Squaring HD/HDS machine.

This document will detail how to square a Techno HD/HDS machine.

To preform this task you will need:

-A set of metric allen wrentches.

-A precision square.

-A mallet.

-A dial indicator.

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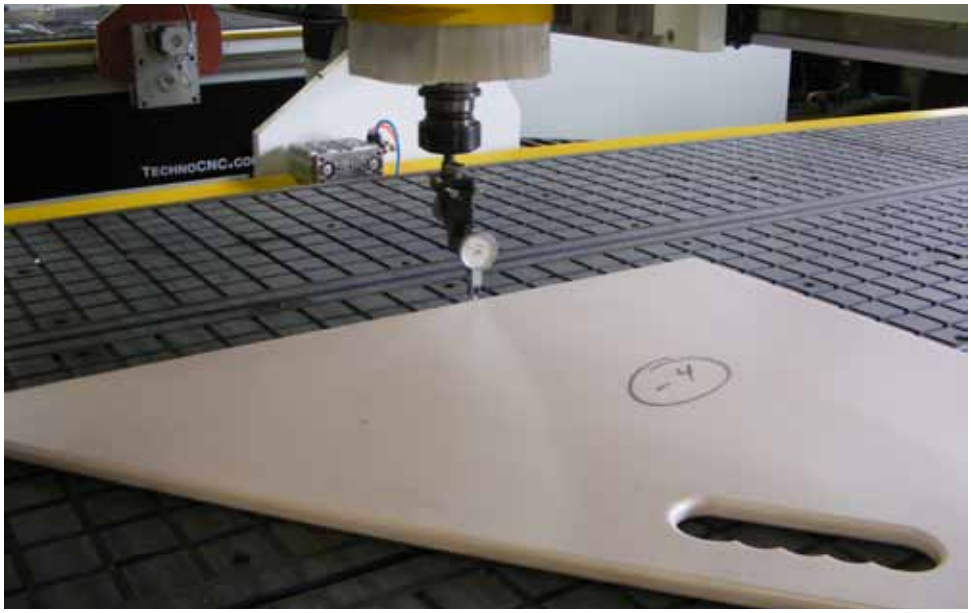
Indicating The Precision Square
Step 1: Fix the dial indicator to the Z-Axis.

Step 2: Place the precision square onto the exact center of the table surface. The square should be at least 18" x 18" or larger.

Step 3: Using the handwheel controller on HDS or Step function on HD controller, jog the machine until the dial indicator reads zero.

Step 4: Jog the Y-Axis so that the dial pin runs along the inside perimeter of the precision square, until the dial indicator reads zero.

Step 5: Jog the Y-Axis along the inside perimeter of the precision square, so that from one end of the square to the other remains a constant zero. If not than you must adjust the precision square so that it is zeroed correctly.
NOTE: Once you zero the precision square, you can begin the ReIndication of the machine



Adjust the precision square until there is little or no movement on the dial indicator as you jog it up and down in the Y-Axis.

Once the square is aligned on the table , be very careful and avoid touching the square. Any movement in the square will result in incorrect measurements and mean the precision square will have to be aligned along the
Y -axis again.

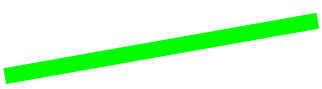
Jog the machine so the dial indicator is running along the X axis direction.

Indicating the X-Axis to the Y-Axis

Step 1: Turn the Indicator so that you can read the dial, making sure that the pin is running along the end of the Precision square.

Step 2: Jog the X-Axis from the one side of the Precision Square to the other. Keep watch and make sure the dial indicator reads zero. If not you will have to make ajustments:

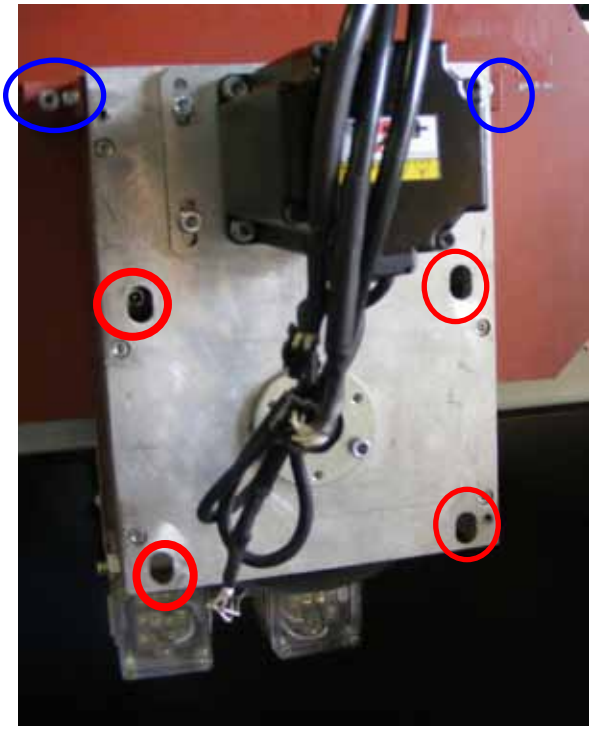
Make a note of how much the dial changes., and in what direction the skew occurs.



ie, a change in the indicator that makes it appear that the square is placed like the green line, would mean the machine must be moved to the fromt on the right hand side.

Adjusting the Machine.

Disable power to the machine and remove the side panels from the Y axis motors, so that the Y-axis motors are exposed as above.



The motor on both sides on the Y gantry will need to be dropped so that the pinion is not engaged with the rack.

Loosen, but do not take off fully, the circled bolts. This will drop the motor and drive pinion off the rack.

Do this on both sides.

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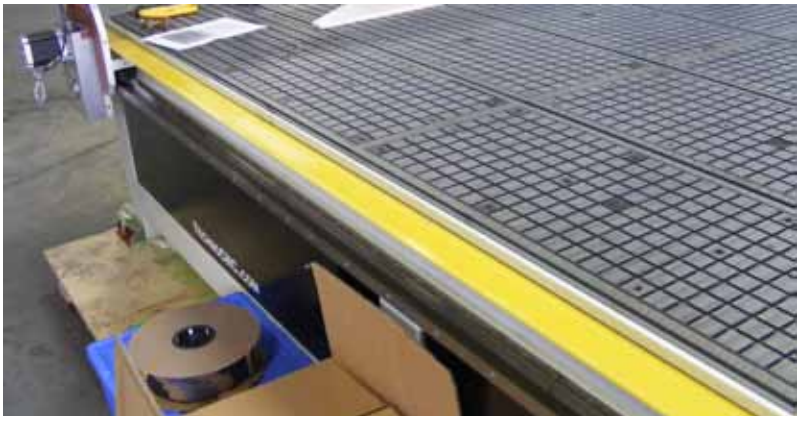

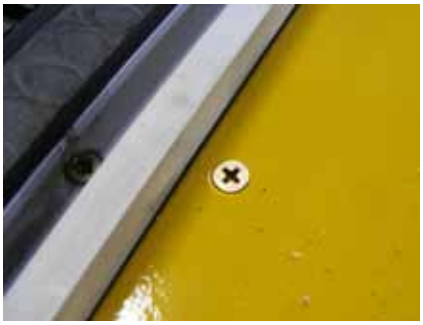

Remove the yellow cover from both sides of the machine.

This will allow acces to the upright screws that attach to the bearing carriages.

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Loosen the 8 screws that hold the uprights to the bearing carriages.

Do not loosen the screws completely
Keep slight tension on the lock washers,
so that you do not tip, the X-Axis off the
Lower Beam. These washers are designed to close when tension is applied,
keep them closed, but loosen them enough
so that you can shift the Uprights.

Do this on both sides of the gantry.

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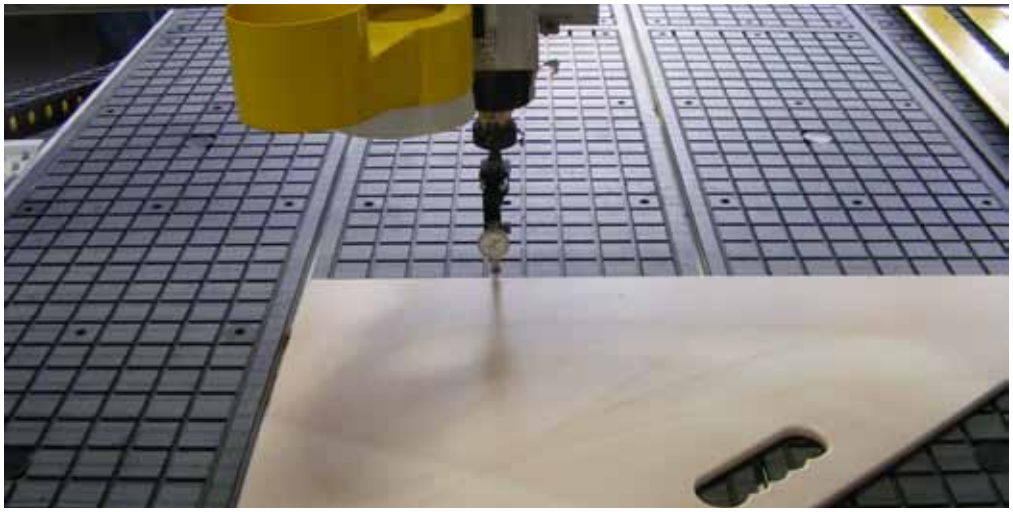

Using a rubber mallet lightly tap the gantry in the direction the machine needs adjustment.

Once there is little or no movement in the dial indicator when the X-axis is moved from left to right tighten the bolts on the uprights to carriage.

Note: Do not jog the Y axis at this point.
Do not home the machine.
Only jog the X-axis.

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Engage pinion to the racks on both sides of the gantry and tighten all the screws.

The machine should now be square.