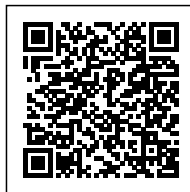


# LASER CUTTING MACHINE COMMON PROBLEMS AND SOLUTIONS

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## Laser cutting machine common problems and solutions

### 1. Why is the cutting effect not good or can't be worn?

Answer: The cutting effect is not good or the cutting can not be worn. Generally, the power setting is too small, the potentiometer is turned too small, the light is biased, the lens is dirty, the focusing lens is installed backwards, the focal length, the laser power supply, the power attenuation of the laser tube, the water temperature is too high, and the voltage is unstable. etc. are determined according to the actual situation, by Jane Rushen.

### 2. Why can't I connect to the device?

Answer: Whether the board driver is installed, whether the usb cable or network cable is plugged in properly, the usb cable or network cable is broken, the adapter board is broken, the board card, etc.

### 3. Why does the machine move in the opposite direction when it is turned on and returns to the origin?

### 4. Why are the cutting graphics deformed and overlapping?

Answer: The synchronous wheel screw is loose, the motor wire is broken, the motor is broken, the driver, the voltage, etc.

### 5. Why the equipment cannot be started and the air switch in the starting room trips.

Answer: Whether the emergency stop pops up, whether the external circuit is connected, whether the internal air switch of the equipment is closed, whether you hear a popping sound when starting up, if so, please check the main contactor and control transformer, etc.; the water protection leaks cause water to enter the laser power supply Short circuit (for example, jghy12570 water protection position is installed on the side, just below it is the laser power supply), 107 water pump short circuit, indoor air switch is too small, etc.

### 6. Why do high-voltage lines catch fire?

Answer: This problem is indeed a headache. I suggest putting a high-voltage insulating sleeve on the outside of the high-voltage line.

### 7. Why is the graphic size too large or too small?

Answer: Whether the size of the output graphics is the same, the height position of the z-axis changes, the calibration file, etc.

8. Why are the colors in the middle and surrounding areas of the printed image different?

Answer: It is not adjusted properly, such as adjusting the focusing factor, adjusting the focus of the w-axis, etc.

9. Why is there damage and the spot becomes thicker during the marking process?

Answer: dynamics, bad board, etc.

10. Why is the position of the marking pattern offset?

Answer: The x-axis or y-axis position of the vibrating head is offset. Find the center point and adjust the xy-axis position according to the actual offset direction.

11. What should I do if the XY axis of the vibrating lens swings wildly and the dynamic motor makes abnormal noise?

Answer: Replace the  $\pm 12\pm 15\text{v}$  switching power supply; replace the  $\pm 12\pm 28\text{v}$  switching power supply.

12. What's wrong with not showing light?

Answer: Whether the return water of the chiller is normal, whether the position of the w-axis changes, whether the dc48v32a laser power supply is normal, the laser tube, etc.

13. Why is there no display on the display panel after booting?

Answer: Whether the 5v12v24v switching power supply is normal, and the display panel is damaged.

14. What should I do if the display panel fails when the machine does not return to the origin after booting?

15. Why does the z-axis not feed or move weakly?

Answer: Z-axis feeding motor problems, driver problems, bearings, foreign objects stuck, etc.

16. What should I do if the glass tube does not emit light?

Answer: The light output control of the glass tube mainly includes the laser tube, laser power supply, water circulation system and light output signal. The light output signal also includes the pwm light output signal given by the board card, the water protection signal, and the door switch signal. Therefore, the laser tube does not emit light mainly from the aspects of the water circulation system of the laser power supply of the laser tube and the light output signal. Generally, the first thing to do is to directly observe whether the laser power supply is normally powered on, whether there is any abnormality in the inner and outer tubes of the laser tube, and whether the water circulation system is normal. Replace or adjust accordingly. When the

above aspects are normal, you should consider the issue of the optical signal. Generally, first use the method of short-circuiting the signal (short-circuiting the laser power supply current 5v and ain, short-circuiting water protection, p and gnd, and using a non-lock switch to control l and gnd). Test the laser tube and laser power supply. If this method can emit light normally, it means that the laser power supply of the laser tube is not faulty. It is the signal problem of the water protection switch, relay, door switch, pwm signal of the board card, etc., which can be eliminated in turn. If this method does not emit light, it is a problem with the laser tube or laser power supply, which can be solved by replacing it if it is not easy to judge.

#### 17. Why does the RF laser tube not emit light?

Answer: When the waterway is unobstructed and the laser power supply starts normally, first test whether the laser power supply DC 48v is normal; the conduction of the 4 pins and 13 pins of the laser tube 25-pin plug-in can be conducted, indicating that the water protection signal is normal, and if it cannot be conducted, check the water supply. Protection; measuring the voltage of pin 7 and 20 is not according to the preset or the DC voltage is about 4 to 5v at the beginning, according to the preset or starting at about 1 to 3v is a normal signal. If the water, power supply and these two signals are normal, it can generally be judged that the laser tube is faulty. If the signal is abnormal, it means that there is a board problem or a circuit problem.

#### 18. Why does the laser tube connection error appear after the RF laser tube is replaced?

Answer: After the connectors, power cords, and water connections are normal and the chiller and equipment are restarted, they still cannot be connected normally. Generally, the connection circuit board of the 25-pin connector is broken or incompatible, such as encrypted tubes and non-encrypted tubes. The board is not compatible.

#### 19. Why is the cutting machine misaligned?

Answer: 1.) Feeding and cutting misalignment. First, the step distance of the feeding shaft = actual measured length \* original step distance / real length. Second, check whether the timing belt locking wheel of the feeding shaft and the motor timing belt locking wheel are loose. Third, roll There is relative sliding between the loose net and the feeding shaft, and check whether there is a jam phenomenon

2.) Unfeeding cutting misalignment First, the motor of the cart or the optical axis synchronous wheel is loose. Second, the phenomenon of step loss. The lost step may be due to the processing speed, idle speed or acceleration setting is too large. It may be due to poor contact of the cart motor line or the driver. If the current is too small, it may be that the driver or the motor is broken. Generally, the phenomenon of step loss due to a broken motor is rare.

#### 20. Why does the feeder take charge?

Answer: The long feeding of the feeder is generally due to the failure of the photoelectric

switch or the light sensitivity of the photoelectric switch is not right. When the sensitivity is too sensitive, even if there is cutting material blocking, it will be sensed as light, so the president will feed the material at this time. At this time, adjust the sensitivity adjustment knob at the wiring of the photoelectric switch until the indicator light of the photoelectric switch is on when there is material blocking.

21. What should I do if the light spot of the galvanometer machine is too rough and the light intensity is not enough?

Answer: When the basic optical path and the optical path of the over-beam expander are well adjusted, and the dynamic focal length is well adjusted, the spot is still relatively thick. It is necessary to adjust the distance between the two lenses of the beam expander. For the three-fold beam expander commonly used by our company, it is generally adjusted to the beam expander. The spot diameter is better at 13-14mm, and it can also be adjusted appropriately according to the customer's processing requirements.

22. What about the dynamic self-excited dynamic whistle of the galvanometer machine?

Answer: For Shanghai Dynamics, it is necessary to adjust r103r28 to adjust self-excitation and howling. When the adjustment is invalid, it is necessary to measure whether the motor shaft is short-circuited with the casing. When measuring, disconnect the power cord of the motor, otherwise it will be long conduction. If the power cord of the motor is disconnected If the measurement is still conducting, the motor and the casing should be well isolated with an insulating film, and then adjust r103r28. After the adjustment is invalid, replace it.

23. What should I do if the marking or cutting size of the marking machine and cutting machine is wrong?

Answer: For the dynamic marking machine, when the vibrating head does not move up and down, the size is wrong. Generally, the correction parameter data is changed or an error occurs and the parameter correction of the vibrating mirror can be corrected. For the cutting machine, the cutting size is generally caused by the step distance and the driver. Generally, it can be solved by determining the calculation step of the pulse number caused by the wrong number of pulses.

24. What should I do if the direction of the cutting machine returning to the origin is reversed?

Answer: This kind of failure is generally caused by the failure of the origin switch. The origin switch has two types: proximity switch and mutual switch. The direction of returning to the origin is reversed. Generally, the coil of the switch is short-circuited and can be replaced.

25. What should I do if the DC switching power supply of the cutting machine motor, motor driver, motor line and driver fails?

Answer: The specific manifestation of this kind of failure on the equipment is that the laser head does not move, the laser head moves abnormally during operation, and there is stagnation and vibration. Generally, such situations occur. First, observe and measure whether the 48v or 42v DC switching power supply is working normally. The power supply voltage is not enough or If the switching power supply is working normally, it is necessary to consider whether it is the fault of the drive motor or the motor line. To judge the motor, first observe whether the rotation of the motor itself is not powered on and the motor line is disconnected from the drive. Smooth If the motor itself rotates differently, you can directly judge that the motor is faulty and replace it; if the motor itself is running normally, you need to measure the motor coil. For a six-wire motor, ac, a+, a- are a set of coils ac and a+a- Turn on bcb+b- respectively to form a group of coils. The conduction situation is the same as above. If the conduction is not normal, it can be directly judged as a motor failure; for the stepper drivers of Baishan and Yako, when the DC power supply is normal and the motor line is disconnected , if the indicator light of the driver is not on, it is directly judged as a fault of the driver. If it cannot be judged directly, it can be tested by the replacement method; in this kind of fault, the fault of the motor line is a small probability fault, and it should be considered when both the motor and the driver are excluded. For the motor line, check whether there is a short circuit or an open circuit, and use a multimeter to make detailed on-off measurements to check.

#### 26. Why does the laser tube not emit light?

Answer: 1) The water level switch is broken. 2) The high voltage line is interrupted 3) The laser tube is broken or burned out 4) The laser power supply is broken  
5) No water circulation "including blocked water pipes and water pumps not working" 6) Water protection line broken or poor contact 7) Laser power supply without 220v input 8) Laser power supply without signal entry "Signal line broken or poor contact, control of light output The relay is broken, the board is broken, and the wire welding is not good. "9) The online two-axis card is broken.

#### 27. Why is the light output from the laser tube weak?

Answer: 1) The laser tube is burnt out or the lens of the laser tube is burnt out. 2) The light of the laser tube is attenuated. 3) A part of the laser power supply is burnt out.

4) The power of the laser setting is too low 5) The power regulator is not adjusted to the maximum.

Answer: 1) The light of the laser tube is weak and the power is low. 2) The laser lens is dirty or damaged. 3) The laser lens is not installed properly and is loose.

4) The focal length is wrong 5) The light is polarized 6) The power set by the laser tube is too low 7) The platen is uneven.

#### 28. Why can't the machine be turned on?

Answer: 1) The machine is not powered on 2) The air switch has tripped 3) The emergency stop switch has been pressed 4) The start button is broken  
5) The 24v transformer is broken. 6) The contactor is broken. 7) The line is broken. 8) The line is not in good contact. 9) The 24v switching power supply is broken.

29. Why can't the x and y axes of the machine move?

Answer: 1) The 42v switching power supply is broken. 2) The board is broken. 3) There is a problem with the signal line.

30. Why is the x-axis or y-axis of the machine not moving or not charged?

Answer: 1) The driver has no power supply 2) The driver is broken 3) The wire of the driver is not in good contact or broken 4) The motor plug is broken or in poor contact 5) The motor shaft is broken 6) The leather section of the transmission shaft is loose or broken 7) The signal line of the driver is damaged Question 8) The slider is blocked or the transmission wheel is blocked.

31. Why does the machine cut out of place?

Answer: 1) The belt is loose. 2) The wheel screws of the machine are loose. 3) The drive of the machine is damaged. 4) The wire of the machine is broken or damaged. 5) The plug-in of the motor of the machine is damaged or not in good contact. 6) There is a problem with the motor.

32. Why can't the online machine detect the control card?

Answer: 1) The card is broken. 2) The card is not inserted properly 3) The computer plug-in is broken 4) The dpio module driver is not installed.

33. Why is the camera inaccurate in cutting?

Answer: 1) Calibration is not correct 2) Camera is not adjusted properly, 3) Template is not done well 4) Camera parameters are not adjusted properly 5) Parameters for template making are not adjusted properly such as acquaintance ratio, etc.

Answer: Shorting l and gnd, if there is long light, it means that the laser power supply and laser tube are okay, only the signal problem; shorting p and gnd is to judge whether the water protection switch is normal; shorting ain and 5v will grow light, indicating that the laser tube laser power supply is water The protection connection is intact.

34. What should I do if the computer and equipment cannot be connected?

Answer: It may also be the usb cable to update the d13 driver.

35. Why can one axis be pushed by hand when the machine is turned on, but the axis does not move during processing?

Answer: Generally, the driver is broken, or the transmission mechanism may be loose (for

example, the two axes do not move during processing, but can be pushed by hand when starting up, and the driver light is not on, indicating that the 42v power supply is broken).

36. Why does it jump in one direction when cutting?

Answer: If you increase the current of the driver, it may also be that the driver is broken and there is a problem with the motor cable.

37. Why is the cutting sawtoothed?

38. Why does the cutting continue?

Answer: The laser tube may be weak; the optical path may be deviated; it may also be the laser power supply.

39. Why can't the laser head collide with the machine?

Answer: The origin switch is broken, or it may not be set on the panel.

40. Why is the cutting not sealed?

Answer: Belt adjustment and parameter setting.

41. Why is there no light in the pre-adjustment of the cutting machine with the machine?

Answer: Generally, it is a control card problem.

42. Why are the cutting sizes inconsistent?

Answer: The wheelbase and pulse are not adjusted properly.

43. When working, what should I do if a complete curve jumps over a short distance without cutting it, also known as light jumping?

Answer: This kind of problem is generally caused by the loosening of the sliders of the cart during long-term high-speed operation. It can be solved by readjusting the sliders on both sides of the cart.

44. Why are some places cut continuously and others cut off in the same version when working?

Answer: This kind of problem is generally caused by light polarization or uneven work surface, so it needs to adjust the light and adjust the table surface. Sometimes the light deviation is caused by the deformation of the guide rail, otherwise it is necessary to adjust the guide rail.

45. What should I do if the two ends sometimes cut into each other and sometimes separate when cutting?

Answer: This problem is generally caused by the looseness of the fixing screws of the



synchronous wheel or the problem of the motor wire. If there is a problem with the motor wire, it is best to replace all of them in one group instead of one or two.

46. What should I do if the chiller is prone to high temperature alarm in summer?

Answer: This problem is usually caused by the weather being too hot, the cooling of the chiller is not good or the cooling capacity is not enough. The self-chiller will not have the problem of insufficient cooling capacity. Generally, the heat sink is too dirty and the ventilation part is not good enough to cause an alarm. Small chillers generally have insufficient cooling capacity, and the temperature difference can be increased, and the alarm temperature can be appropriately increased to solve the problem.

47. Why does light come out sometimes and not light out?

Answer: Firstly, the temperature of the power-on signal is unstable, including the light signal and the signal of the chiller, then check whether the potentiometer is in poor contact, and finally check whether the power supply is broken.

48. What should I do if the starting car does not return to the origin and cannot move?

Answer: This problem is generally caused by the fact that the trolley motor is not powered on, and the laser head can be easily pushed by hand when it is turned on. The reason for the failure is that the 48v power supply for switching on the light is broken, or it is self-protected. You can turn it off for ten minutes and then turn it on again. If it is still not good, replace it with a 48v switching power supply.

49. Why does the light from the laser tube become very weak after a few minutes of cutting?

Answer: There are generally three possibilities for this problem. There is a problem with the power supply, the laser tube is broken, and the output frequency of the laser tube in the software is wrong.