Adjusting the optical path for laser metal and nonmetal machine

Picture 1  the path of beam propagation

Picture 2  Adjustment for screw and frame

Picture 2  The effect of the screw 1 is adjusted to the vertical position of the lens, screw 2 effect is to adjust the screw position of the lens front and rear, screw 3 is of adjusting screws about the position of the lens, the screw 4 is to adjust the beam up and down.

Screw5 adjust the beam to move around, screw 6 is the effect of adjusting the beam moves...
along the lower right to the upper left.

**Adjustment of the optical path:**

**The first step:** Adjust the laser beam in the lens center of the first frame.

If the beam shift occurs, as shown below-4-1, then please adjust the first frame screw 1 in picture 2, make sure the beam in the lens center.

![Picture 4-1 spot on the top](image)

If the beam shift occurs, as shown below-4-2, then adjust the first frame screw 3 in picture 2, make sure the beam in the lens center.

![Picture 4-2 spot on the left side](image)

**The second step:** Adjust the optical path between the first frame and the second frame, make the beam hit the center of the second frame of the lens. First observe the position of the beam hit the second frame lens.
If the beam shift occurs, as shown below 4-3, then adjust the screw 4 of the first frame in picture 2, make the beam to the center of lens.

![Picture 4-3 spot on the top](image)

If the beam shift occurs, as shown below 4-4, then adjust the screw 3 of the first frame in picture 2, make the beam in the center of lens.

![Picture 4-4 spot on the left](image)

**The third step:** adjusting the optical path between the second frame and third frame.

First, move the third frame to the nearest location of the second frame and make a marked spot. Then move the third frame to the farthest of the second frame position and make another marked spot. If the two spots do not coincide, then adjust the screw 4 and screw 5 following the second step to make them coincide.

**Step Four:** observe spot in the third position of the mirror frame.

If the laser light does not fall into the center of the hole, such as the upper and lower deviation. You can raise or lower the laser head by screws, then make the spot in the center.
Inside and outside the deviation: adjust the second frame inside or outside then follow the third step.

Picture 3-3  Laser beam form the second frame to the third frame

Step Five: adjustment beam perpendicularity of lens cone. Removed the focusing lens and nozzle, install the Cross hair frame, put a piece of acrylic beneath the laser head; make laser beam out (Blowing from the side prevent smoke to the mirror), observe the shape of the spot, adjust it as follows:

A if the spot shape is like picture 4-5, it means the beam is inner, then adjust the screw 1 in the picture 3-4, make the spot sharing like the picture 4-7.

B if the spot shape is like picture 4-6, it means the beam is in the right, then adjust the screw 2 in the picture 3-4, make the spot sharing, like the picture 4-7.

Step Six: After adjusting the vertical optical path, remove the Cross hair frame, install the focusing lens and nozzle, adhered the adhesive sticker on the surface of the nozzle outlet end. As follows:

Remove the adhesive paper after bursting, and keep its adhesive sticker.

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direction according to the nozzle as compared. If hole of the white sticker is not in the center of the round nozzle, you need adjust the screw as follows: screw1 and screw2 to make sure the location of the focus lens.

If the hole location as shown in P 4-8, then adjust the focus lens follow the picture (P3-5 *the two screw turn the same turns as Clockwise rotation* )

![Diagram of P4-8](image)

If the hole location as shown in P 2, then adjust the focus lens follow the picture (P3-5, screw1 turn the counterclockwise, screw 2 turn clockwise)

![Diagram of P4-9](image)

Attention: In the dimming process, please tighten the screws and ensure the stability of the optical path. The screws that should be tightened include screw 7 and screw 4, 5, 6 in Picture 2.