

# ALL COMMON PROBLEMS AND SOLUTIONS OF LASER ENGRAVING MACHINES

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### #Engraved shallowly#

- 1: The speed and spacing of machine engraving are too fast. Under normal working conditions, the normal working speed of Type I and II machines is 5, and the scanning interval is 2; The normal working speed of the Type III machine is 6 and the scanning interval is 3.
- 2: The lenses are dirty. Due to prolonged work, the surface of the lens is not clean, resulting in a decrease in its reflection and aggregation ability. In this case, acetone or anhydrous alcohol should be used to clean the lenses. Note: You don't need to remove it, just wipe it directly and gently
- 3: The laser tube is not filled with water. In this case, the machine should be turned off in emergency and the water should be filled after the laser tube cools down. If water is immediately supplied, the laser tube may burst due to the large temperature difference, so it is necessary to check whether the water circulates before using the machine (this has been mentioned in the precautions).
- 4: Light path deviation, caused by transportation or other reasons, is one of the main reasons for shallow engraving

### #Light path adjustment steps#

Step 1: Adjust the laser current to below 5, so that the laser power is not too strong;

Step 2: Place the dimming paper in front of the first lens, lightly press the test switch with your hand (lightly press to release it immediately, you can see the laser spots on the dimming paper), and check if the spots fall on the first lens (preferably in the middle). If you can find the lens, you have completed this step. If it cannot hit the lens or is misaligned, it is necessary to adjust the position or height of the laser tube to meet the above standards.

Step 3: Adjust the optical path between the first and second lenses. Firstly, place the laser paper in front of the second lens, push the guide rail to position (a) in the figure, and click a test switch to check the position of the spot. Secondly, pull the guide rail to position (b) and also click on the test switch to see if the positions of the two spots coincide. If the overlap and the spot position is within the lens, it indicates that the optical path between lenses 1 and 2 is correct; If there is no overlap, it is necessary to adjust the screw on the mirror frame behind lens 1 to bring the two points together.

Step 4: Adjust the optical path between lenses 2 and 3. Firstly, push the laser head to position (c) in the figure, and place the dimming pad in front of the small hole of the laser head/lightly press the test switch to check the light shift. Then, push the head to position (d) and press the test switch again to check if the two imprints overlap. If they overlap and both spots are within the small hole of the laser head, the light path is correct; If it is not at the same point, it is necessary to adjust the adjustment screws at the back of frame 2 to meet the above standards. Note: The principle of adjusting the optical path between lenses 1, 2, and 2, 3 is the same.

Step 5: Adjust the optical path between lenses 3 and 4 (key step). First, remove the lens, place the light paper under the laser head, and click the test switch to see if the light spot has hit the middle of the dimming paper. If it happens to be in the middle, then the optical path is positive; If the spot is to the right, the laser tube is too low; If the spot is to the left, the laser tube is too high; When encountering these two situations, it is necessary to adjust the height of the laser tube to solve them. If the light spot is inside or outside, it is necessary to adjust the light path by moving the position of the laser head (there are three screws on the laser head, which can be used to adjust the inside and outside of the laser head).

Step 6: Install the lens and the adjustment of the light path is completed.

Attention: Adjusting requires a certain amount of basic knowledge, such as the principle of light reflection. The initial debugging personnel must follow the instructions and consult with technical personnel if necessary. In addition, lasers have a certain burn ability and are invisible cannons, so it is important to pay attention to safety when adjusting the light path.

#The engraving machine is not connected or turned on#

During the process of using a laser engraving machine, sometimes software output may prompt that the engraving machine is not connected or turned on. Below, the factors that may cause these situations are summarized as follows

1: The laser engraving machine is indeed not turned on. In this case, it is necessary to restart the engraving machine and also restart the software.

2: The data cable between the computer and the engraving machine is not connected or connected but not properly, or there may be a problem with the data cable itself. In this case, a new data cable needs to be connected and tried again.

3: The software installation is incorrect, and the model of the laser engraving machine is different, and the software used is also different. If the machine model and installed software do not match, this prompt will also appear. Note: The CD included in the engraving machine is not just a set of software, so it is important to install the corresponding software based on the machine model during installation to avoid the aforementioned situation.

4: There is a problem with the computer's printing port, in which case the problem can only be solved by replacing the computer's motherboard. Note: A regular printer uses more than ten data transmission pins, while a engraving machine requires at least twenty data transmission pins. Therefore, the computer motherboard and printing line that can be used on the printer may not be feasible on the engraving machine.

#### #Self check abnormal#

1: The laser head swings in one place and does not move forward. This situation may be due to the motherboard's wires not being properly plugged in. There are three wiring points on the motherboard, which should be unplugged separately to check if the wire ends are intact, to see if there are any loose connections or poor contact areas, and then re plug them in.

2: The laser head beeps when it reaches its end, and the guide rail does not move. In this case, you should first find a small iron plate under the laser head (which is vertical, located between the two small wheels on the left side of the laser head). When the machine works and the laser head moves towards the left end of the guide rail, the iron plate should be inserted into a very small control switch (optical control plate), so that the guide rail can continue to operate. If the iron plate is not inserted or inserted incorrectly, similar problems will occur. In this case, the iron plate can only be moved by hand and the position of the iron feature can be adjusted appropriately to insert it before it can rotate.

3: During self inspection, the laser head operates normally, but there is a beep sound when the guide rail reaches its end. This situation is similar to the second one, except that the optically controlled version moves (on the inner side of the motor, following the motor), while the iron plate is fixed. Just align it using the same method.

#### #Misalignment#

1: The ground wire is not connected or not properly connected. Laser engraving machines are

precision instruments, so the requirements for ground wires are very strict. Both the engraving machine and the computer must be grounded (as already mentioned in the precautions).

2: The running speed during work is too fast. The operating speed of machines I and II should preferably not exceed 5, and the operating speed of machines III should preferably not exceed 8.

3: Computer leakage. In this case, only by replacing the computer motherboard or power supply can the problem be solved.

#### #Not emitting light#

1: The laser switch is not turned on. There are buttons for laser switches on the panel, which press down to turn on and pop up to turn off.

2: The current has not been adjusted. There is a rotary regulator on the panel, which rotates clockwise to increase and counterclockwise to decrease. When the current regulation is at its minimum state, it also does not emit light. So you need to adjust the current level while pressing the test switch, usually to 8.

3: Light path deviation. In situations where the amplitude of optical path deviation is relatively large, such problems are also prone to occur (i.e., the light deviates beyond the lens). The adjustment of the light path has already been discussed earlier, so I won't go into more detail here. Just refer to the previous explanation and adjust it.

#### #Always shining#

1: The optical cable is inserted backwards. If so, just switch the two wires. The Keba engraving machine has already been adjusted before leaving the factory. The so-called optoelectronic cable refers to two wires connected from the test switch to the motherboard power supply.

2: Photocoupling electricity on laser power supply. This situation is usually caused by humid weather or too much dirt inside the machine, so the machine should be kept clean and dry at all times.

#### #Testing produces light, carving does not produce light#

- 1: The optical cable is not plugged in or not properly plugged in, please recheck.
- 2: The four power cables from the motherboard power supply to the motherboard are not properly plugged in. Remove them to check if the cables are intact, and then plug them back in.
- 3: If both of the above situations have been tried and still fail, the optocoupler on the motherboard power supply may be damaged. Simply replace the optocoupler.