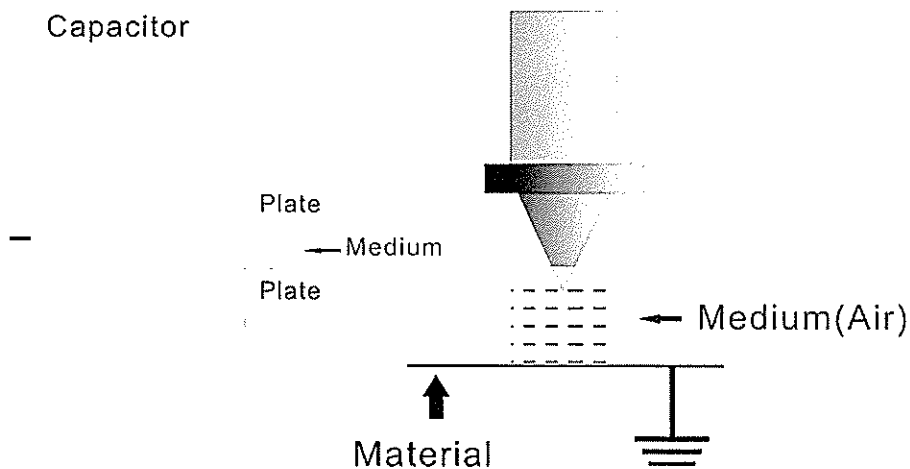


Adjust Auto-focus System

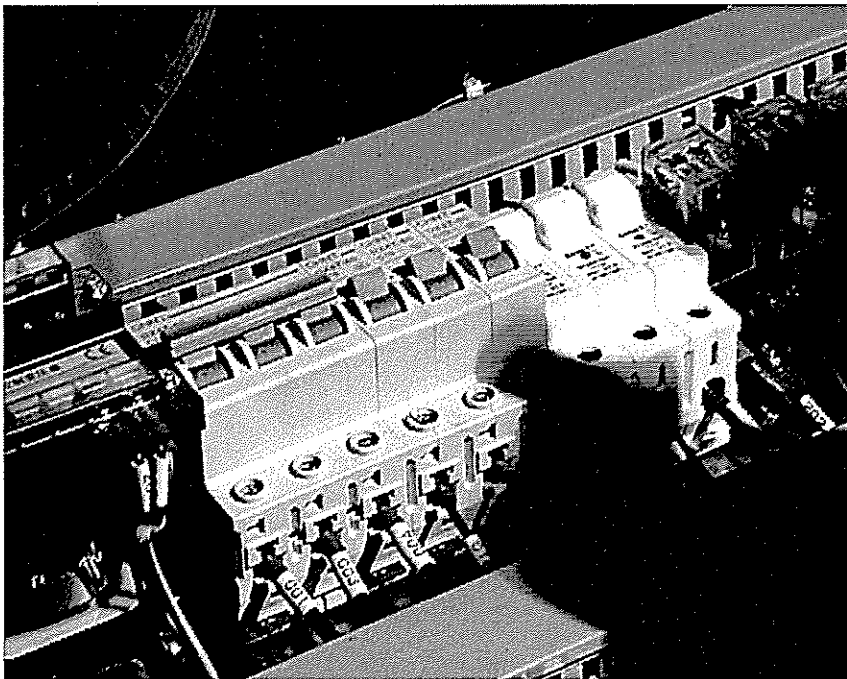
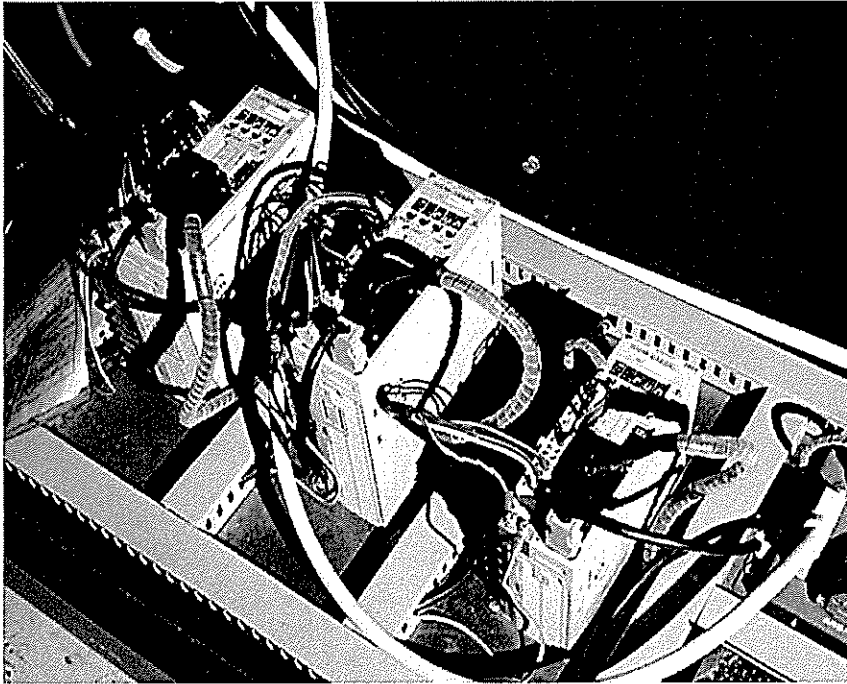
Theory: you can consider our whole Auto-focus system as one capacitor. The laser head and the material just like two plates of the capacitor. And the medium is air, so when the machine do some process, the metal dust will be more in the air, and then the capacitor will get some change. In that situation, the distance of the two plates will change, so you need to adjust the auto-focus system. Tips: please make sure the machine get grounding well.

Capacitor



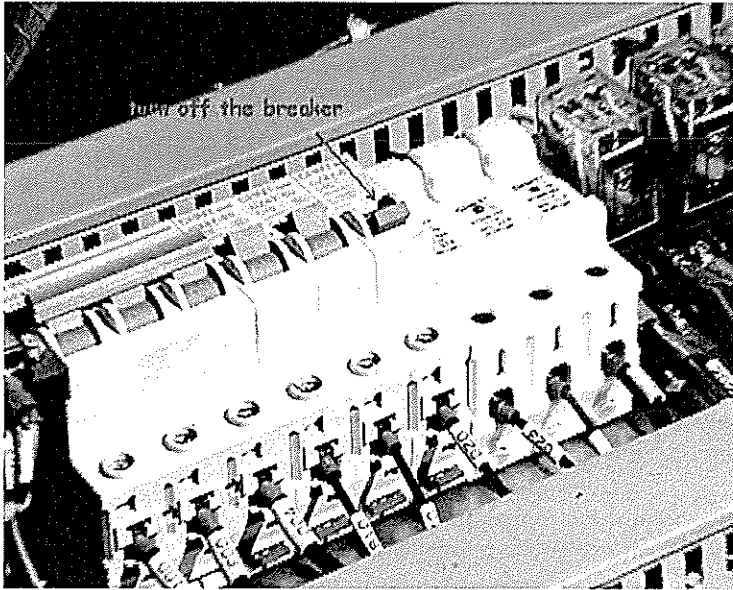
The steps for adjust the auto-focus system:

1. For the auto-focus axis, we call it as Z axis. In the machine you can find three drivers for each axis(X,Y&Z), also there're three breakers for giving power to the drivers

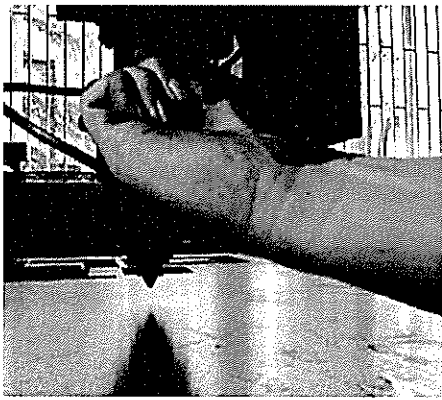


As the picture shows, the right breaker is for the Z axis, of course you can turn off the breaker for try out its function.

Now please turn off the Z axis breaker, because when the motor get power, you can't adjust the belt by hands.



2. Put some material under the laser head, and then rotate the belt of the Z axis to adjust the laser head up and down.

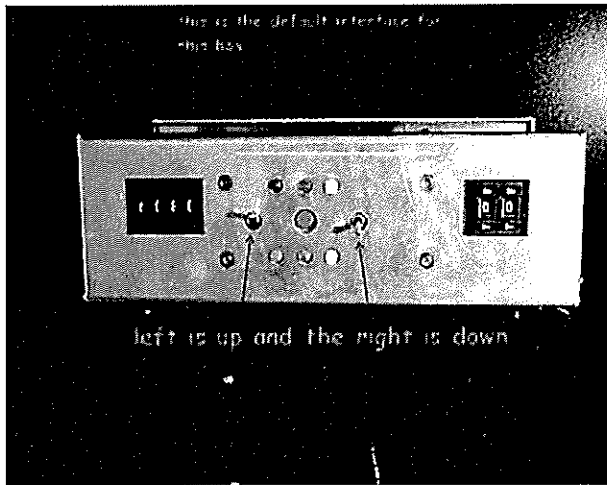


Please just set the distance between the laser head and the material to 1mm-2mm.(normally)



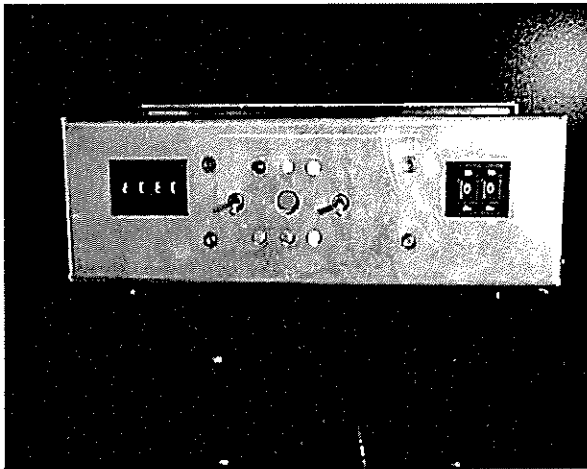
Then please turn on the breaker of the Z axis.

3. Then please find this box, this box can remember the distance which between the laser head and the material, and the distacn is shows by numbers.So, to tell the box which number is for which distance is the first thing you need to do.



default interface, left up and right down

As the picture shows, there're two lines of led lights. The upper line shows the box's state.: Left light is on means the laser head touch the material, the middle light is on means you are in the adjusting state, and the right light shows the power.



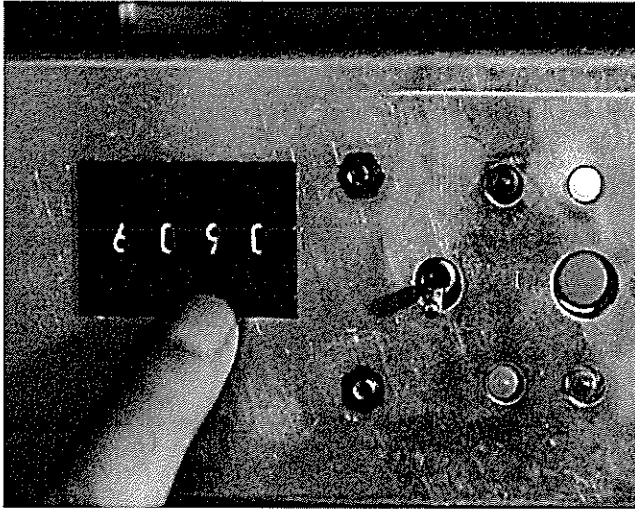
When you get the left stick down, you can get in the "adjusting state"

The lower line of the led lights can tell you how to adjust the values.

When the left light is on, that means the value is lower, you need to make it higher.

When the right light is on, that means the value is higher, you need to make it lower.

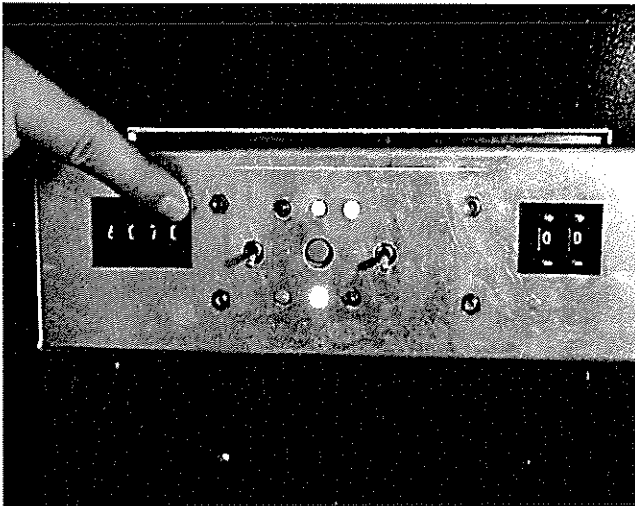
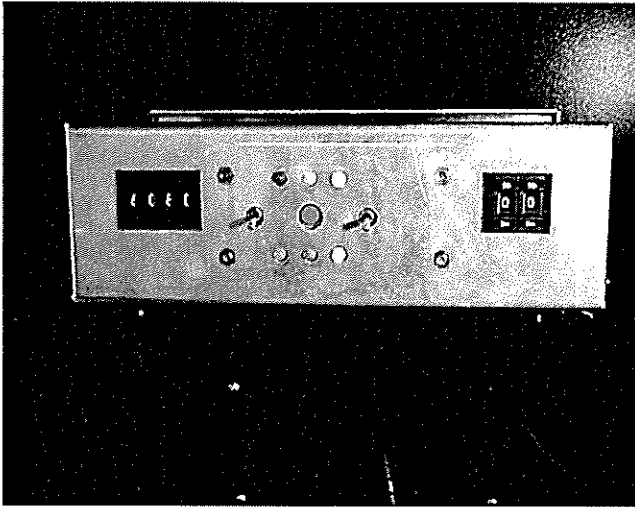
When the middle light is on, that means the value is ok, and there some values can show greenlight, so you need to set the value to the middle: for instance 12-green, 13-green, 14-green, pls set the value to 13.



6240 - 6298

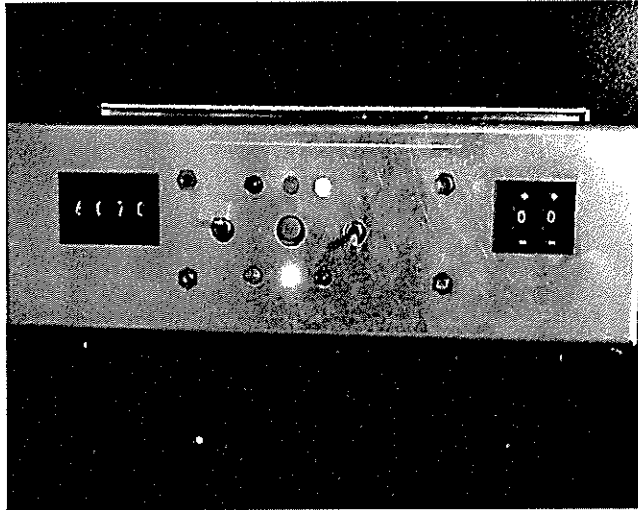
6090

6080



6070

When you finish this adjusting, please get the left stick up. Then the machine is in the run state.



Normally speaking, the auto-focus system is ok. But sometimes, some problem will still exist, so you need to test.

You can just switch the key to “service” mode, and then move the material up and down.

If the laser head will move with the material, you can cut for try.

If you find the laser head moves down or up without the material movement, when you switch to “service”, please quickly switch the key to “normal”. And then adjust the value again, maybe you need to change the distanc a little.

Tips: when the laser head get too near to the the material, you will find the laser head swing in the “service” mode.



Chapter VII Starting and Stopping and Split Operation

There are LCD, LCD Control Knob, Laser-output Manual Button, Key Switch, E-stop Switch in the enclosure rack.

7.1 To start the power supply

After connecting all the wires and making sure they are correctly connected, turn on the chiller first, then turn on the Air Switch, the Key Switch of power supply in turn. The display screen will be on after a sound of AC contactor absorption;

1. The display screen shows: 【中文】 <Chinese> and <English>. You can choose the language based on your requirements.
2. After step 1, it will appear main menu in screen. You can see <Preburn:OFF> in the top right of screen.
3. Now the preburn is in white letters against blue background, i.e. preborn is selected. Press the LCD control knob and set up preburn is "ON".
4. That will be followed by another sound of AC contactor absorption together with "hiss". The capacitance is charged, the lamp is successfully ignited and the power is normal (to turn off the preburn, press the LCD control knob and release it right away. Otherwise the lamp will be ignited once again).
5. The preburn is to igniting the lamp by the high voltage, causing ten thousands of high voltage will ignite the xenon lamp immediately. The ignition is completed within 1~2sec. A successful ignition will be followed by two sounds of AC contactor absorption and the preburn ON on the display will turn to preburn OFF. The lamp is successfully ignited and now it is in microvias. An unsuccessful ignition, on the other hand, will be followed by only one sound of AC contactor absorption (or no none at all) and the preburn OFF on the display will stay unchanged. Upon three consecutive ignition failures, turn off the power key switch and contact the technician.
6. If preburn failed, the display screen will show "Preburn fail", it can be caused by these reasons:
 - 1) The chiller is not "turn on" or the flux or temperature of water cooling system alarm. Please ensure the cooling system work regularly.
 - 2) The high-voltage board for ignite xenon lamp was damaged. Please check if the high-voltage board is good.

7. When the lamp is successfully ignited, the user can turn the LCD control knob and select between voltage, frequency and pulse width. The Chinese characters displayed in

Before starting...check that table is clear and all slats are in the lowest position.

Laser procedure – starting

1. Turn on Compressor
2. Turn on circuit breakers at wall.
3. Turn on 2 x chillers
4. Turn on laser power adjacent chiller switch
5. Turn on red light power
6. Turn on conveyor
7. Turn on computer

Operation at controller.

1. Open laser software and Corel draw.
2. Process drawing and file and send to controller.
3. Turn on Auto focus from menu.
4. Go to other settings and turn Blow Mode to Process. (press 3 times to accept)
5. Turn on laser power at key.
6. After turning key, use gold knob to scroll to turn on Preburn and adjust other parameters.
Set power to Frequency: 12Hz
Pulse: 1.2
Voltage: 510V
(note that thicker material requires more voltage. Eg. 2mm steel or ali = 520V)

Operation at machine

1. Turn servo axis off to adjust nozzle height to approx 0.5mm. Go to Setting box and set Left hand switch in down position and adjust stepper buttons until light is green. Set switch to up position
2. Turn servo axis ON.
3. Test laser piercing and nozzle will return to safe working height. Check quality of piercing to confirm focus is good.
4. Press “frame” to check position of job.
5. Press “Run” to process the file.

Important: Make sure cut file is visible before trying to operate machine otherwise nothing will happen when you press the remote controller.

Note: Immediate work = work cut to page.
Home work = cut to sign blank

Laser procedure – shut down

1. Set voltage back to 200V
2. Set pulse back to 1.
3. Turn off auto focus.
4. Press laser button for 10 sec to release pressure.
5. Turn preburn off
6. Turn laser switch off at screen
7. Turn laser power off at lhs of console.

8. Chiller will shut down when ready.

Pulse checking information. **Note: All activity around cutting head requires auto focus to be turned off.**

Change laser settings to:

Frequency: 090Hz

Pulse: 1.0

Voltage: 200V

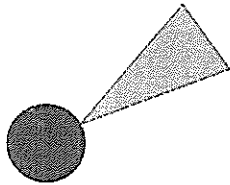
Other important notes.

If piercing does not work...

1. Check red beam...remove nozzle and install centering device. Adjust and replace.
2. Check Green beam using ceramic disk. Make sure to change voltage settings to:
Frequency: 090Hz
Pulse: 1.0ms
Voltage 400V
3. Check cut quality.

* You might have to check green beam at 45' station . If it needs adjustment, use mirror adjustors (second from 45' assembly.) until circle is round, full and red is in centre.

Quality of cut check.



If sparks flow outwards from cutting beam when cutting, adjust mirror on nozzle assembly in opposite direction. Small moves and do it while cutting. Use circle or rectangle shape to check.

Cleaning protector mirror. (Mirror life = 200hours or until it is no good.)

Adjust laser settings to:

Frequency: 090Hz

Pulse: 1.0ms

Voltage 400V

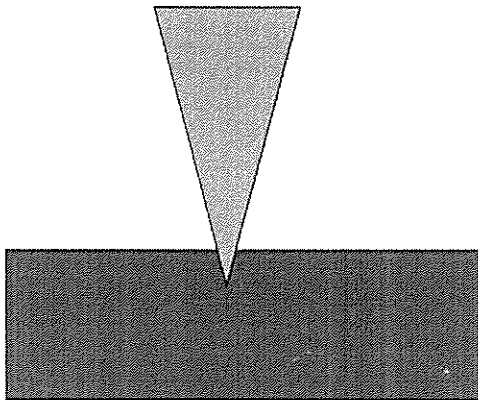
Turn Auto focus OFF

Remove brass nozzle and replace with centering device. Adjust focal length of red beam with the 4 brass adjusting screws on the side until red beam is on center point. Replace nozzle. Place ceramic disk under laser to test red dot is in the middle and the green shape is solid and a circle. Don't forget to move the disk.

Checking pierce hole gives an indication of beam focus.

Press Laser to test beam pierce.

Note: For thicker material, the pierce hole should be slightly smaller as the beam focus needs to be below the top surface of the material.



System details and maintenance.

Password is 123456

Change chiller water every 2 weeks

Change lamps when colour is white. (approx 300 hours)

Change water filter when filter turns brown.

2 weeks gear line guides

CNTL ~~ALT~~ ^{SHIFT.} - F = CHANGE DIRECTION



Chapter XII Fault Indication and Solution

Art.	Fault Indication	Cause	Solution
1	Input fail	Phase missing(more than one and one phase missing) 380VAC three-phase AC	Check the three-phases 380VAC, please.
2	Input EXI	IGBT of charging box over-current, laser output signal is off and the power supply stop working.	Turn off the power supply, check the IGBT absorb panel of charging box, the capacitor in the absorb panel usually broken.
3	Cooler fault1	There are some problems with the xenon lamp 1 or chiller.	Check the pulse xenon lamp 1 or the chiller.
4	Cooler fault2	There are some problems with the xenon lamp 1 or chiller.	Check the pulse xenon lamp 2 or the chiller.
5	Preburn fail1	Xenon Lamp 1 preburn fail.	Check the pulse xenon lamp 1 and the wiring system. If the xenon lamp wire is good, the high-voltage board is broken. Try it again after replace the high-voltage board.
6	Preburn fail2	Xenon Lamp 2 preburn unsuccessful.	Check the pulse xenon lamp 2 and the wiring system. If the xenon lamp wire is good, the high-voltage board is broken. Try it again after replace the high-voltage board.
7	Output/IGBT EXI	The actual current is greater than the limited current. Protect function is on, laser output signal is off and the power supply stop working.	Turn off and restarting the power supply. If the problem still exists, please adjust the IGBT driver board potentiometer RW1 of auxiliary power supply under the direction of the maintenance staff.
8	Input UNV	If the supply voltage range of AC network more than $\pm 10\%$ of the rated voltage(380VAC), protection is on , the power supply is turn to the protection status	Use the voltage regulator or other instrument to make the voltage stability.

