within the design limits of the Shear, you may prefer a clearance set with feeler gauges. The general procedure for adjusting the blades is the same except you would use feeler gauges to determine the proper location and gap for the bottom blade and a sample of your material to test the cut of the Shear.

1. Lower the handle so the top blade is in the closed position.
2. Remove the finger guard or flip up the hold down as appropriate.
3. Using the 1/8” ball hex provided with the shear, loosen the set screws so they are no longer touching the bottom blade.
4. Loosen the button head screws holding the bottom blade. Use the 5/32” Allen wrench provide with the shear. If the top of the bottom blade is level with the blade carrier and shear table, go to Step 5. If it is not, remove the button head screws and place shims under the blade to raise it until it is level. Align the holes and insert but do not tighten the button head screws. Note the orientation of the



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beveled edge of the blade in the drawing above. A leather glove is recommended for holding the blade while installing it.

5. Lightly tighten the button head screws. When lightly tightening the button head screws, remember you want the bottom blade to move or slide on the blade carrier surface while you are adjusting it, but you do not want the blade so loose that it will rock or one edge lift off of the carrier surface.
6. With your fingers, push the bottom blade against the top blade, tighten the button head screws, and test the cut with a piece of paper like newsprint. If properly adjusted, the shear will cut the paper cleanly along its entire length. If the shear cuts cleanly, proceed to Step 9. If it does not, proceed to Step 7.
7. Loosen the button head screws and adjust the set screws beginning with the set screw closest to the ruler and then the middle set screws. Do not tighten the set screw farthest from the ruler at this time. When adjusting the set screws, do not attempt to completely tighten one set screw and then another but rather slowly tighten them in sequence “walking” the blade little by little.
8. Using the procedure in Step 7 above, lightly move the edge of the bottom blade against the top blade. After you have adjusted the blade, tighten the button head screws, test the cut with a piece of paper like newsprint. If properly adjusted, the shear will cut the paper cleanly. Adjust as necessary if the Shear folds all or part of the paper. It may be necessary at this time to adjust the set screw farthest from the ruler. **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 further could cause serious damage to the blades. Before moving the handle further, back off or loosen the bottom blade and start the adjusting process over. You should also read the section “Adjusting The Shear Action” in this Manual.
9. Replace the finger guard or flip down the hold down as appropriate.
10. If the ruler was removed or loosened, reinstall or tighten it. See the instructions for adjusting the ruler.

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## Maintenance

### Maintaining The Shear

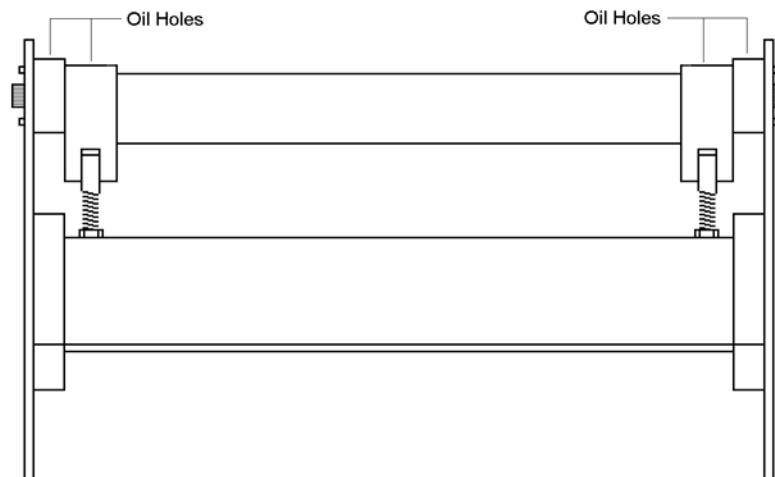
The Model 3001 Bench Shear will operate effectively and efficiently for a long time if it is properly maintained. It is important to inspect the shear periodically and to be aware of the normal operation of the shear so that any change in the operation of the shear can be detected immediately. Establish a regular maintenance routine that includes the following:

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1. Clean the shear and surrounding work area. Do not use any harsh chemicals or solvents on the shear. They may damage the appearance or operation of the shear.
2. Check 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 the pivot points and glides with a light grease or oil.
7. There are four oil impregnated bronze bushings in the 3001 Shear that require periodic lubrication. There is an oil hole on the top of the shear for each bushing. (See drawing below.) Oil regularly with a machine grade or heavier oil.



## Maintaining the Blades

Many shear owners have more than one set of blades. It is important that the extra blades be properly stored when they are not being used on the shear. The following suggestions will assist you.

1. Store in a dry area.
2. Do not store where heavy objects may fall or be thrown on them.
3. Prior to storage, coat with rust-inhibiting oil.

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4. Inspect carefully before installing on shear.

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**Purchase Record**

Place of Purchase: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Date of Purchase: \_\_\_\_\_

Invoice Number: \_\_\_\_\_ Model Number: \_\_\_\_\_

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**Notes & Service Information**

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## Making & Using a Cutting Aide

### Overview

The drop-off gauges included with the various Accu Cutter shears are used to make repetitive cuts. By providing a full stop for the material, several cuts of the same length may be made without measuring each cut before it is made. There are several ways to set a drop-off gauge, but one of the easier involves the use of a guide like the Cutting Aide described herein.

\* \* \* \* \*

### Some Assembly Required!

The Cutting Aide is made using a stick-on ruler and a piece of metal. Accu Cutter supplies the stick-on ruler. You supply the piece of metal and sweat equity. Use the enclosed drawing and the instructions below to make your Cutting Aide.

1. Make sure that the top right corner of the metal is absolutely square.
2. The stick-on ruler is aligned so the “Zero” Point is exactly 2” from the top right corner of the metal, and the inch markings are flush with the right edge of the metal. (Note: If the ruler is correctly installed on the Cutting Aide, the “Zero” Point on the Cutting Aide ruler will line up with the 2” mark on the shear ruler when the Cutting Aide is placed on the shear table.)
3. Remove the protective backing and press the ruler in place. Trim any excess ruler material.
4. Highlight the 2” mark on the shear ruler with a piece of colored tape cut to a point. This will provide a quick reference point when using the Cutting Aide.

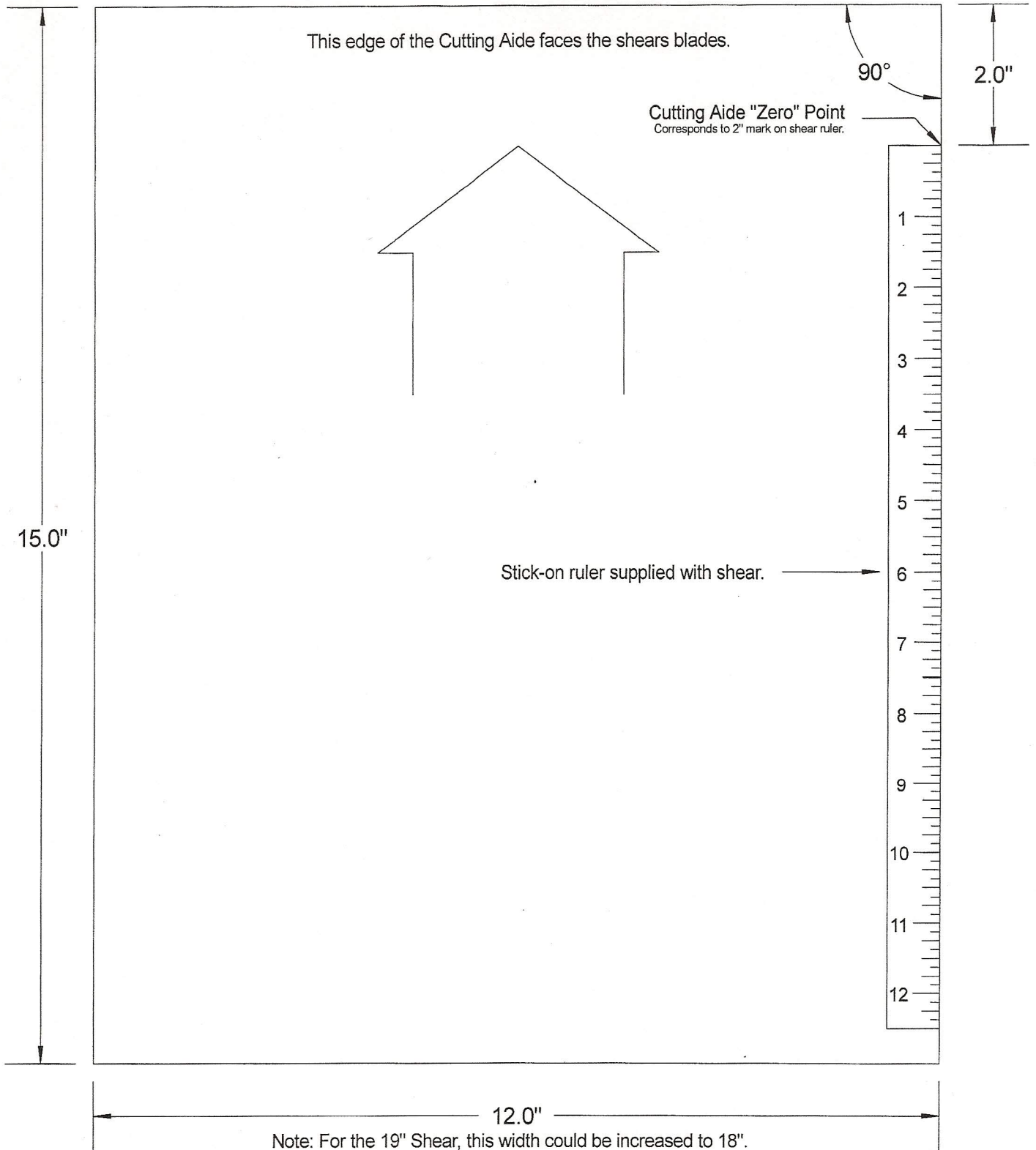
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### Using The Cutting Aide

Begin by making certain the Cutting Aide is setup properly. With the top blade in the down position, place the Cutting Aide on the shear table. The top edge should be against the top blade and the ruler against the shear ruler. The “Zero” Point on the Cutting Aide should line up with the 2” mark on the shear ruler.

To use the Cutting Aide, you set the depth of the desired cut by aligning the ruler on the Cutting Aide with the 2” mark on the shear ruler. You then slide the Precision Drop-off Bar against the Cutting Aide and tighten. The Precision Drop-off Bar is now square and set for the proper cut. For example, to set up for a three inch cut, you align the 3” mark on the Cutting Aide with the 2” reference mark on the shear ruler.

If you have any questions, give us a call.



UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES.  
TOLERANCES  
.XX ± .020  
.XXX ± .005  
.XXXX ± .0005  
DO NOT SCALE DRAWING

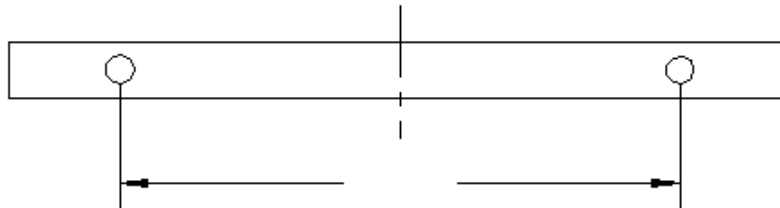
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MATERIAL	DATE	DWG NO./NAME	REV
FINISH	05 Feb 01	3001/13 Cutting Aide	
	SCALE	SHEET	

## Models 3001 & 4001 Shears Work Surface Mounting Holes

Two holes have been added to the bottom side of the lower blade holder for the Models 3001 & 4001 guillotine shears so that they can be mounted directly to the work surface. The holes are for a 3/8-16 bolt. The bolt should thread into the shear at least 1/2" and should have a standard washer and lock washer under the head of the bolt. Once the shear is mounted to the work surface, the bolts should be checked periodically to make sure they are still tight.



The holes are centered on the lower blade holder. The distances between the centers for the various models are listed below. They are the same for both the manual and the air powered models.

<u>Model</u>	<u>Distance</u>
3001/25	24.750"
3001/19	19.375"
3001/13	14.375"
3001EVO/13	12.375"
3001/7	8.125"
4001/13	14.375"
4001/7	8.125"

If you have any questions concerning the proper mounting of the shear to the work surface, call Accucutter before using the shear.