LY-R690 touch screen BGA rework station instructions

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The main parameters of a LY-R690 rework station:

● Power supply: AC220V±10% 50/60Hz

● Power: Max 4500 W

● Heater power: 800 W in the upper temperature zone 800 W in the lower temperature zone 2700 W in the IR zone

● Electrical material selection: PLC programmable controller + true color touch screen + high precision intelligent temperature control module

● Temperature control: K-type thermocouple closed-loop control

● Positioning method: V-shaped card slot PCB positioning

● PCB size: Max 410 × 400 mm Min 20 × 20 mm

● Dimensions: length 590 × width 610 × height 650 mm

● Machine weight: 48 kg

The main features of the LY-R690 rework station:

● Independent three temperature zone temperature control system

1The upper and lower temperature zones are heated by hot air, the IR preheating zone (350×250) is infrared heating, the temperature is precisely controlled at ±3 ℃, and the upper and lower temperature zones can be set with 6-stage heating and 6-stage constant temperature control, and can store 50 sets of temperature. Curves can be called at any time according to different BGAs;

2 BGA chip and PCB board can be heated locally by hot air at the same time. At the same time, the bottom of the PCB board is heated by a

large-area infrared heater to completely avoid the deformation of the PCB board during the repair process. The upper temperature can be used separately by selection. Zone or lower temperature zone, and freely combine the upper and lower heating elements;

3 IR preheating zone can adjust the output power according to actual requirements, so that the PCB board can be heated evenly without deformation;

4 The external temperature measurement interface realizes the precise detection of temperature, and the temperature curve of the actual acquisition BGA can be analyzed and proofread at any time;

●Multifunctional and user-friendly operating system

1 This machine adopts Taiwan touch screen man-machine interface, PLC control, selects high-precision K-type thermocouple closed-loop control, real-time temperature curve is displayed in touch screen, can store multiple sets of user temperature curve data; upper temperature zone can be moved manually in front, back, left and right direction The lower temperature zone can be manually adjusted up and down;

2 It is equipped with a variety of different size alloy hot air nozzles, which can be rotated 360°, easy to replace, and can be customized according to actual requirements;

3 BGA weld zone support frame, which can fine-tune the support height to limit the local sinking of the PCB weld zone;

4 Multi-function PCB positioning bracket, which can move in X direction, PCB board positioning is convenient and fast, and it is suitable for

installation and positioning of the opposite board;

5 Use high-power cross-flow fan to quickly cool the PCB board to prevent deformation of the PCB board. At the same time, a vacuum pump and an external vacuum pen are built in to facilitate the BGA chip.

●Excellent safety protection function It has alarm function after welding or desoldering. Under the condition of temperature out of control, the circuit can automatically cut off power and has double over-temperature protection function. The temperature parameter is password-protected to prevent any modification and other security protection and foolproof functions. It has superior security protection function to ensure that PCB and component damage and machine damage are not repaired under any abnormal conditions.

Introduction to the installation machine of the BGA rework station:

1. Special design of the fixture makes it easier to hold the notebook

2.

2．Bottom tuyere design for more even heat dissipation

3．The two mainboard support brackets are equipped with ejector pins to better support the main board and are not easily deformed.

Adjustable bottom needle

6 jigs with hooks.
2 Bottom supports with slide blocks.
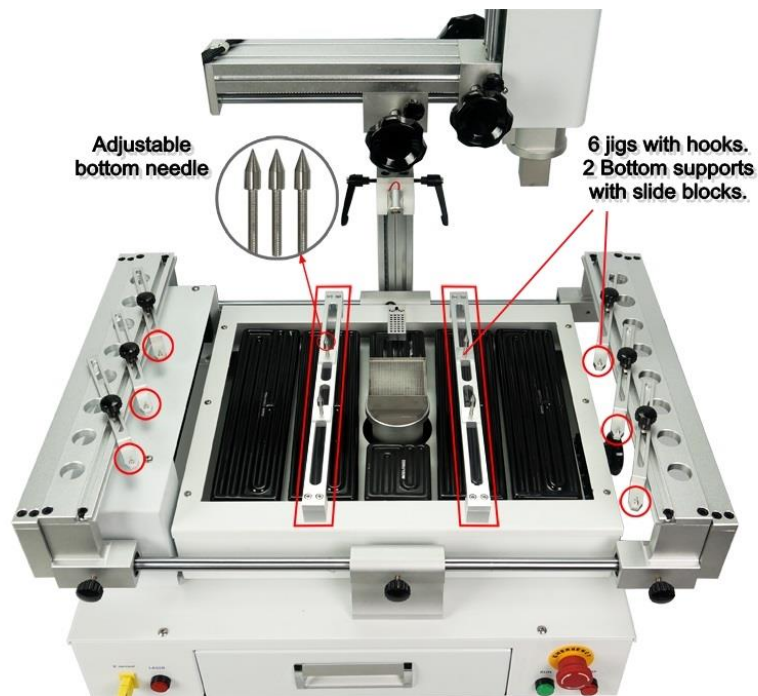
3. Increase the area of the bottom infrared heating plate, the size reaches 350*250mm

4.

5. Lower infrared independent heating control switch for independent control of infrared heating plate

6.

6. Nine sizes of air nozzles, complete specifications, mesh diameter from the middle to the surrounding gradually larger, better protection of the chip, so that the heat walk more evenly.

7.

Align Laser Source

8. Upper air gun support rod installation diagram:

On the heating head can be front, left, up and down

Machine installation precautions:

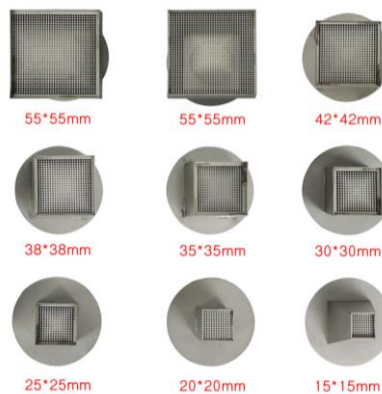**1. Please do not place the device in a place where the flow of wind is large, and avoid the influence of lateral wind flow on the welding.**

2. The installation of the desktop needs to be flat and firm. Because the product is heavy, it is the force of the four feet, and the unevenness of the desktop may cause deformation of the outer casing, increase of noise, and line failure.

3. When preheating over a large area, when using solder paste heating, more harmful gases will evaporate. For your health, please pay attention to indoor ventilation. It is recommended to use a device similar to a range hood to perform top suction.

4. The maximum power of this machine is 4500W. Under normal circumstances, 2P air conditioner socket can be used, but please ensure that the wire is not less than 2.5 square

meters, and the grounding is good, otherwise the short circuit of the wire may cause fire.
5. Do not use in a dusty room, which will accelerate the aging of the heating components.

Three machine details function introduction

Hot air head
LED
3 zone hot air
Cross fan
2 zone IR
Stop
Emergency
Thermocouple
Laser
Run
MCGS
7" touch panel

Rubber foot
3rd Zone fan
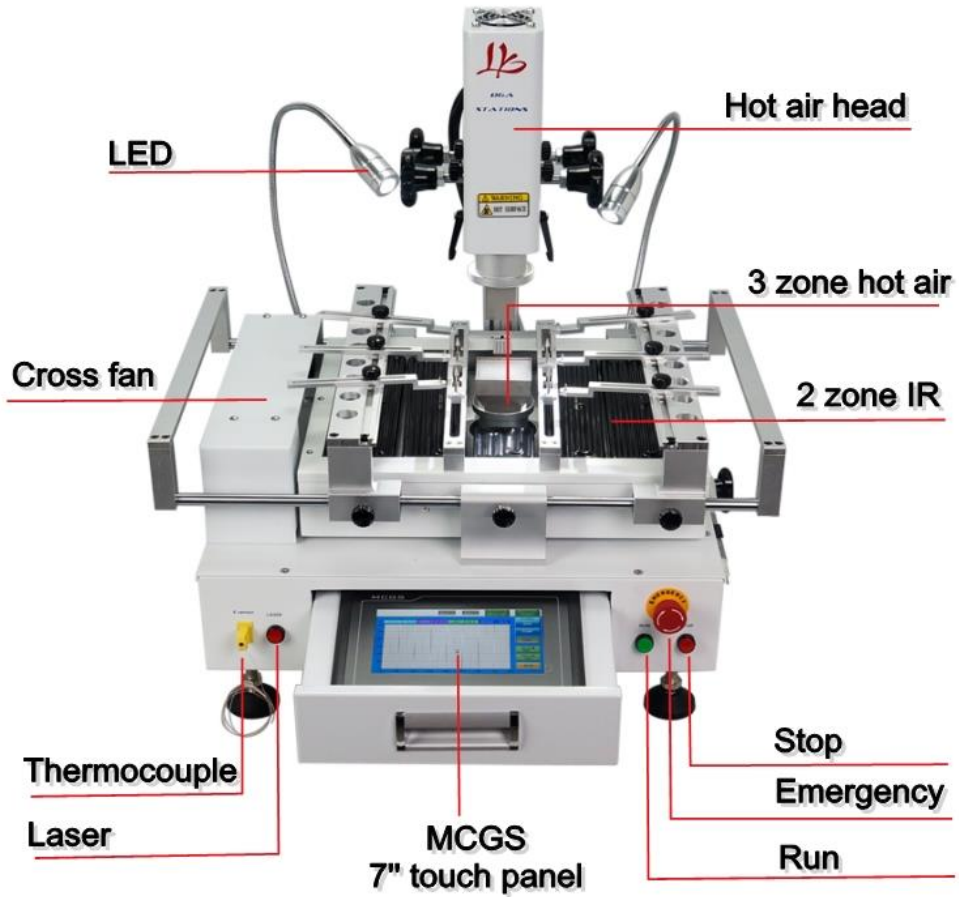
Four: temperature curve setting method

Operation monitoring: Click to enter the heating control interface

Step 1: Turn on the power. The touch screen enters the boot interface after self-test.

Press the language selection button to enter the main window interface.

Operation monitoring: You can operate as the corresponding interface.

Current parameter: You can view the current temperature curve. If the temperature is right, press the back button to enter the "Curve Display" interface and press "Start" to run.

Curve setting: You can enter the recipe selection interface, set parameters, select parameters, save named parameters, select recipes and download.

System parameters: advanced parameter setting, parameter self-tuning and cross-flow fan cooling time setting, vacuum pump working time setting, it is recommended not to change the self-tuning parameters at will.

Screen saver settings: You can set how long the screen will automatically enter the screen saver without operating.

Password setting: Operators and administrators can be set to prevent other operators from

modifying the curve at will.

Current parameters: Press this button to enter the curve parameter interface of the current operation, which can be referenced, but the parameters cannot be modified.

Start: Press the button (with 5 seconds delay detection) to start the machine heating work.

Stop: Press this button to stop the machine curve work

Hold: Press this button to keep the temperature constant at the current temperature.

Back: Press this button to return to the main menu interface of the first screen.

Press the "Parameter Selection" button to enter the recipe selection interface. (illustration)

In the recipe selection interface, you can select, modify, store, and name the temperature profile.

The operation steps are: first name the curve (by the white box next to the name, the dialog box pops up, press """ to change the input method, name it by IC name, you can add Chinese characters) → set the temperature curve again (press yellow) The box will pop up the number dialog box, press the number of the dialog box and press the OK button. You need to set each of the segments. → Press the "Save Parameters" button to save (a dialog box will pop up, press OK) → press again The "Recipe Download" button is downloaded to the PLC → Press the "Back" button to return to the "Current Parameters" screen to check whether the parameters are correct. If you press the "Back" button correctly, you can return to the "Curve Display" interface → press the "Start" button (it will automatically delay for 5 seconds) to run the temperature curve. (Note that the upper part of the curve display section of the "Curve Display" screen will change the temperature of the upper hot air, lower hot air, and infrared.)

Five temperature curve reference

it82801dbm	有铅	1号曲线			风扇转速 8			
时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3			
温	温度	100	165	195	210	220			
区	时间	60	45	40	40	40			
二	斜率	3	3	3	3	3			
温	温度	100	165	195	210	220			
区	时间	60	45	40	40	40			
三	斜率	3	3	3	3	3			
温	温度	80	110	130	150	180			
区	时间	60	40	40	40	45			

it82801HBM	无铅	2号曲线			风扇转速 8			
时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3	3		
温	温度	100	185	215	225	245	255		
区	时间	60	45	40	45	40	40		
二	斜率	3	3	3	3	3	3		
温	温度	100	185	215	225	245	255		
区	时间	60	45	40	45	40	40		

三	斜率	3	3	3	3	3	3		
温	温度	80	110	130	150	180	200		
区	时间	60	40	40	40	45	45		

it82845PM	有铅		3号曲线			风扇转速	9		
	时间	第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3			
温	温度	100	165	195	215	225			
区	时间	60	45	45	45	40			
二	斜率	3	3	3	3	3			
温	温度	100	165	195	215	225			
区	时间	60	45	45	45	40			
三	斜率	3	3	3	3	3			
温	温度	80	110	130	150	180			
区	时间	60	40	40	40	45			

it82945GM	无铅		4号曲线			风扇转速	9		
	时间	第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	245	252	262	
区	时间	60	45	40	40	45	40	30	
二	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	245	252	262	
区	时间	60	45	40	40	45	40	30	
三	斜率	3	3	3	3	3	3	3	
温	温度	80	110	130	150	170	180	200	
区	时间	60	40	40	40	45	40	45	

ATI 7500	有铅		5号曲线			风扇转速	8		
	时间	第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3			
温	温度	100	165	185	200	210			
区	时间	60	45	50	45	35			

		第一段	第二段	第三段	第四段	第五段			
二	斜率	3	3	3	3	3			
温	温度	100	165	195	210	220			
区	时间	60	45	45	40	45			
三	斜率	3	3	3	3	3			
温	温度	80	110	130	150	180			
区	时间	60	40	40	40	60			

nvid g6150　　无铅　　6 号曲线　　　　风扇转速　8

时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	235	245	255	
区	时间	60	45	40	40	40	40	40	
二	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	235	245	255	
区	时间	60	45	40	40	40	40	40	
三	斜率	3	3	3	3	3	3	3	
温	温度	80	110	130	150	180	190	200	
区	时间	60	40	40	40	45	40	40	

amd　　　无铅　　　7 号曲线　　　　　风扇转速　8

时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	235	243	253	
区	时间	60	45	40	40	40	45	40	
二	斜率	3	3	3	3	3	3	3	
温	温度	100	185	215	225	235	243	253	
区	时间	60	45	40	40	40	45	40	
三	斜率	3	3	3	3	3	3	3	
温	温度	80	110	130	150	180	190	210	
区	时间	60	40	40	40	45	45	45	

775cpu sck　　无铅　　　8 号曲线　　　　风扇转速　9

时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一温区	斜率	3	3	3	3	3	3	3	3
	温度	100	185	215	225	245	255	275	285
	时间	60	45	40	40	50	50	45	45
二温区	斜率	3	3	3	3	3	3	3	3
	温度	100	185	215	225	245	255	275	285
	时间	60	45	40	40	50	50	45	45
三温区	斜率	3	3	3	3	3	3	3	3
	温度	80	110	130	150	180	200	210	220
	时间	60	40	40	40	45	45	45	60

479cpu sck　　无铅　　9 号曲线　　　　风扇转速　9

时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一温区	斜率	3	3	3	3	3	3	3	
	温度	100	185	215	225	245	255	265	
	时间	60	45	40	40	45	40	45	
二温区	斜率	3	3	3	3	3	3	3	
	温度	100	185	215	225	245	255	265	
	时间	60	45	40	40	45	40	45	
三温区	斜率	3	3	3	3	3	3	3	
	温度	80	110	130	150	180	190	200	
	时间	60	40	40	40	45	45	45	

zhiqiu（植球）　　有铅　　0 号曲线　　　　风扇转速　6

时间		第一段	第二段	第三段	第四段	第五段	第六段	第七段	第八段
一温区	斜率	3	3						
	温度	225	255						
	时间	60	45						
二温区	斜率	3	3						
	温度	225	255						
	时间	60	45						
三温区	斜率	3	3						

温	温度	80	110						
区	时间	60	40						

Six. BGA welding common problems detailed

1. How does the BGA debug and find the curve that suits you?

The desoldering of BGA chips is affected by various environments, such as air temperature, humidity, indoor breeze flow, PCB thickness, and PCB copper foil distribution. It is impossible to have a curve that can be welded everywhere, and in all environments, according to our statistics, only about 45% of customers can use our curve directly without adjustment. Our factory commissioning environment is indoor 25 degrees. Semi-closed debugging room. The air humidity is large. The commissioning material is generally the north bridge of the notebook motherboard. Therefore, when this problem occurs, we should make appropriate adjustments based on the actual situation based on the curve we provide.

The debugging method uses the desktop north bridge or the notebook north bridge (using the waste board for debugging, but requires the PCB to be flat, try not to have deformation, and the PCB has no deterioration). It is not recommended to use a notebook graphics card or a smaller chip for temperature debugging.

The welded main board is clamped and flattened by the fixture. Firstly, when the fourth stage setting operation is completed, observe the temperature measured by the temperature measurement line.

The ideal temperature value can reach 217 degrees for the lead-free curve, and the lead curve is reached. About 183 degrees. These two temperatures are the melting points of lead-free and lead-free materials. However, at this time, the solder balls in the lower part of the chip are not melted. From the viewpoint of maintenance, the ideal temperature is about 235 degrees of lead-free, and there is about 200 degrees of lead. At this time, the solder ball is cooled and then cooled to achieve the most ideal strength.

Take lead-free soldering as an example:

After the fourth stage of heating is completed, the temperature does not reach 217 degrees, and the temperature of the third and fourth sections is increased according to the size of the gap. For example: if the measured temperature reaches 205 degrees, the upper and lower hot air are separately adjusted, and each is increased by 10 degrees. If the difference is large, the measured 195 degrees, it is recommended to increase the lower part by 30 degrees, the upper part by 20 degrees, the upper temperature should not be increased too much, so as not to cause excessive thermal shock to the chip.

After the heating is completed, the fourth stage temperature reaches 217 degrees, which is the ideal state. If it exceeds 220 degrees, the highest temperature reached by the chip before the end of the fifth stage (the highest temperature stage) is observed. It is better to not exceed 240 degrees. If it exceeds more, the temperature of the fifth stage can be appropriately lowered.

2. When soldering, the PCB ejector pin on the bottom bracket can't always hold the motherboard at the same time. Some feet have the components on the top. What should I do?

The PCB ejector on the bottom bracket has been designed to rotate the height of the screw. The height of the 6 feet can be flexibly adjusted according to the difference between the 6 feet. The top of the foot to the component can be properly staggered 1-2mm.

3. What is the role of air volume adjustment?

We offer a total of 5 sizes from 25mm to 40mm. Even with the same temperature setting, different air nozzles are used, and the final heating temperature of the chip is different. The smaller the air nozzle, the higher the heat in the same unit, the higher the temperature of the chip. This is a very simple truth. All hot air welding equipment cannot escape this law. When welding smaller chips, use a smaller tuyere, you can use the air volume adjustment knob to lower the wind speed, which greatly reduces the chance of exploding the chip.

Of course, another method is to properly increase the distance from the nozzle to the chip, and increase the temperature by 1-2mm, so that the heat of the chip is greatly reduced.

1. What issues should you pay attention to when soldering the 775CPU?

The distribution of PCB copper foil of the 775-seat is very uneven.

One-half of the ground wire and the power supply copper foil are distributed near the outside, and the one-half PCB on the inner side is all the signal line. According to our test, the temperature difference between the two copper foils of the 775CPU base PCB can reach 20 degrees, because a lot of ground wire and power supply copper foil will dissipate heat to other positions on the PCB.

775 seat, direct welding (do not remove, directly re-weld once), must use liquid flux.

When soldering the 775 seat, be sure to remove the iron cover of the new socket.

The selection of the air nozzle must be appropriate, and choose the air nozzle of the same size as the 775-seat plastic inner frame.

When soldering, be sure to keep the clamps flat for the 775 socket. Don't be bothered, repeat the adjustment of the lower air nozzle to ensure that the 775-seat PCB is flattened.

2, the choice of solder paste

It is recommended to use an environmentally friendly liquid flux (for soldering) or a BGA solder paste. But one thing to know: BGA solder paste is time-sensitive. Excessive temperature storage environment can easily lead to solder paste failure. Such as 30 degrees room temperature, direct sunlight, the solder paste is completely deteriorated within 10 days. After the solder paste is degraded, the soldering effect will be completely lost. Please choose a shady, cool

place to store BGA solder paste.

3. Cleaning work in BGA welding

Stencil recommends the use of special wash water with ultrasonic cleaning. It is not recommended to recycle the solder ball once it is used. Once it is contaminated with dust and a small amount of solder paste, it will cause trouble for the next plant. The PCB is recommended to be cleaned with a clean cloth and wash water. After the plant is completed. Do not touch the solder ball with your hands, and if it is stained with sweat or oil, it may cause welding failure. Remember: The details determine success or failure.

4. Questions about chip bursts and how to save them

BGA chip in the welding, heard a slight humming sound, it may be our common name of the explosion bridge, the cause of the explosion bridge is nothing more than two: one is the uneven air volume, a certain temperature is too high, causing the explosion bridge; the second is the chip The inside is damp and there is moisture. During the welding process, the water vapor overflows sharply, causing the copper foil inside the chip to be short-circuited or broken. The same PCB will have this problem, and the PCB with severe moisture will easily cause short circuit between the layers and severe deformation. Therefore, it is recommended to carry out the drying operation for some chips that have been placed for a long time. The simple drying

operation can use the rework station to heat the chip at a temperature of 150 degrees and a time of about 15 minutes. The professional treatment method is to use a constant temperature drying oven to dry the whole plate and chip for more than 10 hours at about 100 degrees.

The chip is stored in an indoor environment. Even if the new chip still absorbs moisture in the air and causes damage, it is recommended to purchase a moisture-proof box (usually used to store medicines) to store the chip.

5. How to take the glue chip?

If the temperature measured by the temperature measurement line on the bottom of the BGA chip is 230 degrees, at this time, the solder ball has melted, but why is it like the method of taking the chip in the usual way, the chip can not be taken by the tweezers, because the chip is glued, so Take it hard, then will it be hard to take it? Will not. Because the tin on the pad has melted into a liquid state, and the glue is poured between the solder balls, it does not stick to the pad.