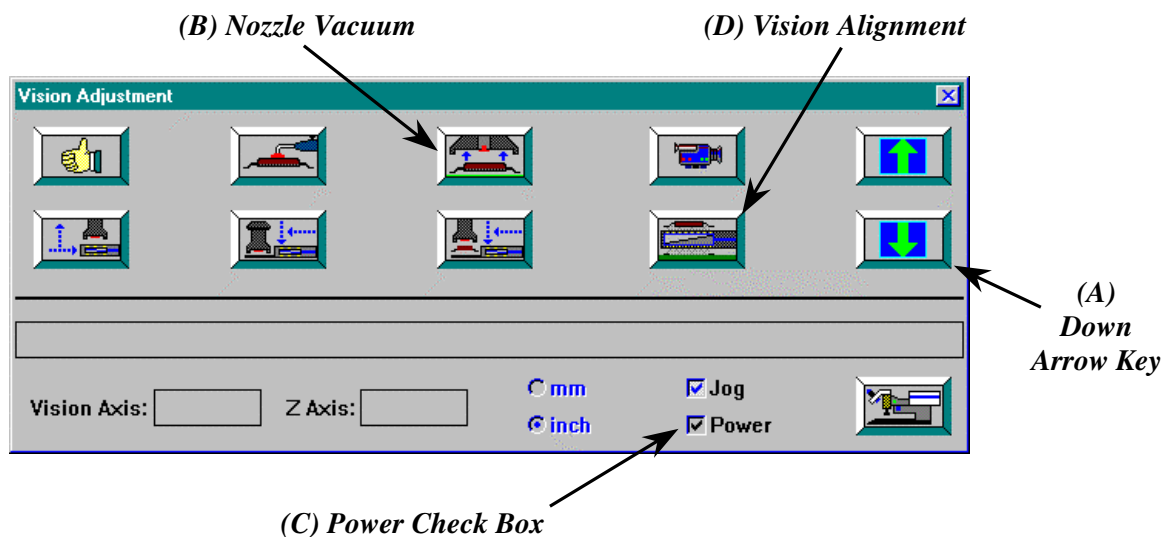


2.8 Vision Alignment Verification and Adjustment

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.

- Select **Setup** then **Vision System** from the Main menu screen. The Vision Adjustment screen will appear as shown below.



- Install the Vision Alignment Board (supplied with system) with the QFP208 site into the carrier.
- Use the **Down Arrow Key (A)** to lower the head. Unlock clamping fingers and install the N1103B1103 nozzle (supplied with system).
- Feed QFP208 (supplied with system) into the nozzle. Use caution so as not to bend the leads. Activate **Nozzle Vacuum (B)**.
- Click on the **Vision Alignment Icon (D)** to bring out the vision cube. Now align the part to the board using the X, Y and Theta.

Note: If the component leads and pads are not in the same viewing plane, manually raise or lower the nozzle to adjust the height of the component leads.
- After the chip is in proper alignment, lock the table and click the **Vision Icon (D)** again to retract the cube.
- Select the **Power Check Box (C)** to remove the \surd . This will depower the Z-Axis. Manually lower the device until it is just slightly above the pads. Use the microscope to view the height.
- Now use the microscope to view the alignment of the part to the board. View the part on the left, right and front. If the part is aligned to the board, you are done. If not, proceed to the next step.

Note: When viewing the part on the right and left sides, make sure the microscope is square to the board.
- 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, pivot the microscope to the two sides and continue the alignment process.

Note: Use the X-Axis to align the front leads. Use the Y-Axis and Theta tooling to align the right and left sides.

TIP: When aligning the chip at board level, and the Theta is off, only move half (1/2) the distance required.
- Once the device is aligned at board level, lock the table to prevent future movement.

- Select the **Vision Alignment icon (D)**. The device will automatically move to the vision position. Be sure the microscope is in the top position, then focus on the board. **DO NOT MOVE X, Y OR THETA DURING VISION VERIFICATION AS THE DEVICE HAS ALREADY BEEN ALIGNED AT BOARD LEVEL.**

Note: *If the component leads and pads are not in the same viewing plane, manually raise or lower the nozzle to adjust the height of the component leads.*

- 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 vision due to theta error. Vision adjustment is required in this case.

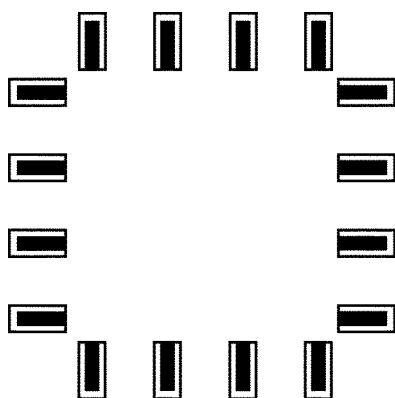


Figure 1

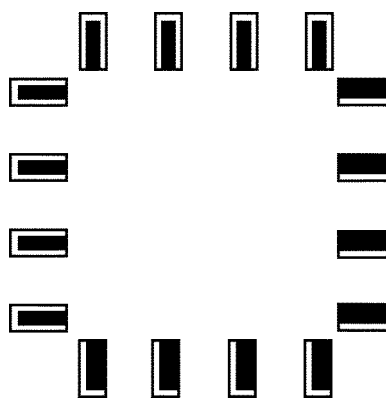
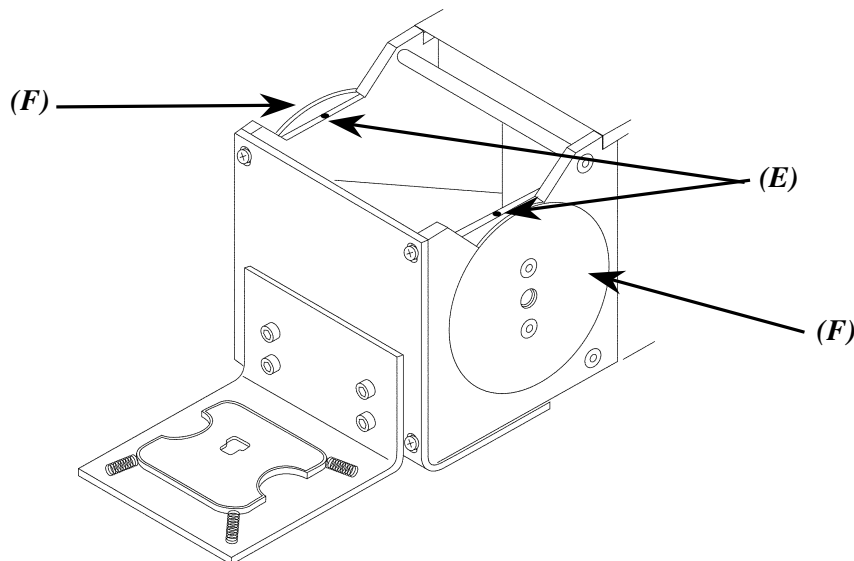


Figure 2

- 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.
- Rotate the disks until component part is aligned. 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.



- Rotate polarization filter pads – should move less than ¼ of a pad on a 20 mil. Part. If not, replace.
- When you think you are done, repeat the first part of the procedure to verify alignment.