Raster™ Method of Braille

Auto-Raster™
Getting Started Guide

ACCENT
SIGNAGE SYSTEMS, INC.

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Auto-Raster™

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The Auto-Raster™ Braille dispensing and inserting device is an exciting new product that completely automates the process of producing Raster™ Braille.

The Auto-Raster™ makes it easy for you to offer your customers the clean look and feel of Raster™ Braille.

Auto-Raster™ Patent Pending June 2001.

FEATURES

- Easy to install.
- No special software required.
- Fits most existing computerized routing/engraving equipment.
- Different size sleeves available to fit a variety of equipment.
- Air pressure hookup to assist Raster™ movement in dry, static conditions.

FAST & EASY

Five times faster than manually placing Raster™ Braille and 15 times faster than routing Braille. Simply drill the holes for the Rasters™, then rerun the program with the Auto-Raster™ in place and Rasters™ are automatically dispensed and inserted into the sign material.

CONVENIENT

The Auto-Raster™ works with most computerized sign engraving or routing systems, using existing software to place Raster™ Braille automatically.

RASTER™ BRAILLE

The Raster™ Method of Braille is a licensed patented process. It provides perfectly rounded Braille that complies with the latest ANSI standards, as well as meeting all ADA requirements for dot dimension, height, and shape. The Rasters™ are very durable and available in a variety of colors and materials.

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AUTO RASTER™ INSTRUCTIONS

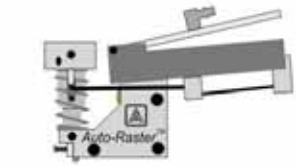
Please read these instructions carefully before beginning.

Before using the Auto-Raster™ on a production job, practice using it on a piece of scrap material to get a feel for the set-up routine.

ENGRAVING SYSTEM REQUIREMENTS:

- At least 2.25" of clearance between the bottom of the spindle and the sign surface
- At least 1/2" of up-and-down travel ("Z" axis travel)
- A flat, hard, uniform surface. Using a vise to hold the sign is not recommended. Vacuum tables work well, as long as the rubber mat on the table isn't too soft.
- Some means of disabling the spindle motor, either by switching it off or removing its drive belt. *Note: some machines will require that a belt be removed.*
- *Routers must have an engraving head installed to use the auto-raster*
- Enough clearance around the Auto-Raster™ to allow free movement of moving parts
- Access to compressed air of around 5-10 psi. ***NOTE: Make sure your air supply has a good filter installed. Excess water or oil in the air lines will cause serious problems dispensing the Rasters™.***

Parts:



Auto-Raster™ unit

Drawbar

1/8" i.d. Hose

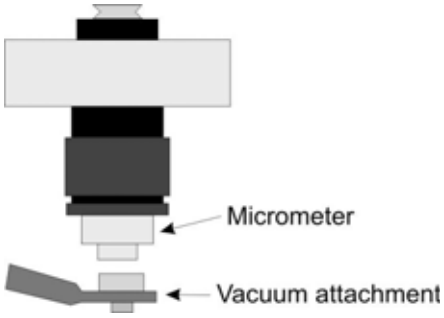
SET-UP:

1. **Drill holes for Raster™ Braille** as normal, to a depth of 0.042" to 0.044". *This depth is very important. The Auto-Raster™ will press the Rasters™ to the bottom of the holes, so if the holes are too deep or too shallow, the finished height of the Braille will be incorrect.*

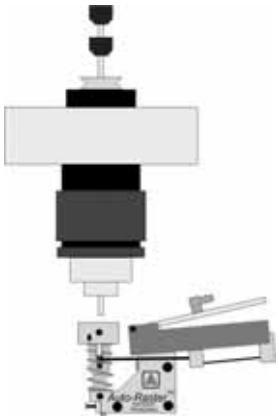
> ***Tip:*** *The Auto-Raster™ does not use the spindle micrometer for adjustments. If you leave the spindle micrometer adjustment set where it is, you will be able to reinstall the Braille tool and drill more holes without changing your setup, except for re-adjusting the "Z" height.*

2. **Installation:**

   a. Remove the Braille tool, vacuum attachment, and nosecone from the spindle.

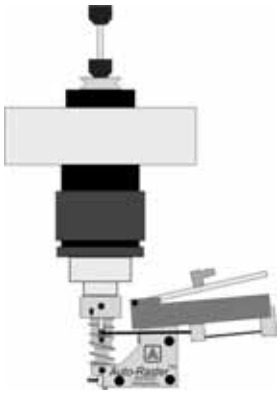


   b. Insert the draw bar for the Auto-Raster™ into the spindle and move adjustment nut to the top of the shaft.



   c. Screw the Auto-Raster™ body onto the draw bar, and position it so that the hopper doesn't interfere with any moving parts of the machine, and so the air inlet is accessible.

   d. Tighten the adjustment nut against the top of the spindle to lock the Auto-Raster™ in place. It only needs to be finger-tight.



Tip: *Thin material might need extra support if your table has T-slots. If you notice flexing in the material or small white spots on the backside behind the Rasters™, use an extra piece of material under your sign for support.*

3. Setting "Z" height:

a. Place a piece of 1/16” scrap material over the holes (hereafter referred to as the “shim”). The shim can be any relatively hard material; most engraving plastic stock is fine.

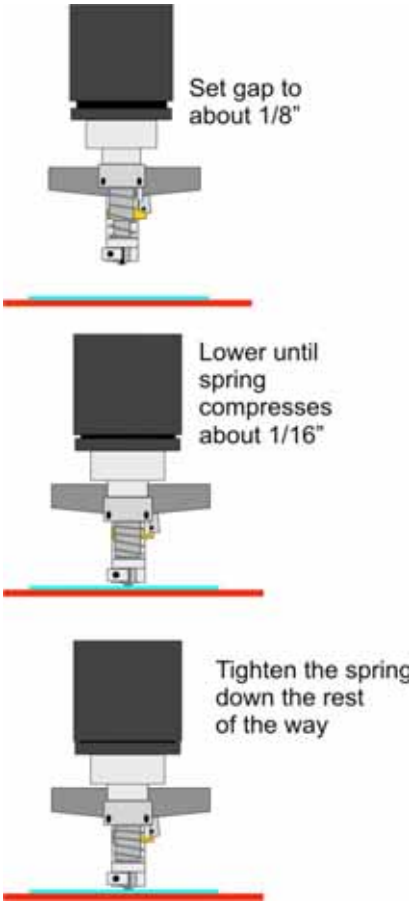
b. Move the spindle, with the Auto-Raster installed, over the shim. ***Make sure the Auto-Raster™ is completely empty.*** Click it a couple times by hand to make sure no Rasters are coming out.

c. Adjust the spring on the spindle until about 1/8” of movement is allowed.

d. Lower the spindle slowly and carefully, *past* the point where the Auto-Raster™ clicks, until the spindle spring starts to compress slightly (about 1/16”, a little more than if you were setting a regular cutter). By doing this, you make sure the Auto-Raster is “bottomed out” against the shim.

e. With the spindle still in the down position, and the spring compressed slightly, tighten the spring on the spindle *fully tight* by hand.

f. This is the correct Z setting. Accept this setting, the spindle will rise to its “at rest” position, and you are ready to use the Auto-Raster. Don’t change the spring setting after lifting the spindle, or the Z setting will be thrown off!



g. At the software end, add 0.040” to the depth. You have set the Auto-Raster™ to stop 1/16” above the material surface using the shim, and by going 0.040” past that point, you drive the Rasters into their holes.

h. You can, while the machine is running, make small changes to the height of the Rasters™ by turning the spindle spring about 1/8 turn at a time. Tighter spring equals lower Rasters™, and vice versa. ***Be careful when doing this!*** This works for *small* corrections. If the setting is far off, it is easier to empty the unit and start from scratch.

4. **Fill the Auto-Rasters™' hopper with Rasters™.** (Even if you only have a little Braille to do, fill the hopper at least one-third full. The excess Rasters™ can be dumped back into a jar when you're done.) Secure the lid and attach the air line. Connect the air supply hose to a compressor or air pressure tank. Adjust the pressure to 5-10 psi. Check to make sure Rasters™ are moving down the passage by "clicking" the Auto-Raster™ up and down a few times by hand. It should dispense one Raster™ per "click."

> ***Tip:*** *a small funnel is very useful when filling and emptying the hopper.*

5. **Send the job to the engraver,** using these software settings:

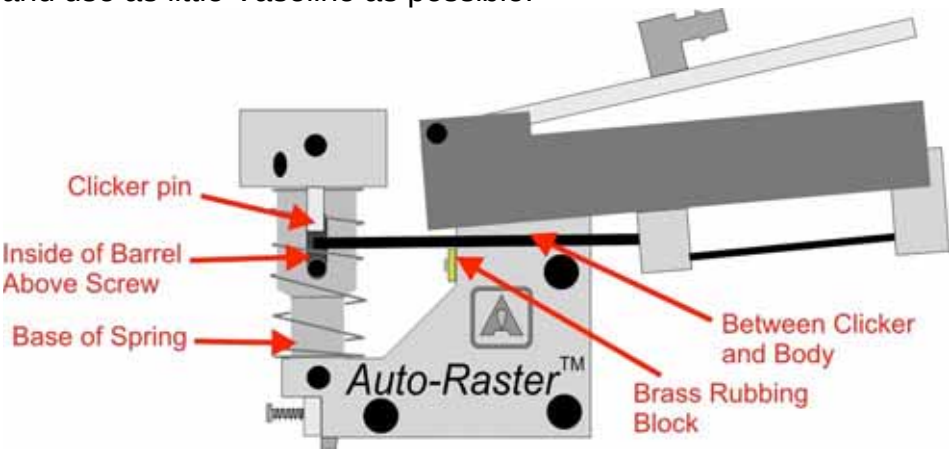
X/Y speed: Maximum. This setting only represents the time it takes to move from one hole to another, which isn't critical to the Auto-Raster**'**s™ operation. Set your table for maximum speed to speed up the process.
Z speed: 1.5-2.0 in/sec.
Dwell: 0.2 sec. This time is needed for the substrate to "grab" the Raster™ and hold it in place.
Lift: At least 0.3 in. Make sure the lift is great enough so the Auto-Raster™ doesn't drag on the surface!
Depth: 0.040 in. This setting drives the Rasters™ into the holes. Without this depth setting, the Auto-Raster™ will simply place the Rasters™ on the surface.
Spindle motor: Off. This is **VERY** important, to avoid damaging the machine. Remove the spindle's drive belt temporarily if you have any doubts.

Be sure to turn off the air supply before opening the lid to add or remove Rasters™ from the hopper. Be careful when removing the air hose!

> ***Caution:*** *If some holes are missed, DO NOT go back over the sign again. The Auto-Raster™ will attempt to fill the holes which already have a Raster™ in them, and this can easily destroy a sign, damage the engraving table or Auto-Raster™, or all three. Install any missing Rasters™ by hand.*

MAINTENANCE:

The Auto-Raster™ requires very little maintenance. If the mechanism becomes "sticky," apply a *tiny* amount of Vaseline to the points shown below. Use a toothpick to apply, and use as little Vaseline as possible.



DO NOT use WD-40, 3-in-1 oil, or other lubricants, because they will wash away the grease and may cause problems with the Rasters™ themselves.

The only other maintenance required is occasional cleaning. Dust off the outside of the unit with a clean, dry cloth, and blow out the hopper and the internal passages with compressed air. Don't use any liquid cleaning solutions, because any residual liquid may cause the Rasters™ to stick together and not feed properly.

Don't try to disassemble the Auto-Raster. The parts are a precision fit, and the screws are held in place by a thread-locking compound. Contact your dealer if repair or service is required.

Tip: *It is recommended that you store the Auto-Raster™ with the hopper empty and the air hose disconnected. This prevents static electricity from building up between the Rasters™, and minimizes the chance of spilling Rasters™ all over. If it is stored empty, with the Rasters™ in their own jar, everything is ready for the next setup and use.*

Auto-Raster™ Quick Start Checklist

---Keep this sheet handy for reference---

☐ **1. Drill holes for Raster™ Braille to a depth of 0.042” to 0.044”**

☐ **2. Remove cutter & nose cone from spindle. Install Auto-Raster™ with hopper *empty.***

☐ **3. Set Z:**

- **a. Tighten the spindle spring until about 1/8” of movement is allowed.**
- **b. Move Auto-Raster™ over the area where the holes are.**
- **c. Place 1/16” shim under the Auto-Raster™.**
- **d. Slowly lower spindle until *both* the spindle spring *and* the Auto-Raster’s™ spring are compressed.**
- **e. Tighten the spindle spring the rest of the way, *while the spindle is still in the down position.***

☐ **4. Fill the hopper *at least 1/3 full.* Close & secure the lid. Connect the air line (if needed) & adjust pressure to 5-10 psi.**

☐ **5. Send the job to the engraver with these settings:**

- **a. Depth: 0.040”**
- **b. Lift: At least 0.3”**
- **c. Dwell: 0.2 seconds**
- **d. Spindle motor: OFF**

Auto-Raster™ Troubleshooting Guide

This is a step-by-step guide to help you quickly diagnose and solve some common problems. Please call Accent to walk thru ANY questions you have.

Problem: Rasters™ are not fully inserted, or fall out of the holes:

1. Check the depth of your holes by manually installing one Raster™, being careful to seat it fully in the hole, and then measure its height. If the height is greater than 0.025", try drilling the holes deeper. Ideally, you should drill to a depth of 0.043" and have a finished height of 0.021-0.022".
2. Check the dwell setting in your software. It should be at least 0.2 seconds or equivalent. This time is necessary for the substrate to "grab" the Raster™ and hold it in place. Without this slight delay, the Rasters™ can pop out of place when the spindle moves back up.
3. If everything looks okay here, re-run the Auto-Raster™ with a new piece of material (never try to do the same line twice!) and gradually tighten the spindle spring about 1/8 of a turn at a time while the unit is running. Ideally, the spring should compress fully exactly when the Raster™ bottoms out in the hole.
4. Check your Braille cutter for straightness and sharpness, and check your spindle bearings for wear. Any wobble of the cutter tip can cause the holes to be too large in diameter, making it impossible for the Rasters™ to fit tightly in the substrate.
5. If the problem is occurring on one side of the table, but not the other, check the table surface for level. Remember, the spindle always moves downward the same amount, and if the table is lower on one side, the Rasters™ will not be pushed down as far on that side.
6. If the problem is occurring only in certain areas, such as one or two characters in a long line of Braille, look at where it's happening. Tables with clamping slots can cause the material to bend downward into the slots, causing enough "give" to keep the Rasters™ from being pressed into place. If this is the case, remove the sign, and attach a piece of scrap material to the table to cover up the slots. You will have to re-adjust your Z setting to compensate for the extra thickness, but you will now have a solid enough surface for the Auto-Raster™ to do its job. This is usually not a problem when using 1/8" or thicker material.

Problem: Rasters™ are being pressed in too far:

1. This can actually be caused by the depth or Z setting being too shallow. If the first Raster™ is not seated in the substrate, it can stay in the nose of the Auto-Raster™ and be deposited in the next hole. If this happens, the Auto-Raster™ will attempt to press down two Rasters™ at once, one atop the other. This condition can be recognized quickly by the fact that the Auto-Raster™ won't move down far enough to "click." If Rasters™ are being inserted, but you don't hear the click, stop the machine and check to see if the Rasters are doubling up in the nose. If this is the case, click the Auto-Raster™ by hand to clear the problem, and follow the steps above to correct the problem.
2. If you hear a click, and the Rasters™ are being pressed in too far, check your Z setting. If you used very soft material for the shim, you may have set the Z too low. Look at the shim and check for a tiny circular indentation. This would have been caused by the Auto-Raster's™ plunger pressing into the shim. To make it easier to find the correct Z setting, try using a harder piece of material for the shim, but make sure it is 1/16" thick.
3. Check the depth of your holes, too. The Auto-Raster™ will always try to bottom out the Rasters™ in the holes, so if you drilled too deep, your Braille will be too low.
4. If the finished height is only a little too low, loosen the spindle spring while it's running by about 1/8 turn at a time. It's easier to fine-tune it this way than by changing settings.

Problem: Rasters™ are not being dispensed at all:

1. Check the air pressure hose for kinks and obstructions. Make sure the hose is attached to the fitting securely, and that the Rasters™ are moving around in the hopper. The idea of the air pressure is to overcome the static charge of the acrylic Rasters™, which otherwise tend to stick together and not feed properly down the passage. When the air pressure is set correctly to about 5-10 psi, the Rasters™ will look a bit like boiling water in the hopper. This is enough pressure to keep them moving and to keep them feeding down the passage. *Please note that when using metal Rasters™, you should not use air pressure. The metal Rasters are heavy enough to overcome their static charge, and the air pressure can actually cause a jam by forcing two Rasters™ into the nose.*
2. Occasionally, a piece of debris may get caught in the passage. Because of the extremely close tolerances between the passage walls and the Rasters™, there may not be enough room for the Rasters™ to move past the obstruction. This can usually be corrected with a quick burst of air pressure. Turn off the air pressure for a second, then back on. The initial burst of pressure should dislodge the debris and allow the Rasters™ to feed properly. If not, remove the Auto-Raster™, empty the hopper, and blow out the passage with high-pressure compressed air.
3. An out-of-round or oversize Raster™ can cause the same problem described above. The same method can be used to correct this problem.

4. If the Auto-Raster™ starts missing an occasional Raster™ near the end of a long run, it usually means that it is running low on Rasters™. The Rasters™ feed more consistently when there are more of them in the hopper. Pause the machine for a moment and add more Rasters™ to the hopper. Make sure you remove the air hose before opening the lid! This is not an issue when using metal Rasters™; it will work consistently with only a few left in the hopper.

Clearing a jam: If you have a serious problem and the Auto-Raster™ jams up, it is possible for debris, from broken Rasters™ to clog the passage or interfere with the operation of the plunger. If this happens, remove the Auto-Raster™ and look inside the nose. Click the unit a few times by hand to clear the jam. If there is still debris inside, clear it by using the tip of an X-Acto-type knife or something similar. It is a good idea to empty the hopper and blow out the internal passage, too.