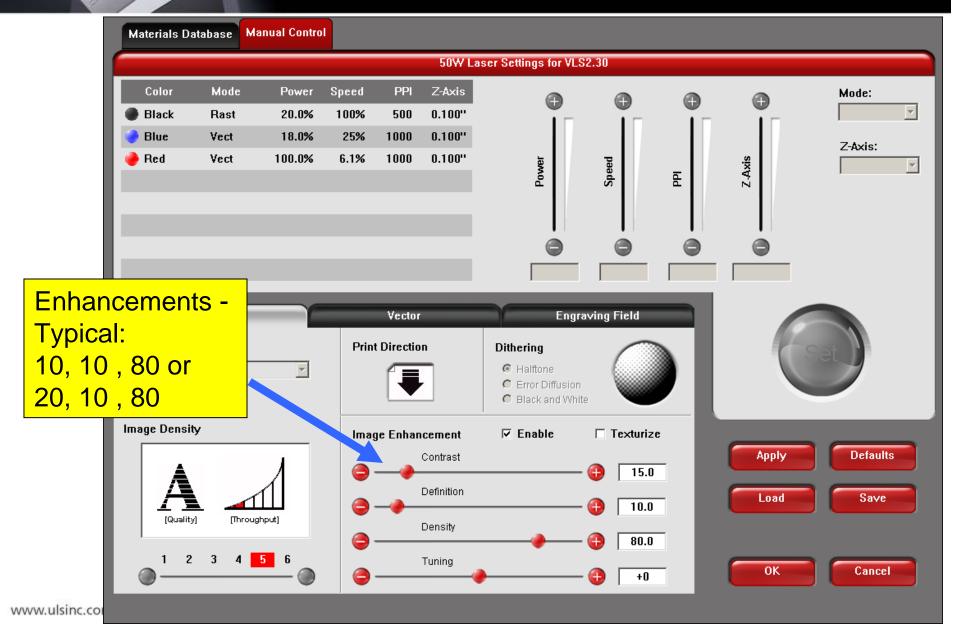
#### **Enhancement Controls**



Walter

#### Enhancement Controls

	Sector Action Ac	? 🛛
	Laser Settings Engraving Field Advanced	
	Dithering	Print Direction Up O Up O Down
	High-Speed Image Enhancement	Vector Optimizer
	Enable Calculate Texture   Contrast 20.0   0 100   Definition 20.0   0 100   Density 80.0   0 100	Vector Scaling       X-Axis:     1.0000     +     to 1.0000       Y-Axis:     1.0000     +     to 1.0000
	Tuning	Rotary Rotation
	· · · · · · · · · · · · · · · · · · ·	1.0000 ÷ to 1.0000
	(C) ULS 2008-01-21 WIN XP/Vista V1.09c	
	C	OK Cancel Apply



WEIstan

#### Enhancements

Benefit: Greatest accuracy for high-speed, low-power engraving

Three settings:

- 1. Contrast: Optimizes laser pulsing for Ascenders Middle
- Definition: Optimizes ascenders & descenders (#1 & #2 above add pulse stimulation for bolder result)
- **3. Density:** reduces stimulation everywhere to make characters thinner if needed

When to Use:

- Small features at high speed and low power on materials like anodized aluminum, coated brass, acrylic, plastics
- Do NOT use on photographs
- Not needed at high power (90 100%)



gjkb



#### Enhancements

1. Contrast – increase to add laser stimulation in concentrated areas (middle)

Universal Laser Systems, Inc.

2. Definition – increase to add laser stimulation to ascenders and descenders

Universal Laser Systems, Inc.

3. Density – decrease to reduce laser stimulation and reduce overall boldness

Universal Laser Systems, Inc.



# Enhancement Example

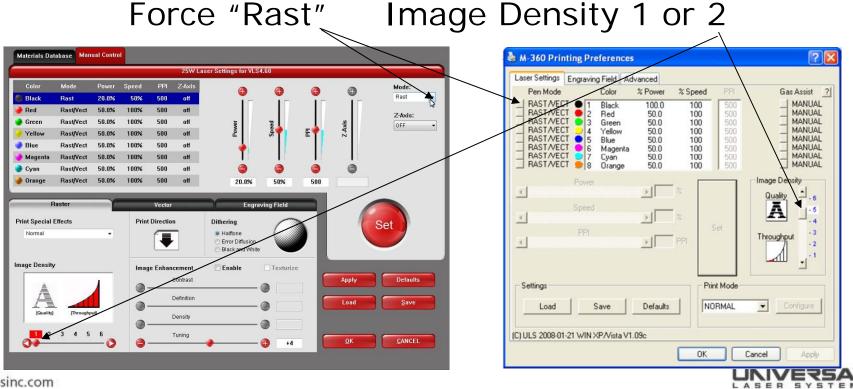
#### ANODIZED ALUMINUM <u>6 POINT FONT</u>, TIMES NEW ROMAN MAGNIFIED 15X

RUN ON A 50 WATT AT 100 % SPEED!



### Tuning your Laser

- Draw some black vertical lines in your drawing program, print job to laser
- Force the engraving to "Rast" or Raster only and engrave at Image Density 1 or 2



www.ulsinc.com

Wasan

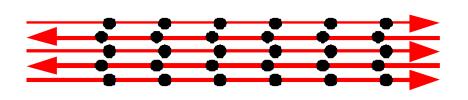
#### Tuning

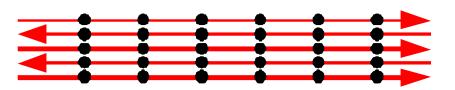
- Engrave vertical lines (must be raster mode)
- Materials like Plastic or Anodized work best
- Tuning adjusts timing of pulses to motion system
- Adjust value in driver up or down

Example vertical lines sent to laser for raster tuning test

Laser not in tune - dots not aligned during left & right strokes

Tuned laser - dots align







#### Tuning

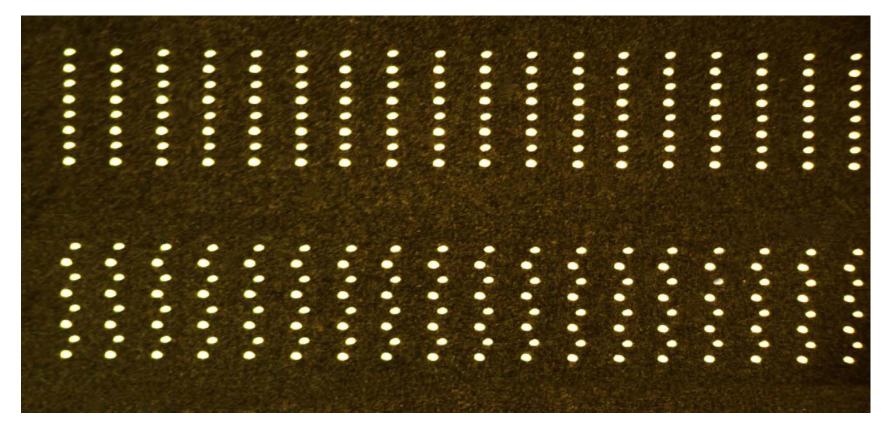
- Engrave lines, adjust tuning in the Control Panel until the lines are straight
- Typical tuning values are from +4 to +10

Viewer System	Diagnostics			M-360 Printing Preferences  Laser Settings Engraving Field Advanced
Print Cache	Tuning (Universal)	System Setup	Sounds Job Complete	Dithering C Haltone C Error Diffusion C Black and White C Black and White
2000 The maximum number of ref jobs stored in the disk cache English Metric @ inches		Alignment Launch Cutting Table Calibrate Rotary Calibrate	tada   >     V Pause   >     chord   >     V Resume   >     ding   >     Homing Options   >     Don't Return Home After Engraving   Disable Automatic Z-Homing     Disable Automatic Z-Homing   >     Home XY Before Engraving   >	High-Speed Image Enhancement   Texture     Enable   Contrast     Contrast   0     Definition   0     Density   00     Turning   +4     +15   +4     (C) ULS 2008-01-21 WIN XP/Vista V1.09c

- Control Panel (system Tab) on VLS, PLS and ILS
- Advanced Tab on all other models systems

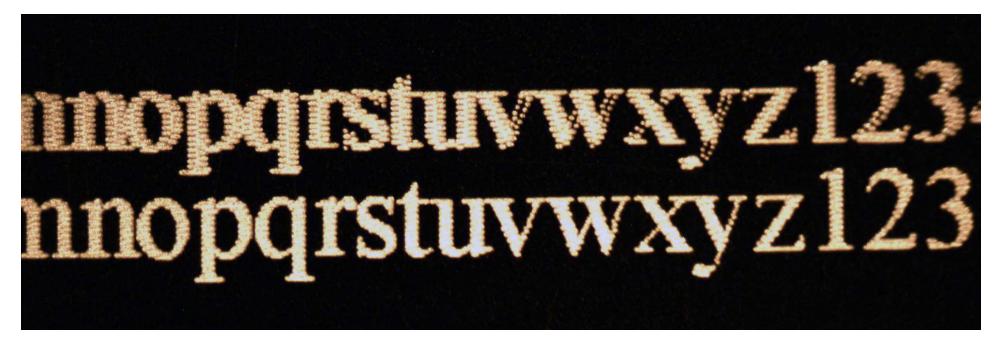
#### Tuning Example Pattern

- Sample engraved at 100% speed Image Density 1
- Top rastered and tuned at +5 (Correct tune)
- Bottom rastered and tuned to -4 (Incorrect tune)



## Tuning Example

- Top Text: Out of Tune
- Bottom Text: In Tune
- 6 Point Font Magnified 15 times
- Engraved on Anodized Aluminum



# Tuning Recap

- Simple procedure, assures quality
- Adjusts laser pulse timing for raster engraving
- Can compensate for belt wear, motion system wear
- Should be checked every 6 months on standard use
- Do not to use the same spot on the work table all the time; the tuning value will then be different on other parts of your engraving field due to belt wear