Only Do This if Your Desperate!

Instructions for changing laser tubes

1. Remove old tube, noting distance from the end of the laser tube to the #1 fixed mirror. (You will want to space the new tube approximately the same distance.)
   Do not tighten screws yet.

2. Now you will need to polarize the new tube. To do this a laser power meter should be used, however, if you don't have one, the following method can be used:

   A. Plug in the laser tube.

   B. Ground pin 12 of the laser power supply. (This enables the laser beam.)

   C. With one hand hold a piece ofpaper below the square prism and with the other hand turn the laser tube back and forth till. the beam on the paper is at a minimum brightness.

   D. Now, tighten the screws around the laser tube.

3. The rest is alignment. (Instructions enclosed.)

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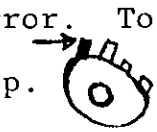
ADJUSTING THE OPTICS ON THE LD-V1000

1. Remove diverging lens.
2. Jumper pin 12 of laser power supply to ground.
3. Place a piece of paper left of the ¼" wave plate (illustrated on adjoining sheet). You should see three dots . If it looks like or , then your beam path is in error. To correct it, adjust #2 fixed mirror using hex screw closet to you. Also, you should see a faint line running through the dots. If it looks like or then your beam is still in error. To correct it, adjust #2 fixed mirror using hex screw on top. 
4. Now check to see if the beam is centered (approx) on the tracking mirror. If it is not, then loosen the screw holding the tracking mirror and adjust the mirror until it is. Then lock it down.
5. Now, you're going to check the return beam that goes to the photo-diode. To do this, you look at the beam going into the left side of the ¼" wave plate. (By this time it will be spread out.) What you're going to try to do is center the return beam around the ¼" wave plate. Loosen the tracking mirror screw (just slightly) to move the beam up and down. When that's centered, retighten the screw. Now loosen the tangential mirror screw (just slightly) to move the beam back and forth. When that is centered retighten the screw. (Try not to loosen the screws both at the same time). To get to the tangential screw you will have to slide the slider over to the right and use a short Philips screw driver.
6. Now, you'll want to check the beam going into the photo diode. To do this, place a small piece of paper on top of the prism. You should be able to see a spiral beam on the paper. (Slider should be back in the park position.) As you move the fan back and

6. (continued)

forth, the spiral will collapse and expand and the rings should look fairly even. Not like or . To correct the problem, re-adjust the tracking and tangential mirrors.

7. Replace the diverging lens and center the beam on the right side of the ¼" wave plate.

8. Now, you can remove the jumper from pin 12 of the laser power supply.

9. The rest is adjusting the photo diode and the diverging lens until you get maximum open loop tracking signal. (Just as a suggestion - if the spindle motor spins up and you achieve focus right away - scan over to around 14,000 and then try to adjust your photo diode and diverging lens. The reason for this is, if you loose focus while it's spinning, it won't shut down completely and the objective (or focus) lens will continue to pop up and down - resulting in an easier alignment.)