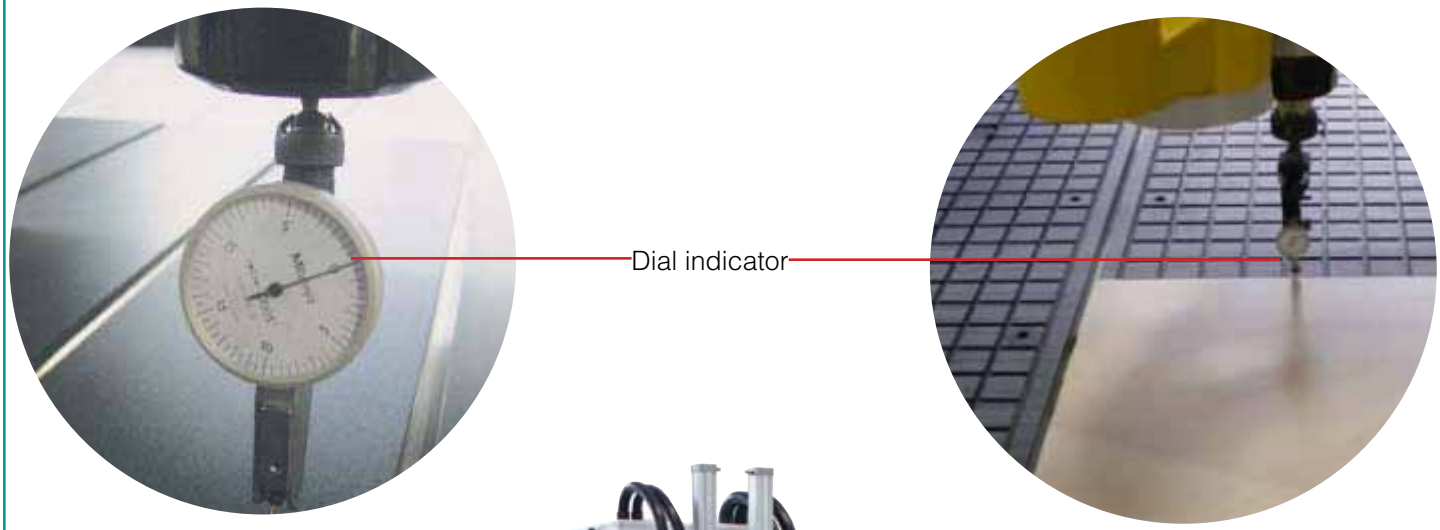
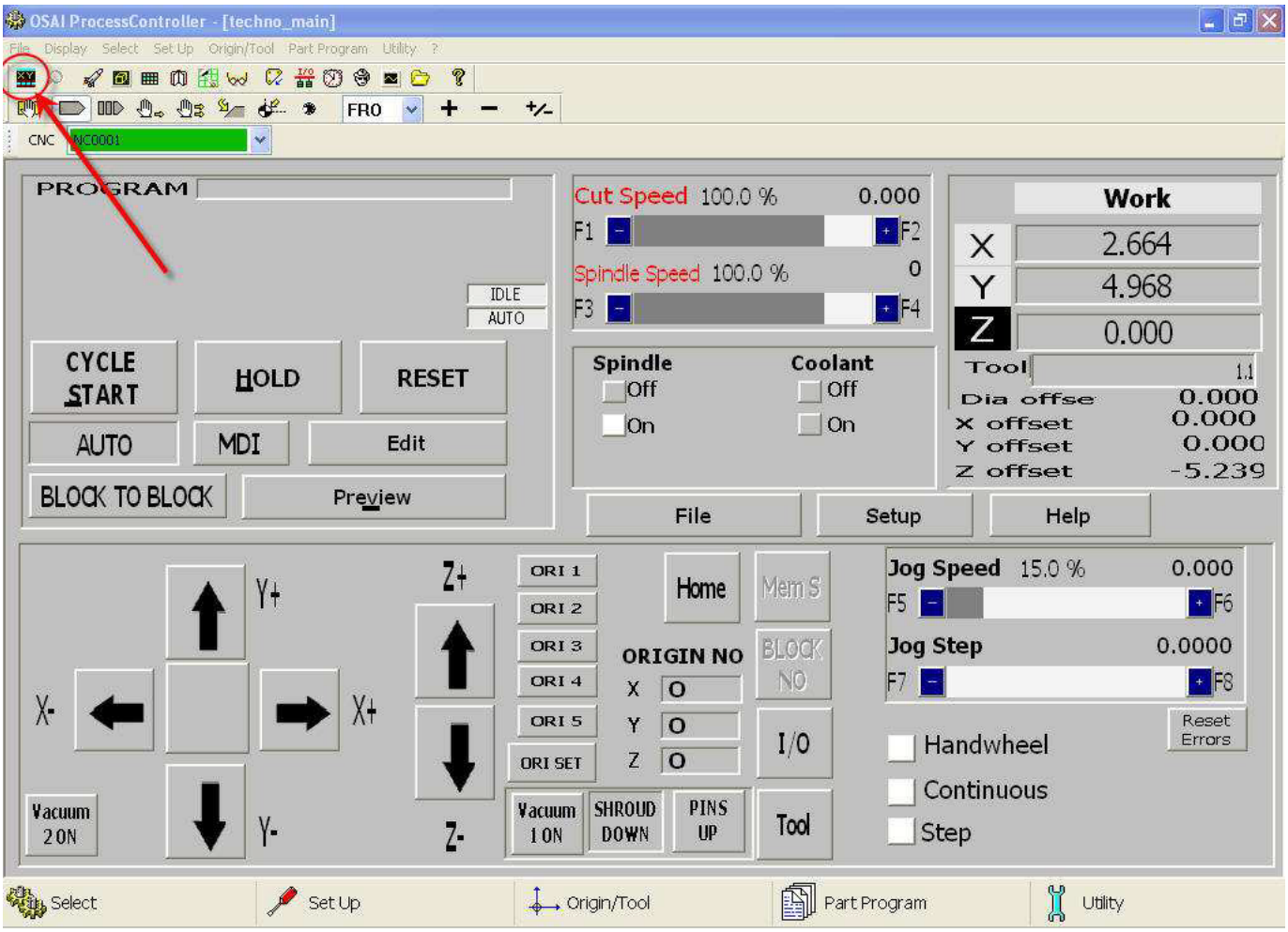
Squaring with Software

To check the squareness of your machine, you will need a dial indicator and a large 90 degree angle. A carpenter's square should be OK.

- Place the indicator in the spindle and the square on the table. Use the indicator to read and adjust the position of the square so that the dial reads zero as you run it along the edge of the square in the Y axis.
- When the Y axis reads zero, run the indicator along the edge in the X axis. This will tell you how far out you are.
- Large adjustments should be made mechanically. This document is for fine-tuning the squareness using the software.

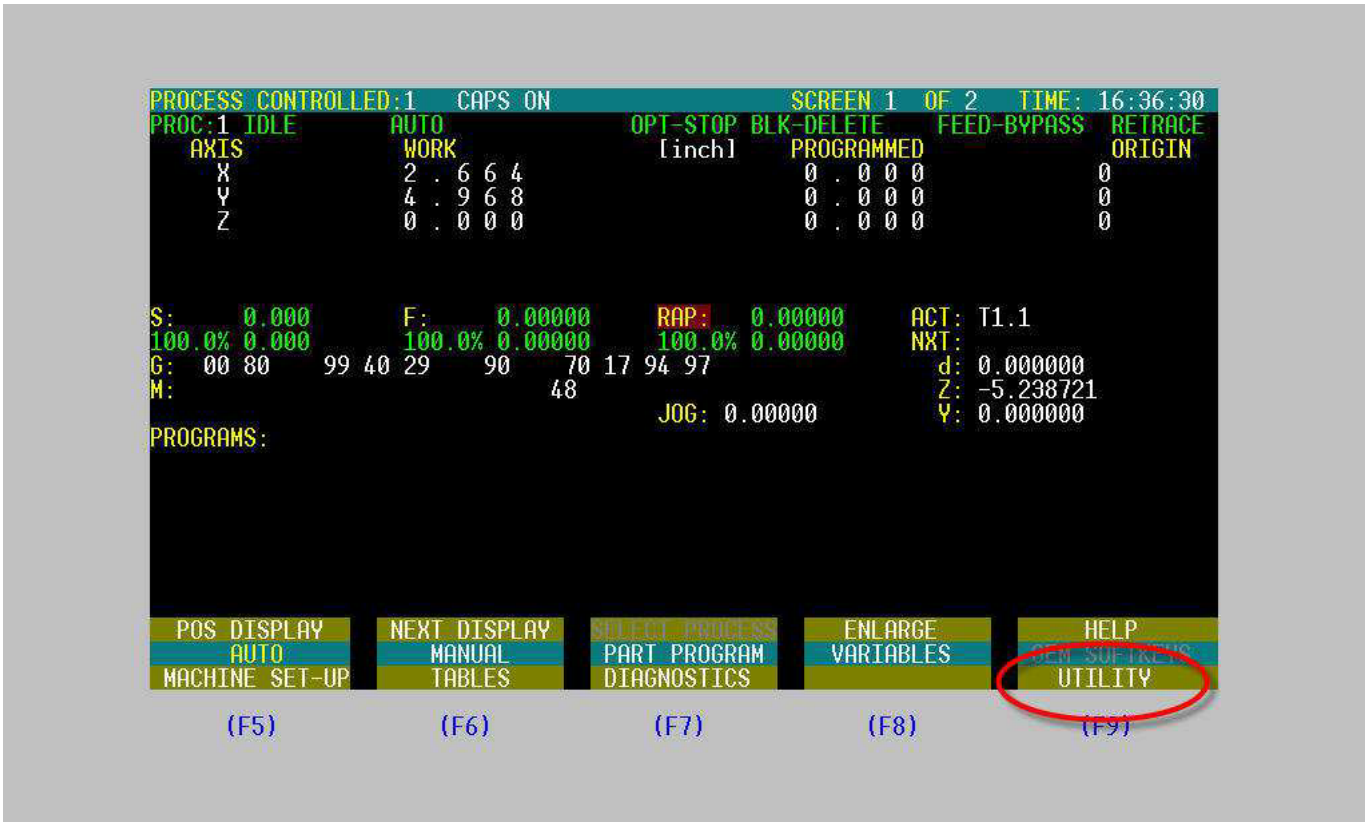
The first thing you need to do is check and make sure the motors aren't already set to position themselves a set distance. They should be in their most relaxed state.



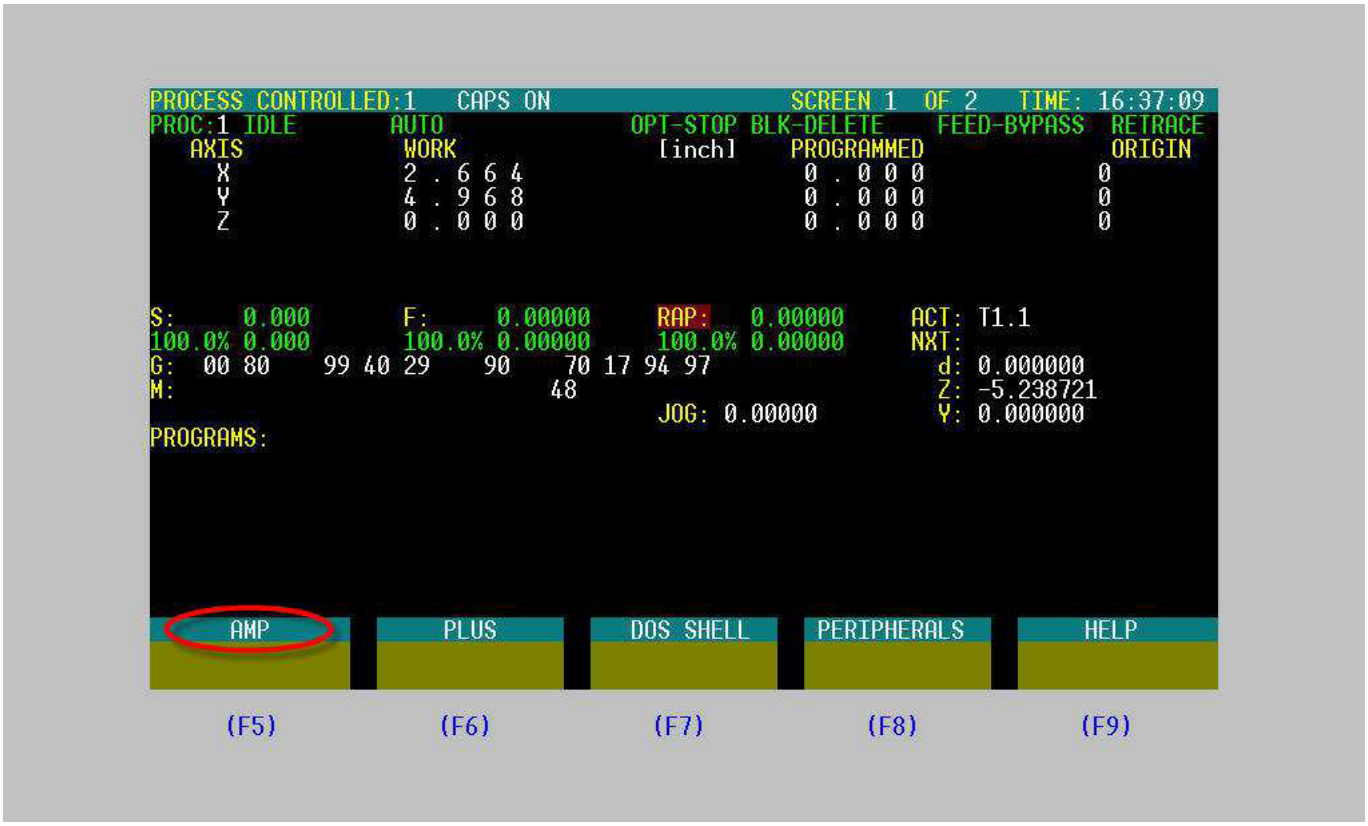


Click on the 'CNC Vision' icon to bring up the controller screen.

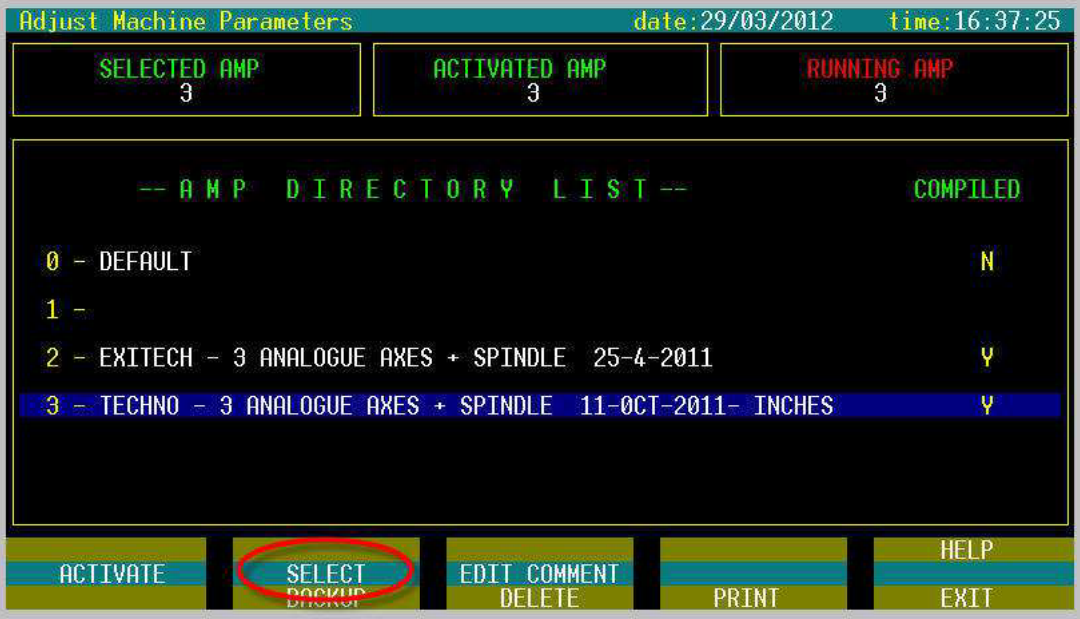
Note: To navigate through the menus in the controller screens: use F10 to scroll the highlight bar and then the corresponding function key to select what's highlighted.



Hit F4 to go to the top menu. Use F10 to move the highlight bar until it is on the bottom line, and then hit F9 to go to the 'Utility" menu.

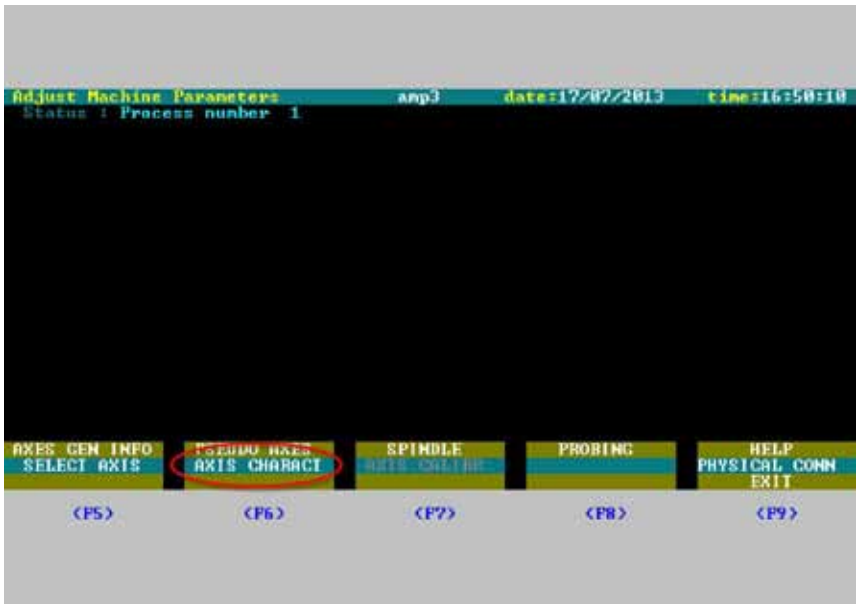


Go to the 'AMP' menu.

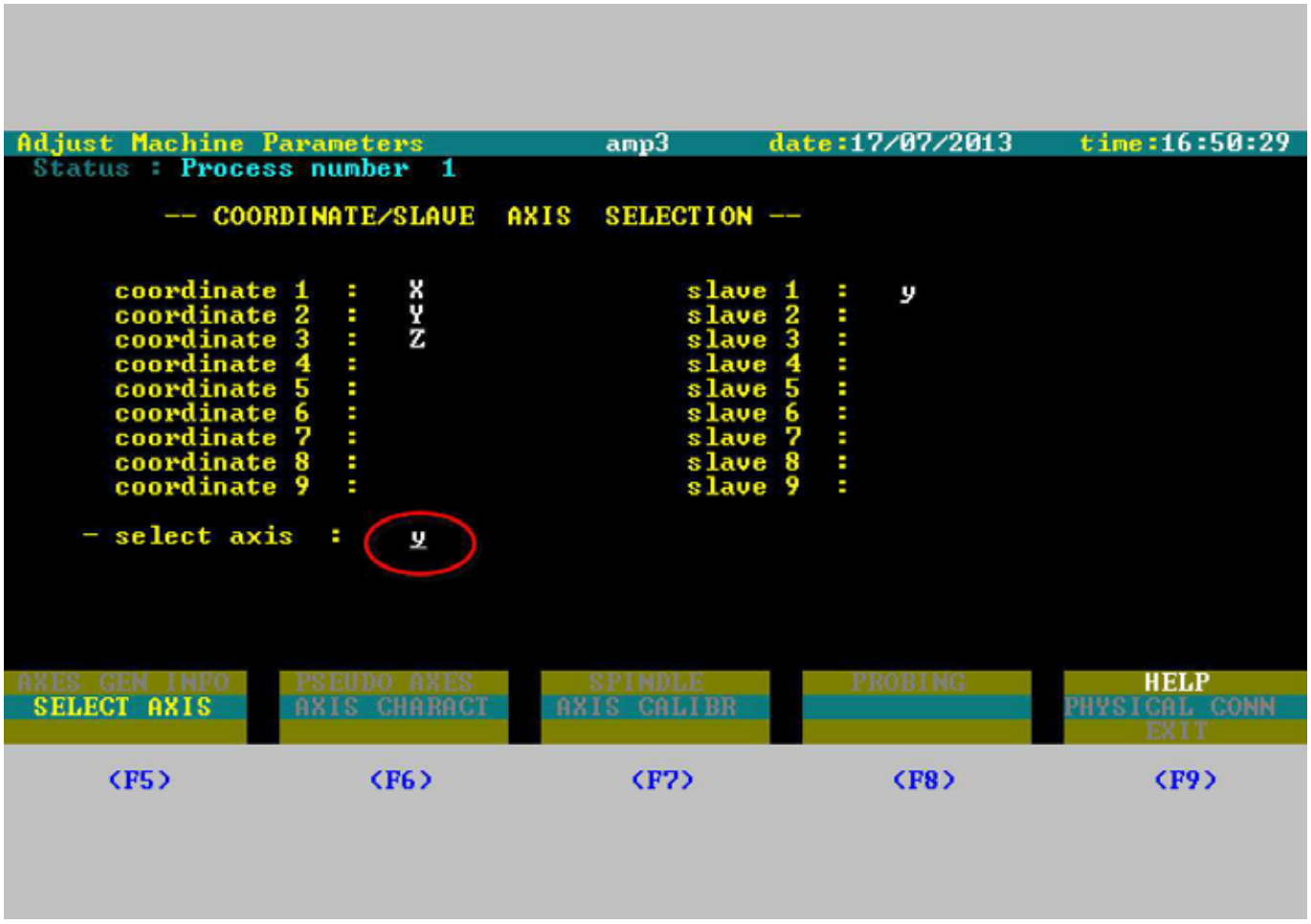


Select the AMP you want to look at.

Select ‘Axis Config’.

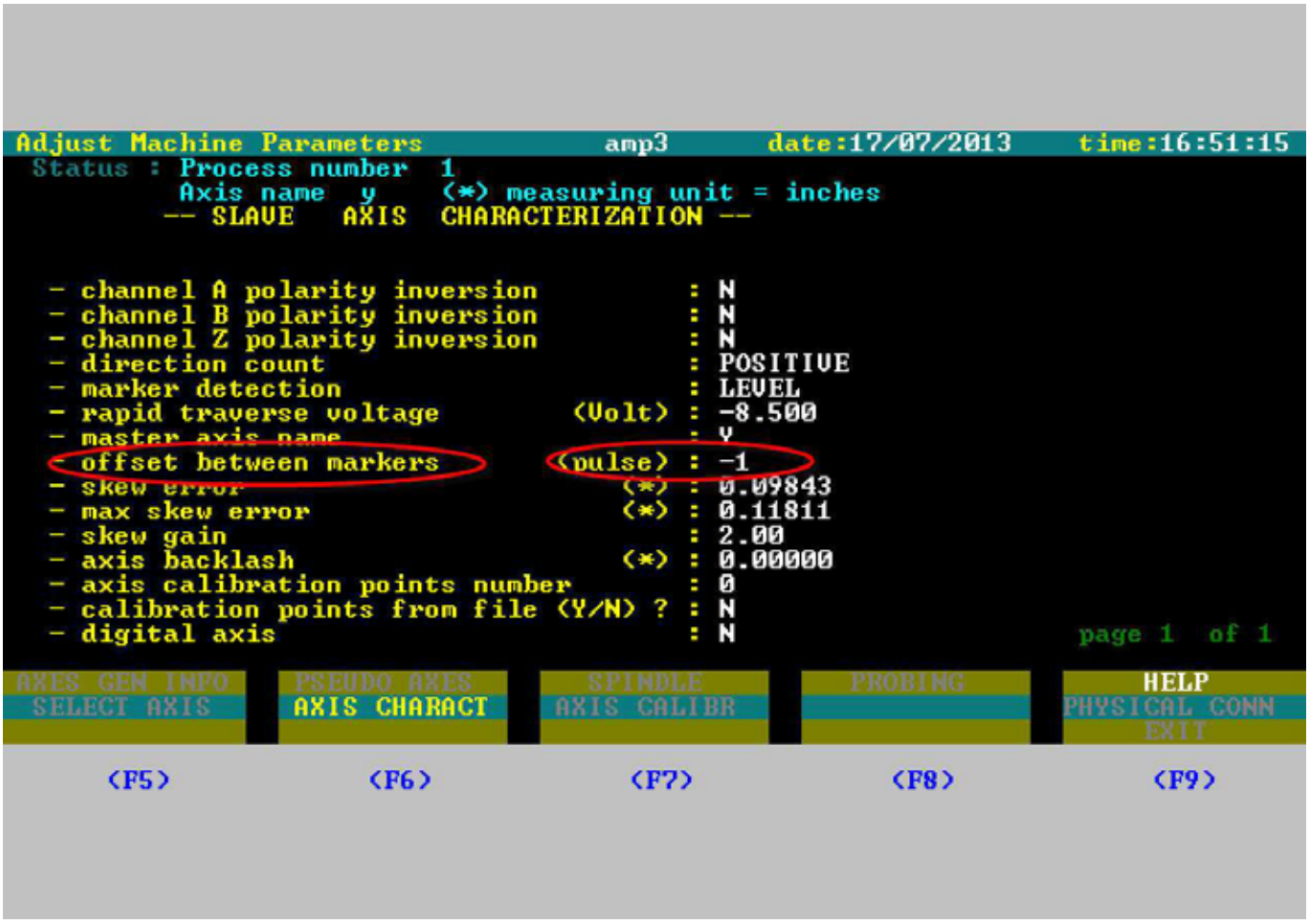


Select ‘Axis Charact’.

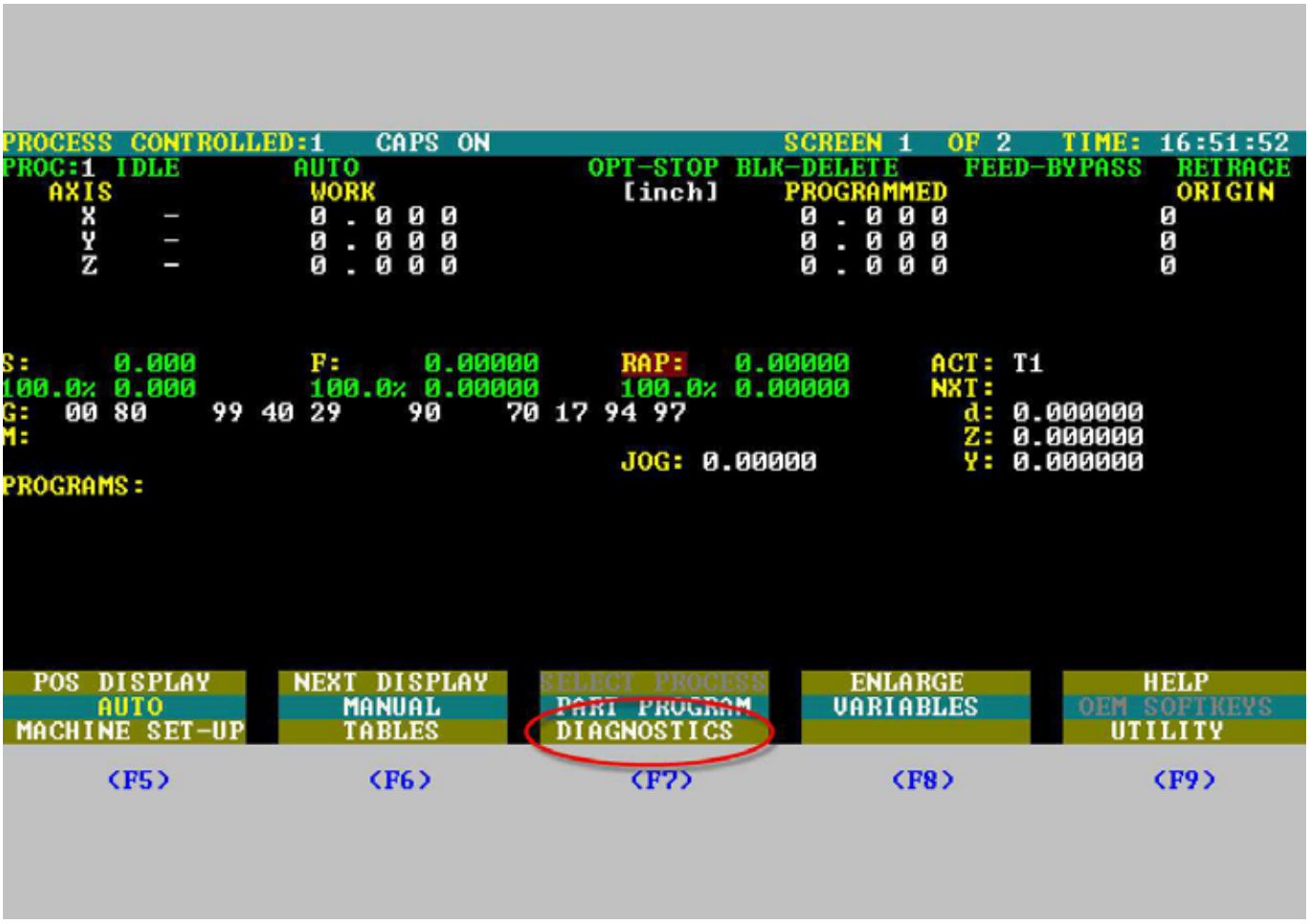


Type lower-case ‘y’ to look at the y-axis follower.

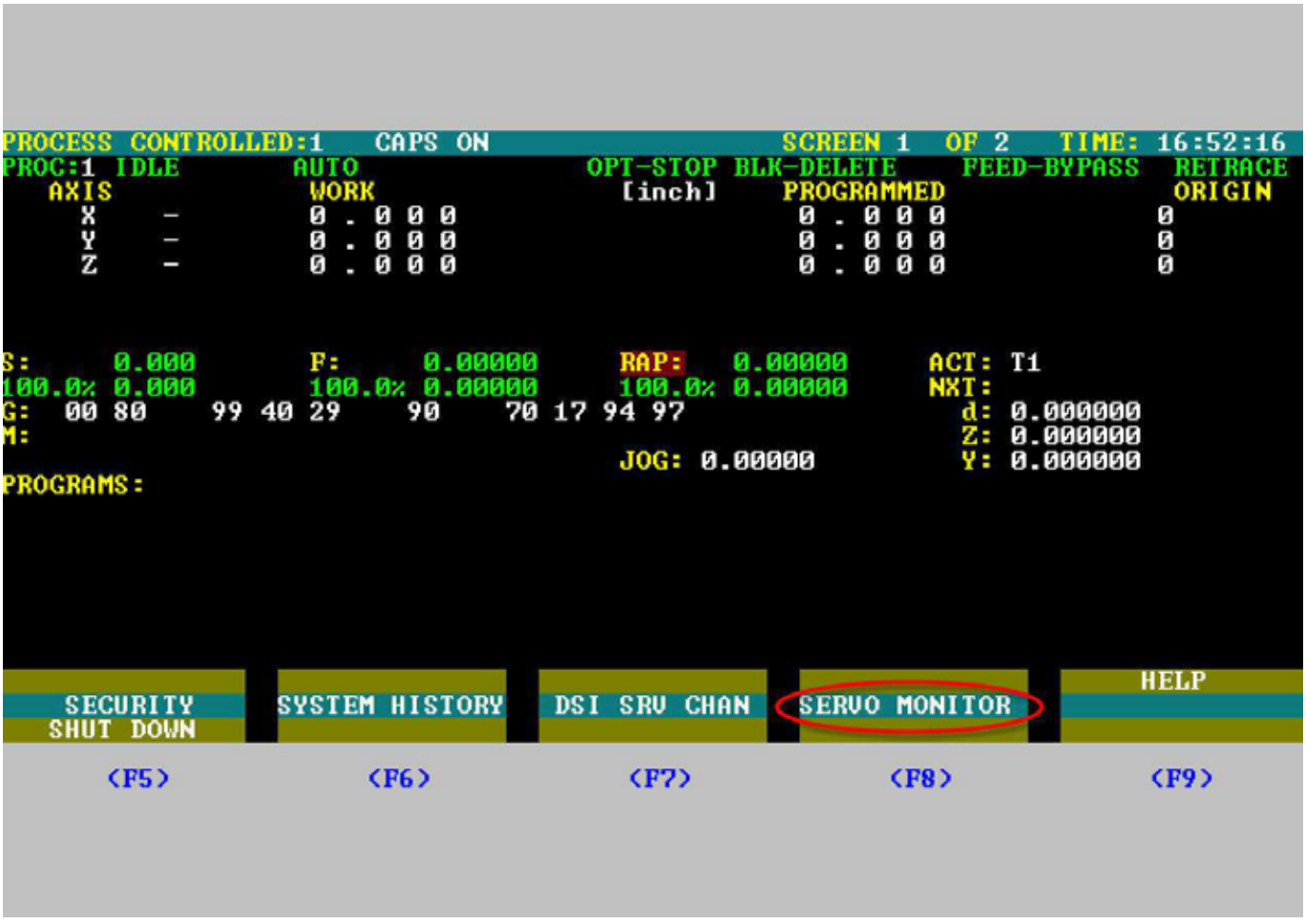
The ‘offset between markers’ should read ‘-1’. If it doesn’t, change it to ‘-1’. This will be set the motors to used a relaxed state and will be changed again later.
At this point, exit out of the AMP settings.



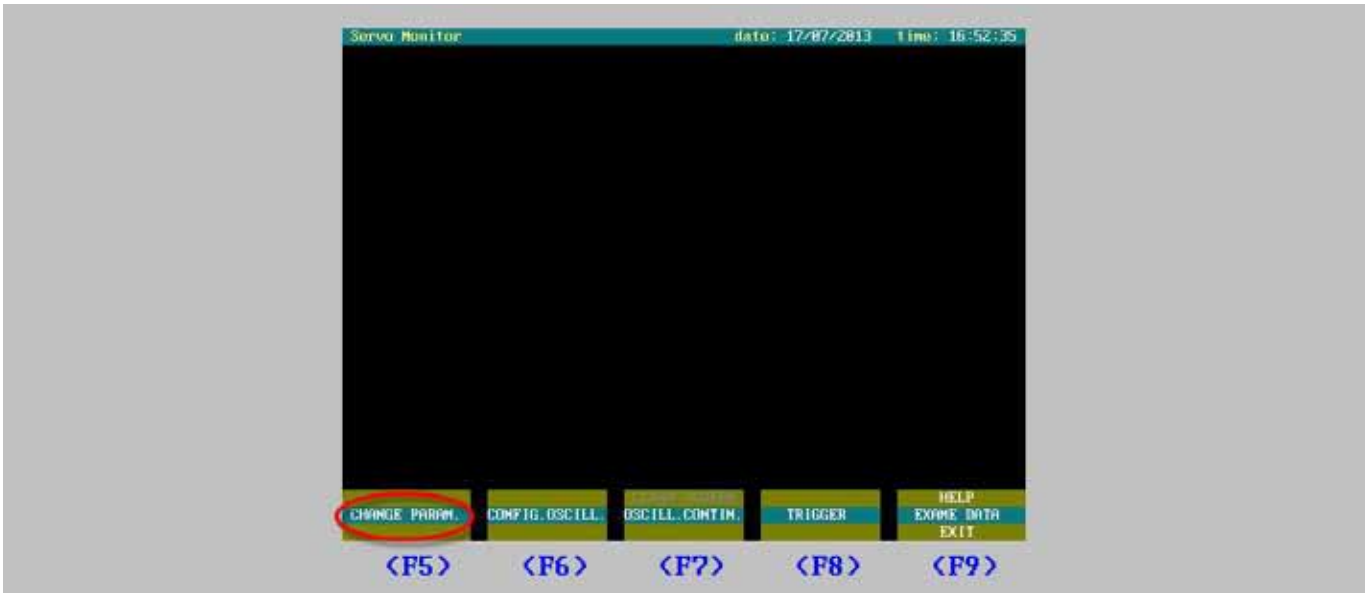
- Restart
- Do NOT Home
- Press the E-Stop.
- Power off the Y1 and Y2 amplifier, using Breakers
- Remove the cables from amplifiers
- Loosen the screws holding the gantry to uprights
- Adjust mechanically as close as possible
- Reconnect the cables and power



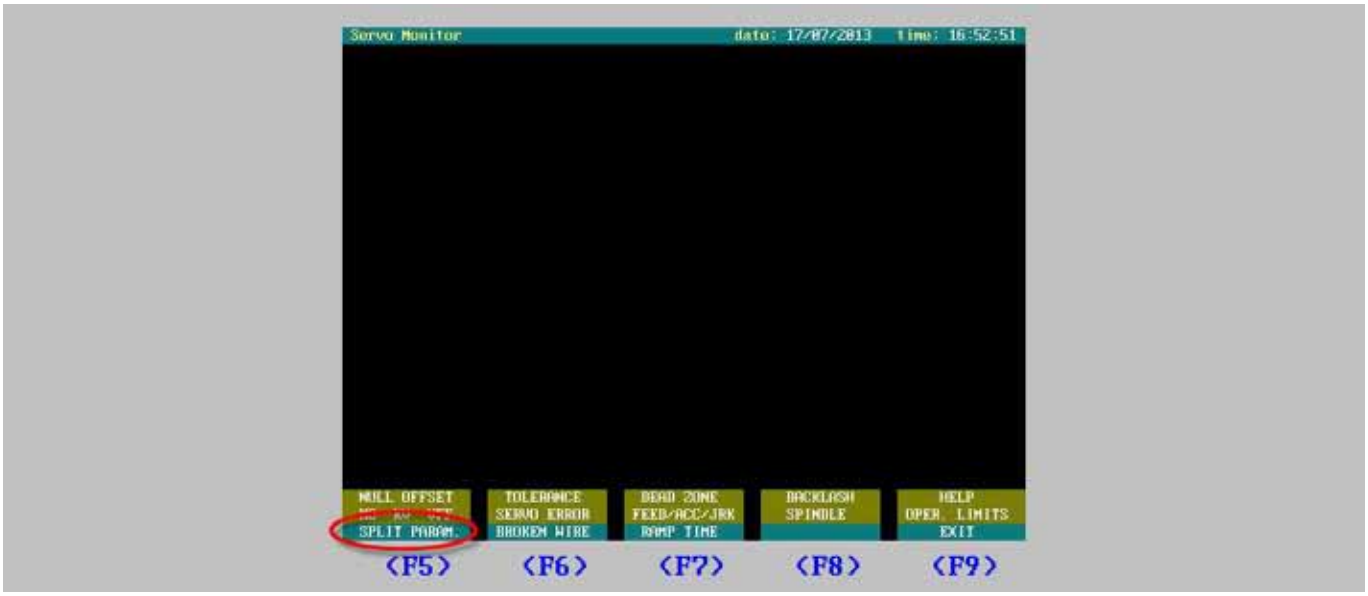
Click on the ‘CNC Vision’ icon again and hit ‘F4’ to get to the top screen.
This time, select ‘Diagnostics’.



Select ‘Servo Monitor’.

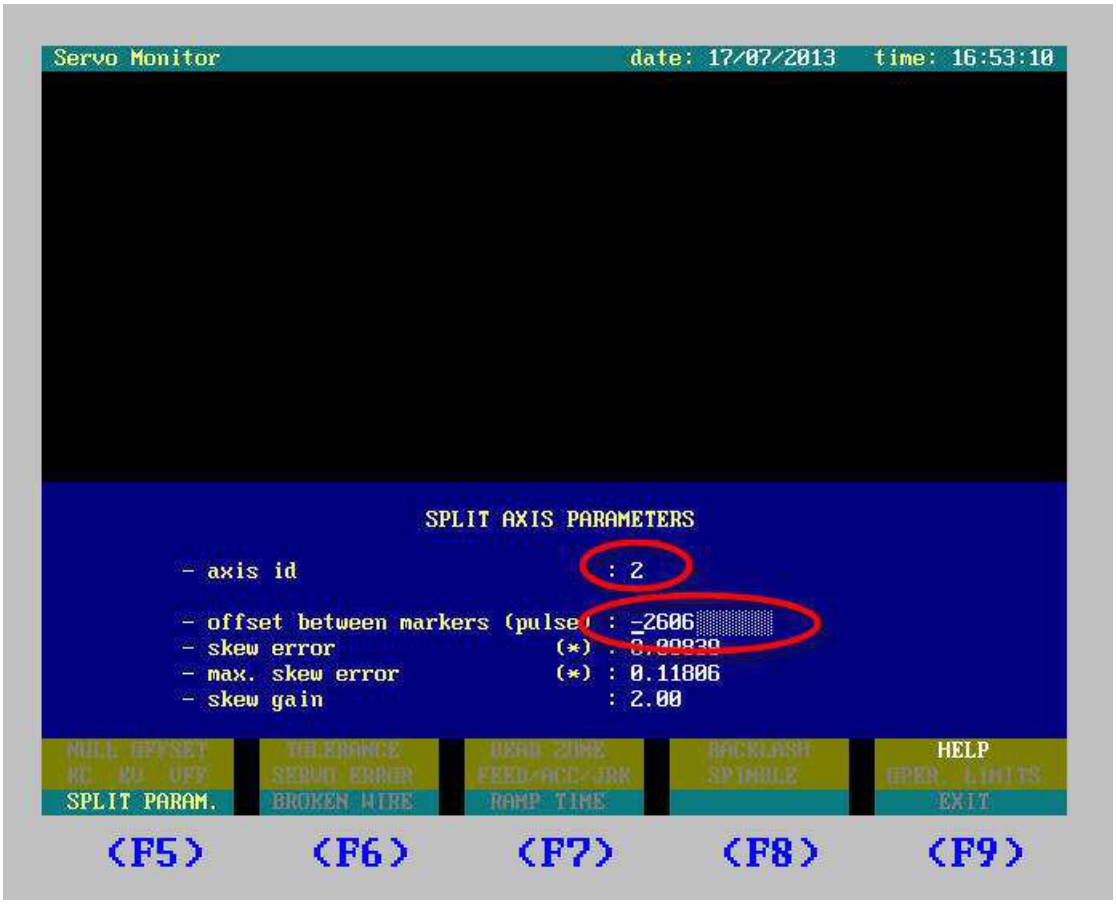


Select ‘Change Param’.



Select ‘Split Param’.

The axis ID is '2'.
This is the screen you will be making changes in to test squareness.



- First, put a '-1' in for 'offset between markers'.
- Hit 'ENTER' (on the number pad of the keyboard.)
- Click on the CNC Vision icon.
- Home ALL.
- Check squareness.
- Click on CNC Vision icon to get back into the Diagnostic > Change Param screen
- Select split param and enter a number into the 'offset between markers' field. Try something like 2000.
- Click on CNC Vision and home ALL.
- Check squareness.
- Adjust number for 'offset between markers', re-home, and recheck squareness until the indicator reads square along the X axis.
- When the machine is square, write down the final 'offset' number.
- Repeat the steps at the start of this tutorial to get back into the axis settings for lower case y and add that number to the 'offset between markers' field (Page 8).
- Exit back out of the AMP settings, translating new parameters.
- Re-boot controller.
- Tighten any loose screws.