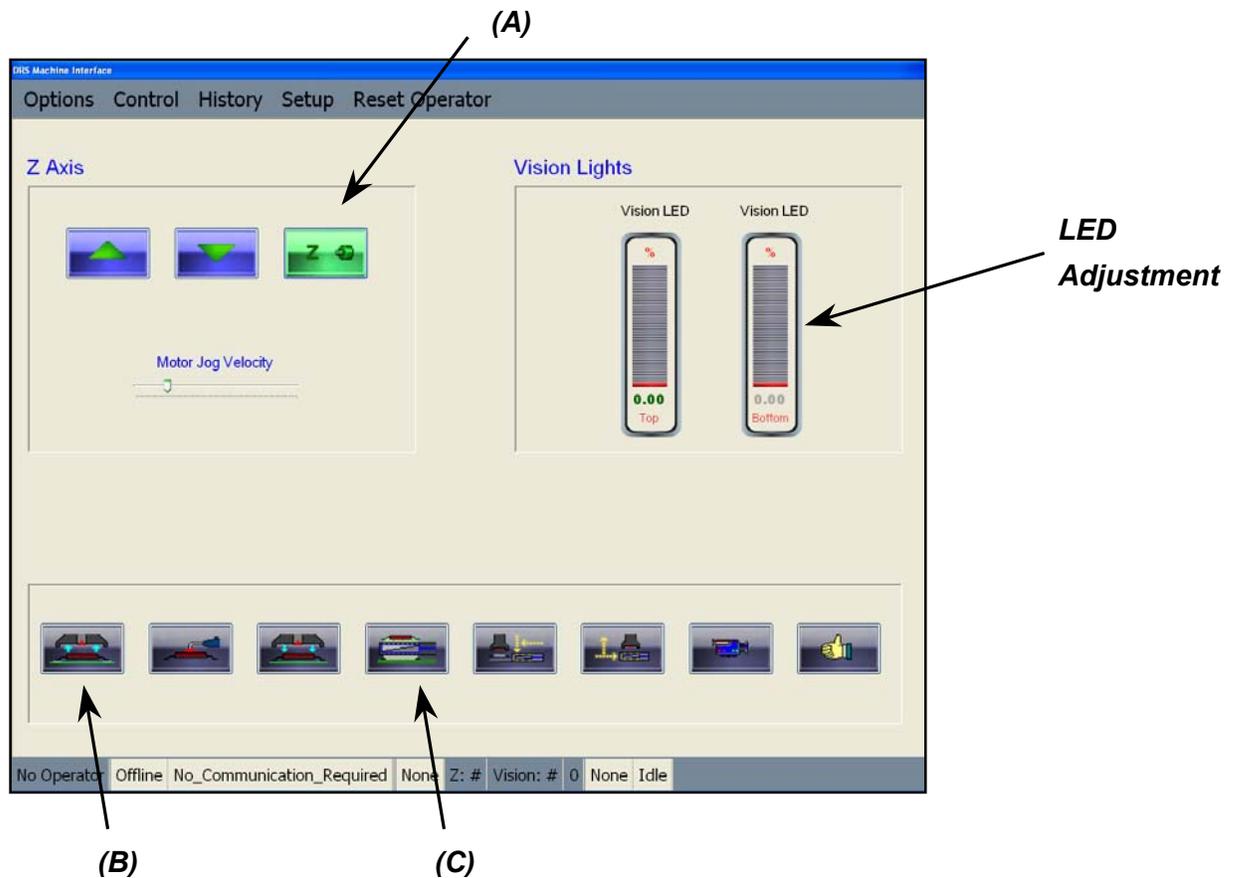


### 4.3 Vision Alignment Verification and Adjustment

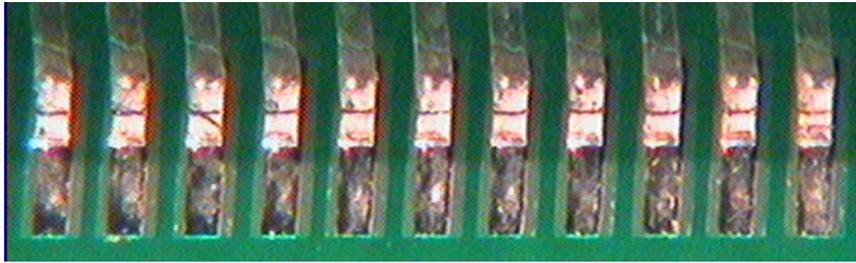
The LTP Beamsplitter Vision System is calibrated at Air-Vac prior to shipment. However, physical movement (such as shipping) and continual use require that the Vision System be periodically verified to insure placement accuracy.

1. Log on as "DRS25" or any high level operator.
2. Select Set-Up (Main menu) then Vision System from (Main menu). The Vision Adjustment screen will appear as shown below.



3. Install the Vision Alignment Board (supplied with system) with the QFP208 site into the carrier.
4. Click on the Enable/disable button (A) to de-power the z-axis (red background).
5. Unlock clamping fingers and install the N27EZ27 nozzle (supplied with system).
6. Put the QFP208 under the nozzle using caution as not to bend the leads. Lower the leads until just above the pads.
7. Activate Nozzle Vacuum (B).

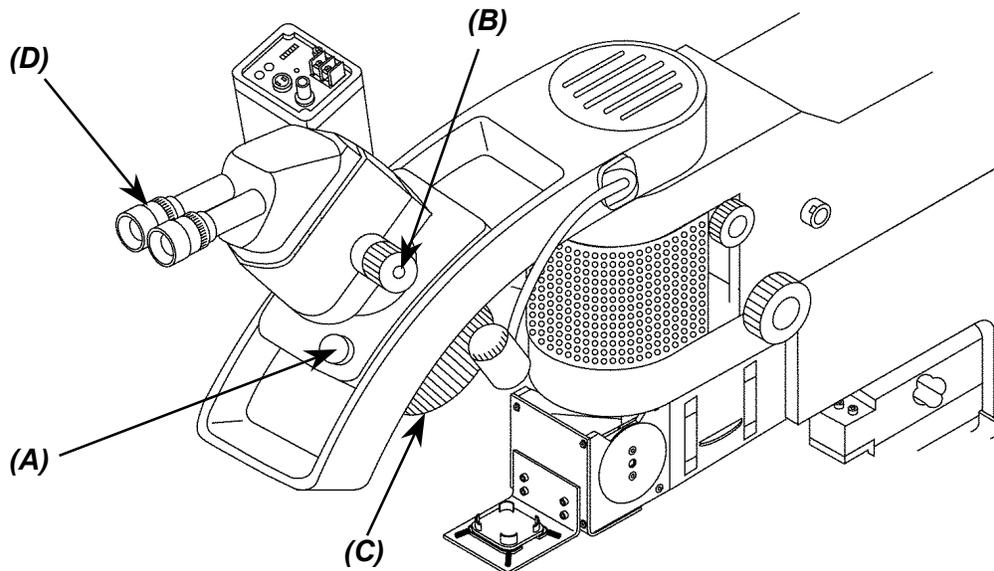
8. Align the QFP208 at board level by using the X, Y and Theta adjustments while viewing through the microscope. Once the front side of the device is aligned (photo 1) pivot the microscope to the two sides and continue the alignment process until the device is perfectly aligned.



9. Once the device is aligned at board level, lock the table to prevent future movement.
10. Select the Vision Alignment icon (C). The device will automatically move to the vision position.
11. Press microscope Slide Lock (A).
12. Push microscope along track to the top (highest) position. This step ensures that the microscope is in the proper (highest) position for vision alignment.

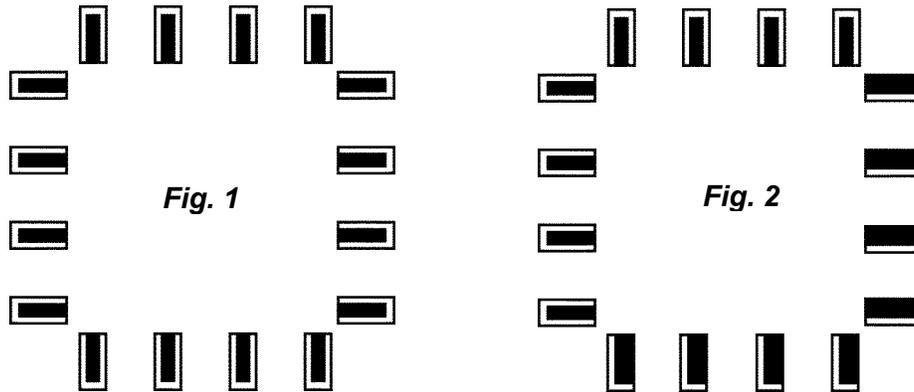
**Note:**

LOWERING THE MICROSCOPE FOR ALIGNMENT WILL RESULT IN PLACEMENT ERROR DUE TO INCORRECT VIEWING ANGLE DURING ALIGNMENT.



13. Adjust the Zoom Lens (B) as required.
14. Refocus until pads are a clear image. If leads are not in focus, select the power check box to de-power the z-axis.

15. Manually raise or lower the nozzle to adjust the height of the component leads until the leads are in focus (same viewing distance). Click on power to hold vertical position. To enhance the lead to pad contrast, select the LED adjustment icon. Adjust the lighting for the leads (top) and/or pads are required to provide a clear image.
- Figure 1 is an illustration of proper lead to pad alignment in the vision system with the leads (dark) properly centered over the pads. No vision adjustment is required in this case. Figure 2 is an illustration of incorrect lead to pad alignment in the vision system due to theta error.



16. If the leads and pads are not aligned in the vision system after alignment at board level, loosen (but do not remove) the two 1.5mm set screws (E) which hold the two Vision Adjustment Disks (F) in place.
17. Rotate the disks until component part is aligned.
18. Increase the zoom lens magnification to check your work. Increase magnification to maximum.
19. Tilt field of view up and down to insure leads are 100% in center of pad. Viewing a few leads under high magnification may reveal minor errors not seen while aligning the entire device.
20. Slowly and carefully retighten the set screws while continuing to view the alignment. This will insure that no movement of the cube occurs while tightening the screws.
21. Lower nozzle to check at board level. Readjust if necessary.

