

Meet the Needs of the SMT Age

Please read this user manual carefully before running



S-WS450 PS WAVE SOLDER

USER MANUAL

PHONE : 0755-83203237
FAX : 0755-23240492
ADD : Room 1806,Block 3,Jinyun COFCO,Qianjin 2nd Road,Baoan
District,Shenzhen City, China

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一, summarize

S-WS450 type automatic lead-free dual wave soldering function automatically complete PCB from coating, preheating, solder flux and cooling, etc. All welding process, it is mainly used for SMT components, short feet straight insert components and mixed type of PCB welding as a whole.

The machine with the industrial control computer as the core, adopts the modular control, humanized WINDOWS interface; Using multiple protection measures on the design, a high degree of automation, reliability and performance. The machine soldering tin jet system according to the current international advanced wave soldering technology design, can achieve high quality welding effect.

The machine main features:

Overall organization reasonable layout design, simple operation, convenient maintenance, and other related equipment for online connection;

A. the first wave and second wave adopt stepless electronic frequency conversion technology, independent control, is suitable for various kinds of PCB welding;

Flux coating used for automatic cleaning, the spray coating system, simple maintenance, long service life of nozzle;

Flux does not contact with the outside world, no volatile, no pollution, stable composition, do not need to maintain;

Flux coating, the area is automatically controlled by the size of the PCB, without artificial adjusting sensor location;

A. preheating system and welding system adopts PID control mode, the temperature control of high precision;

Preheating system consists of two independent temperature control, ensure welding process;

Tin stove heating elements with high temperature sintering the clarinet, even heating, long service life;

Transportation system adopts stepless speed regulation system of electronic, closed loop control, speed stability;

Adjustable wide screw with a protective sleeve, can prevent screw mechanical deformation and pollution;

With functions of economic operation, minimize the oxidation of solder;

A. has overtemperature sound and light alarm and emergency braking system, all motor is equipped with overload protection system;

A. with normal and economical operation mode;

According to the set of users, the date and time for automatic start up.

二、The main technical parameters

The machine model	S-WS450
Heating system:	
Preheater heat pipes	110V 500W×20
Preheating temperature	0~280℃
Preheat temperature control mode	PID Pattern
Preheat temperature time	15MIN around (set temp: 150℃)
Welding system:	
Tin stove heating tube power	220V 1.0KW×8
Tin furnace capacity	460KG
Tin stove temperature	MAX: 300℃
Welding temperature control mode	PID pattern
Wave motor	1/2P×2 3P, 220V
Speed way	Stepless frequency conversion electronic speed
Tin stove heating up time	90MIN around (set temp: 260℃)
PCB transmission system:	
Width of the PCB	MAX. 450MM
PCB transmission speed	0~1.8M/MIN
The motor power transmission	3∅ 220V 90W
Speed way	Stepless frequency conversion electronic speed
model size	L3800*W1400*1650 (MM)
Overall dimensions	L4500*W1400*1650 (MM)
Start the power	18KW
The normal work of power	≤4KW
power supply	3P, 380V 50A
Air supply	0.5MPA
weight	1460KG
Other:	
Flux capacity	6L
Spray pressure	0.25MPA~0.4MPA
Cooling fan	220V 40W
Wash the claw motor	220V 10W
Duct diameter	200MM

三、 workflow

Crest welder work process is shown in figure 1.

Has been planted or stick the components of the PCB, first by the machine connection device to certain Angle and speed at the entrance of into crest welder, and continuous operation of chain claw clamping, complete coating flux in turn, the first preheating, the second preheating, the third section of preheating, the first wave soldering, the second wave soldering and cooling process. Finally, drag chain after the welding is done by titanium claw of the PCB.

In the preheating stage, flux activation, volatile matter has been removed, PCB welding parts are heated to wetting temperature, at the same time, due to the component temperatures, avoid the baptized into the molten solder by thermal shock. Preheat phase, the surface temperature of the PCB should be between 80 ~ 80 °C advisable.

The first wave is made up of narrow nozzle jet "turbulence" crest, fast speed, for SMT components have higher vertical pressure, make the solder to high density of small size, pasted on the solder joint has good permeability, and overcome the complex shapes of components and the ill effects of "shadow" effect; At the same time, the turbulent waves upward jet force can make the flux of gas discharge smoothly, greatly reducing the leak, bridge and welding defects such as inadequate. The second wave is a wave of "smooth", solder flow speed is slow, the exit velocity is almost zero, so it can effectively remove the excess solder on the terminal, make all the good welding surface wetting, and for the first wave caused by the icicles and bridging to fully corrected.

四, machine installation and adjustment

1. The working environment and conditions

- 1) this equipment should be placed in a flat on the ground, dry ventilated buildings;
- 2) working environment temperature should be between 5 ~ 45 °C;
- 3) work environment humidity should be between 20 ~ 95%;
- 4) with (60) a stable voltage of 380 v three-phase five wire power supply (guarantee good grounding);
- 5) use after purification treatment of 0.5 ~ 0.8 MPa industrial gas source.
- 6) on both ends of the crest welder must strengthen convulsions, convulsions pipeline of air flow rate for more than 15 cubic meters per minute.

2. Equipment installation

- 1) when unpacking the case to the machine setting, the fitted with inlet connection device (around two in every);
- 2) according to the station before and after the machine and equipment connection, adjust it to the appropriate location;
- 3) increase and adjust the frame fixed foot at the bottom of the cup, make the frame into a state level;
- 4) adjust the height of the tin stove. Generally for 5 mm to 10 mm;
- 5) adjust the width of the guide rail. Can make the chain claw clamping PCB, but not too tight, with the hand push PCB board should be able to slide along the transport direction freely;
- 6) connected to the power supply (3 p, 380 v, 50 a), air source (the air pressure is

set to 0.4 MPa);

7) flux into the flux of the tank, to 3/4 position, and cover.

Groove, 8) pour alcohol into alcohol added to 3/4 position, and cover.

3. The calibration:

1) the conveyor width adjustment: using computer on the menu of slideway adjustable width and refer to the above set-up good conveyor width gauge calibration method of the PCB width (note: the minimum width of the rails is commonly 50 mm);

2) rail slope adjustment: adjust crest outlet side under the guide of the handwheel to adjust the tilt of the guide rail transport system, so that the soldering Angle from adjusting, normal welding Angle for 6 to 8 degrees;(note: when the lower soldering Angle, should be cut tin stove in order to avoid damage to the machine top touch chain claw);

3) tin furnace height adjustment: by the side of the tin stove calibration adjustment knobs on hand control box to adjust the height of the tin stove;

A good, first adjust the wave height: normal short feet when the height of the peak for 8-12 mm (tin peaks runtime export wave height);Wave height on the premise of meet the demand of welding, as low as possible is best;This can largely reduce the oxidation of solder;

B, after confirm the height of the peak, can by hand control box to adjust the level of tin stove, best soldering tin furnace height is: run to wave upper PCB board, a tin leaching to 1/2 - two-thirds of the PCB thickness, but not higher than PCB panel shall prevail;

Note: adjust the pump before and after the two nozzle height when the tin stove and shall ensure a proper distance between chain claw;

4) in and out of the tin stove: by the side of the tin stove set-up on the hand control box in and out of the adjusting knob and tin stove can be moved into or removed from the machine.Convenient maintenance, repair and add put solder;(note: tin stove will be moved into or out of the tin furnace must be low bit in and out of the action will only be effective; in order to avoid damage will claw chain and guide).

5) inclination adjustment 2: rotating guide under the entry side of the handwheel also can adjust the tilt Angle of guide rail transport system.If the entrance to the handwheel cooperate with export the handwheel adjustment can make the guideway parallel moving up and down.

五, the boot operation

1. Check prior to power

- 1) check if power supply for the machine rated three phase four wire system power supply;
- 2) check whether the equipment is good grounding;
- 3) check the tin stove capacity meets the requirements (static, tin surface below the surface of furnace 10 mm is normal).
- 4) check whether the air pressure is adjusted for value (normal is 0.4 Mpa);
- 5) check the emergency zhi (machine front top left corner and the upper right corner of the red button) is up;
- 6) check the user manual about the warnings and precautions part, confirm the machine adjustment has been completed;
- 7) the suitability of rosin, alcohol capacity.

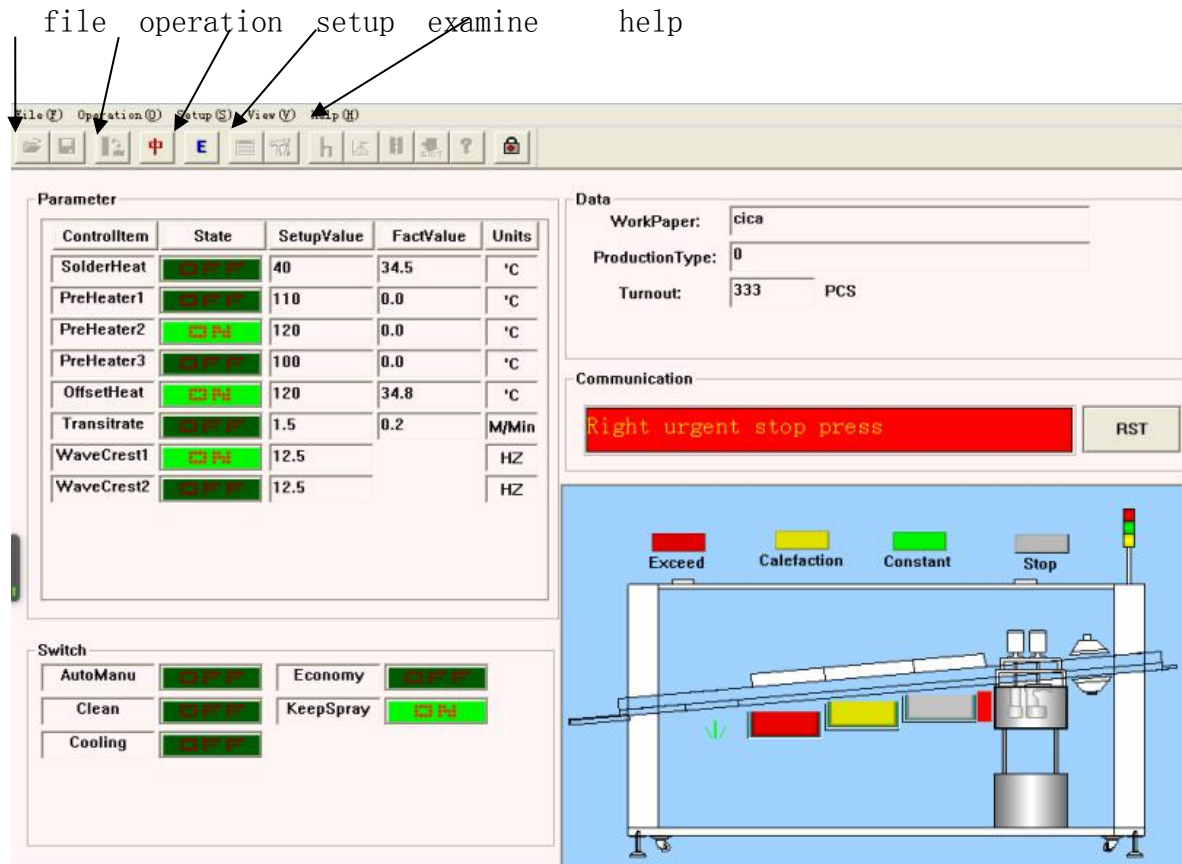
2. Electricity boot:

- 1) close the electricity in the total POWER switch, press the "POWER" indicator button on the panel.
- 2) inside the electrical box has a loop controller control automatic startup and shutdown: a week can be set up according to the demand for automatic system boot automatically (recommended operation mode has been saving tin melting time)
- 3) small panel and a "LIGHT" knobs and a "LIGHTING" indicator LIGHT, knobs for LIGHTING control switch, indicator LIGHT for LIGHTING switch status indication
- 4) computer will automatically run after launch control system, the system after the operation, can control the device according to the requirement;

六, S-WS450 software instructions

Instructions: 1. The menu after the computer will automatically run S-WS450 operating system:

Main interface starts, display interface set toolbar drop-down menu below



2 the drop-down menu

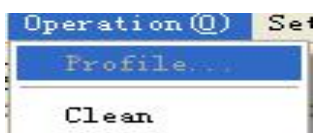
1) files: the drop-down menu

A open: open system configuration file (*. HBD), including the running parameter set, after opening, the operational parameters of system will be in accordance with the open file by setting the parameters of the control;

B save: save parameter files (*. HBD), to save the current setting of system operation parameters, convenient next time to reproduce the same workpiece, call parameters can be directly;

C exit: exit the current control system

2 drop-down menu operation;



Reset: remove the current production of PCB.

3 Settings menu:

A running parameters Settings: set all the equipment operation parameters.

Operation parameters setting include: tin stove temperature setting, (preheating temperature setting 1, preheating temperature setting and preheating temperature setting 3, 2 heat temperature setting, its set point, please refer to below.

Default value: click on this button to open the device's default Settings, its value can be used as the machine to factory.

Save the default value: click on this button to save the current value as the default values



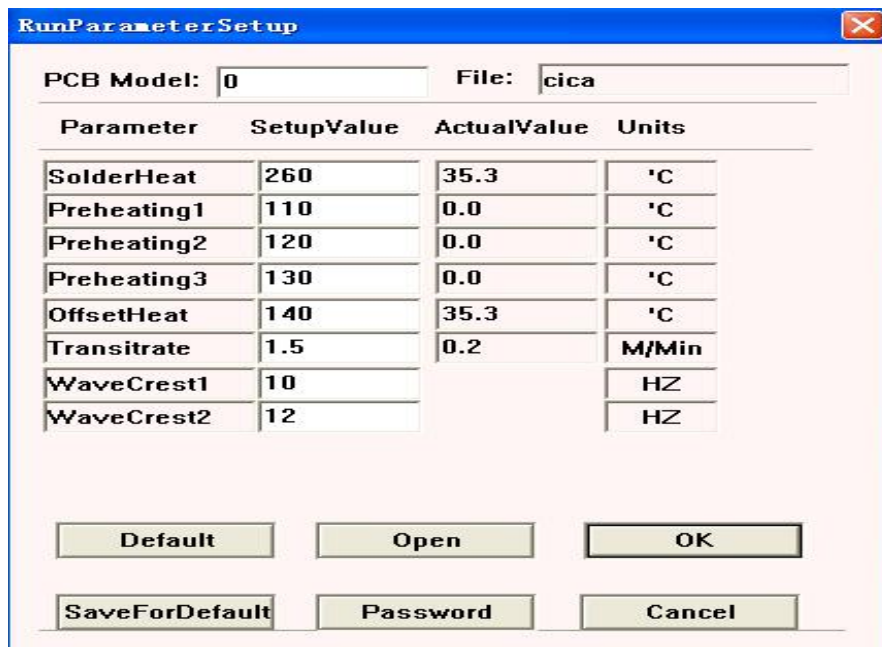
Open: click on this button to open the previously saved Settings for the current operation parameters,

Save: click on this button to the operation of the current

Sure: save the current Settings and download into PLC (suggest the new set of operation parameters save first in determining downloaded to the PLC)

Cancellation: cancel the current Settings

Password: password set to open on the surface of the painting, (when setting the password, every time I open the picture must enter the correct password to open the picture, to prevent improper set this parameter for authorized users, in order to avoid breakdowns, machine factory is not set password, please more need to set



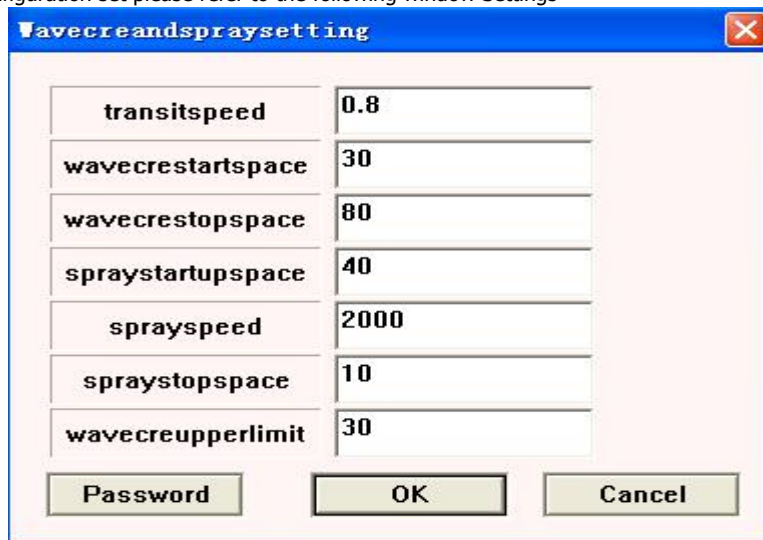
B communication port Settings:

Set the communication port of the equipment, in the case of communication is not normal, please check the communication port Settings in communication abnormal cases can lead to be difficult to start software, factory set to "COM1"



C: mechanical parameter setting

Mechanical configuration set please refer to the following window Settings



Machinery contains configuration Settings window

Wave TVC: wave under TVC (program automatic protection) could not be opened
 Wave began to distance: namely in the economic operation status in PCB arrival automatically when wave (the function maximum control soldering tin oxide) if the PCB has not come to begin to wave or PCB haven't arrival "stop wave increase wave began to distance and stop wave distance, reduce conversely.

Crest: stop distance and wave launch distance.

Sprays distance: similar to crest distance

Wave limit: wave highest frequency setting, after this parameter limit set of the picture, running parameters of wave frequency will not be higher than this.

Password function and parameter setting

D limit temperature setting:

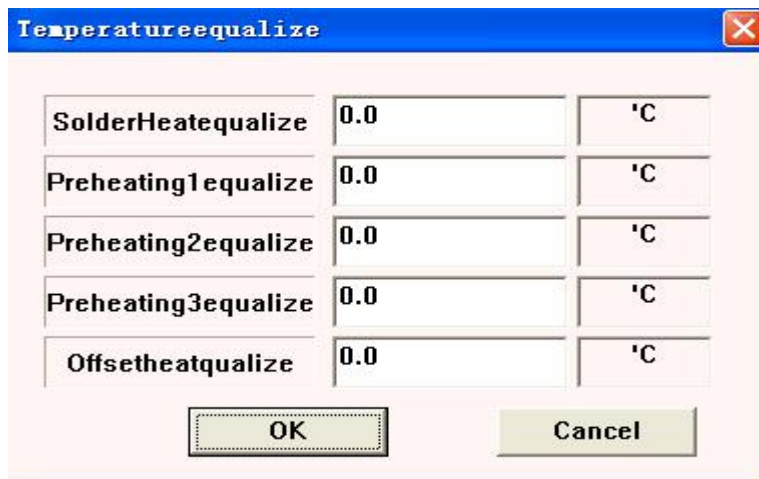
Limit temperature setting: limit temperature setting including tin furnace temperature, the lower limit alarm, preheating temperature on the lower limit alarm, heating temperature on the lower limit alarm When the temperature is lower than the lower limit value images showed the low temperature;When the temperature is higher than the upper limit deviation when the alarm sounds and to cut off the power supply machine.

E compensation temperature Settings:

Temperature compensation Settings include tin stove temperature, preheating temperature, the temperature of the heating temperature compensation setting.

This functionality for testing error detection head adjustment, when testing temperature and real temperature difference is the need to set this parameter, when actual temperature is greater than the display is set to a negative value, instead of positive.The factory value is zero

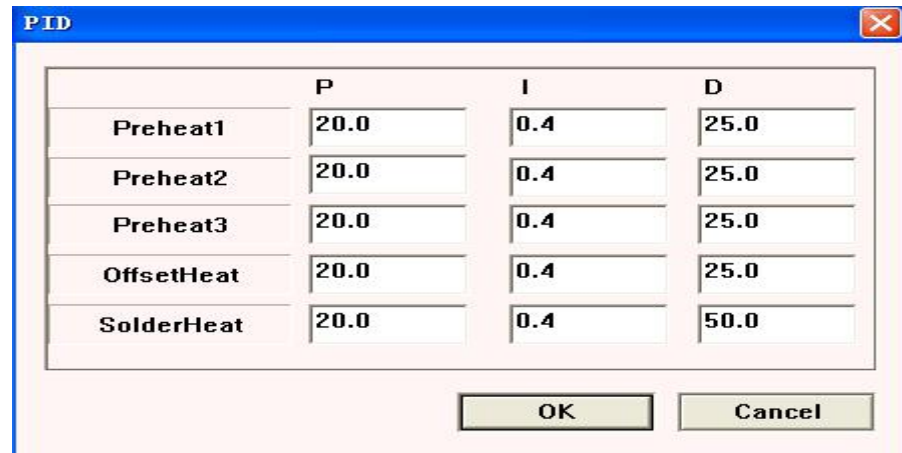
F parameter Settings: PID temperature control of positive feedback control mode.Accurate setting the PID parameter will be necessary for accurate control of heating temperature,



Temperature equalize		
SolderHeatequalize	0.0	'C
Preheating1equalize	0.0	'C
Preheating2equalize	0.0	'C
Preheating3equalize	0.0	'C
Offsetheatqualize	0.0	'C

* when the P value is set to zero, equipment in the automatic self-tuning control (the factory)

* when the P value is not equal to zero in the manual control, when the P value, the greater the heat faster, can control the precision of the temperature is low.And heating the slower the release the high control accuracy, suggest that in the case of not to drop temperature P value as small as possible, not more than 50 largest)



	P	I	D
Preheat1	20.0	0.4	25.0
Preheat2	20.0	0.4	25.0
Preheat3	20.0	0.4	25.0
OffsetHeat	20.0	0.4	25.0
SolderHeat	20.0	0.4	50.0

3. The system main interface control instructions:

* manual operation and automatic operation: when the show is "manual operation", click on this button a will be converted to "automatic" mode;

* automatically run: selected automatic operation mode, system will automatically according to the time to start the device regularly:

After a, set the "auto run", the system will automatically start the device, order is: the first open tin stove heating, when the furnace heating to tin stove temperature higher than the "wave" start temperature, and then open the preheating heating, vulcanizing heating, transportation, and cooling;

B, when soldering heat to welding temperature, normal work can be performed; Normal operation, the system will automatically track the PCB, according to real time location of PCB, automatic spray or wave, so as to achieve energy saving effect;

* manual operation: manual operation for the system operation mode of the two items, such as control button is displayed as "automatic" click a will to a manual operation mode;

A, in manual operation, all devices will not start automatically, must click on the corresponding control button to control the rev of the corresponding equipment or stop;

B, dynamic model, the spray, such as not is in a state of click to "ON", will automatically track the PCB automatic spray, such as clicking the "ON", it will always be spray spray;

2) fault reset: when malfunction alarm, check the cause of the problem, eliminate and then click the "failure reset", system will continue to run;

3) the main interface operation notice:

B, wash claw "economy" or "manual operation" are based on manual operation, the user can according to the actual situation of production need to open washing claw; When transported in not open, open washing claw is invalid.

C, such as in the "economy" will start automatically when preheating, tin furnace, preheating, heat and thermal compensation, such as the need to stop one of heating, corresponding set temperature control temperature zone can be set to a value lower than the room temperature;

七, the body's main components

1. The flux of spray system

1) the system function

This machine is recommended to use no clean flux (the user can also according to the actual situation to choose other flux), nozzle by compressed air, make the flux, when mixed with air and by compressed air flux into a certain shape. Nozzle in the rodless cylinder driven (stepper motor) do reciprocating motion, evenly spray flux in the bottom of the PCB, forming a layer of uniform film. Does not work when the nozzle needle valve closed, the flux air isolation with the outside world, to reduce volatilization, flux density stable, and the flux consumption saving.

2) gas control box and its functions

Part in the flux of spray system is available for regulating valve with a total of four, concentrated in a control box.

A, the size of the spray jet gas flow regulating valve control, have ejector effect of flux, augmenting the jetting height increases, spray height adjustable hours reduced. But the too big, flux injection into the circuit board will produce splash, it is not easy to stick to a circuit board; A tuning is too small, pilot injection flux too little;

B, the spray pressure adjusting knob control injection pressure (pressure value is 0.3 Mpa is appropriate);

C, the needle valve pressure adjusting knob control inside the nozzle needle valve open and close, adjustable increase flux flow, reduce conversely. Too much too large flux, large particles; Too small flux too thin (usually the pressure value is 0.4 Mpa is appropriate);

D, "separate air knife" regulating valve isolation air knife air flow, can prevent the flux entering the preheating system and flux of the PCB board face blown evenly distributed.

3) the matters needing attention

A and spraying systems with self-cleaning function: this machine at the end of each spray, control system will automatically flux channel closed, the compressed air and

flux atomization system still remain open 1 seconds or so, in order to blow the residual flux on the nozzle is clean, protect the pinhole on the nozzle cleaning smooth;

B, counting with photoelectric switch (located in spray box front) should be always kept clean. Every day after work, with a soft cloth dipped with a little alcohol to wipe photoelectric switch the lens surface, in order to avoid fouling too much, impact test;

C, fog on the control box don't change after the regulator set, not the machine operator do not operate the machine, lest cause bad spray

2. The preheater system

1) the system function

Preheater is made of high temperature resistant stainless steel heating box. Heat pipes in the heating box, when electricity through the top of the PCB for preheating, makes the bottom of the flux activation, remove the solder on the metal surface and components feet of pollutants (oxide, oil, etc.), to play the best effect of run-off flux. At the same time the flux in the water evaporation, removal of volatile solvents, inhibit the generation of air bubbles when soldering. In addition, the PCB and the component temperature rise, helps to reduce the PCB welding deformation and component damage due to temperature increase too fast.

2) system maintenance

A, often pay attention to the supply voltage is normal, high voltage can cause heating tube overheating and burning;

B, when the temperature of the preheater is too high due to abnormal, control circuit will automatically preheater power cut off, and alarm indication, in order to protect the temperature control and heater.

C, if, in the operation of the temperature control table shows the temperature than the set temperature more than too much, not stable, may be non-contact switch has breakdown, or hair heat pipe has been burning out, should be given to replace, and check the reason;

D, regular use temperature measuring instrument testing at the bottom of the PCB substrate temperature, to ensure the best soldering effect;

E, often clean the sedimentary bake at the bottom of the impurities (preheater the activities of the base plate can be pumped from the back to clean up);

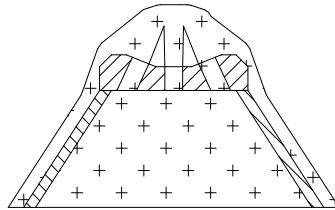
F, regularly check whether the wire is aging, in case of leakage.

3. The welding system

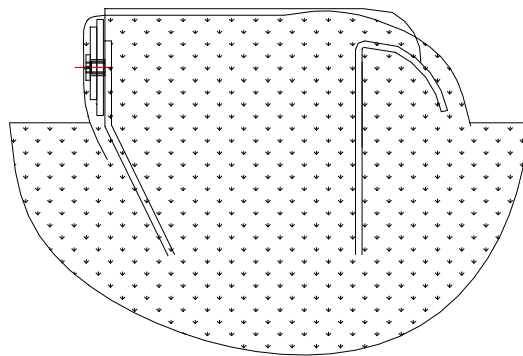
1) the system function

Dual wave soldering furnace by wave 1 tin pump, pump wave 2 tin, soldering furnace and the car.

2) wave 1 tin pump jet column of turbulent waves, the main role is to wash away at the bottom of the PCB SMT components and the solder joint components pins for stranded "shield effect" behind the flux, resulting in the reliable wetting solder joints.



3) wave 2 wave of tin pump jet smooth further modification has been wet but not neat of solder joint shapes, making them perfect. Crest height by tin pump frequency converter regulation of motor speed control. The adjusting screw 2 can control the size of backflow, thus it can easily control the welding quality.



4) change the soldering furnace heat pipes

If tin stove up to normal operating temperature time significantly longer, can preliminarily concluded that tin stove heating tube has the damage, should be replaced according to the following steps:

A, to cut off the power supply, control of hand control box, tin stove is removed from the device of the stove;

Remove tin stove (note: you must first cut tin stove to transmit a PCB or elevated rail);

B, on both sides of the cover plate of the stove landed, remove heat insulation cotton;

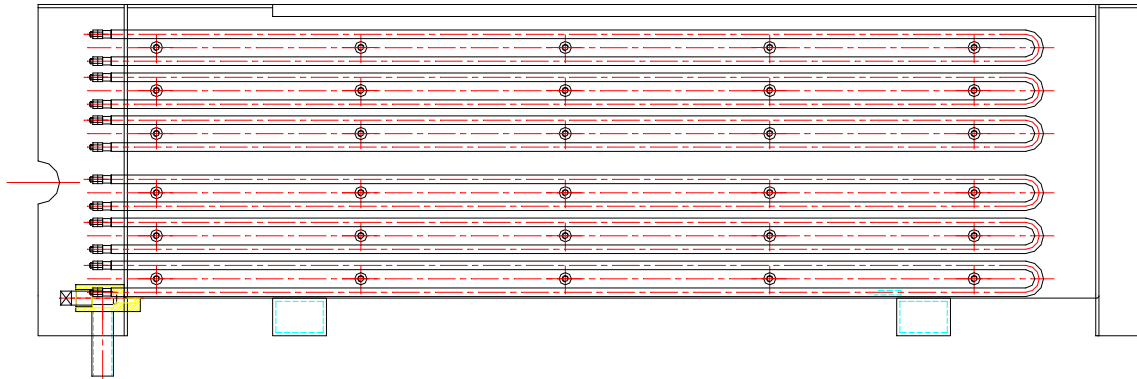
C, remove the damaged hair heat pipe of high temperature wires, take out the

damaged hair heat pipe;

D, change new hair heat pipe, restore the wired, back to the heat insulation cotton; Fitted with a cover plate;

E, move back into the tin stove, connect the power cord;

F, tin stove and PCB transfer guide rail to adjust to the normal working



5) to replace the solder

If there is excessive tin furnace impurities or used in a certain period, need to change the solder, please follow these steps:

A, the tin stove temperature rise to about 270 ° C, and then cut off power supply;

B and put a tin mouth open, release of tin fluid;

c, After tin, the solder is not before solidification, put tin mouth shut (pay attention to the matter when the force is too big, can be a bit hard), in case the flow of tin;

D, add fresh liquid.

Special note: changing the tin, tin furnace inside the nozzle part first dismantled and cleaned up seriously, in order to prevent the add new tin ingredients article tin resulted from the different components of metamorphism; Tin stove after clean, without first installed nozzle, but first tin furnace, heating and heating while using the new article tin daub on the hot side on either side of the tin stove, to melt; Faster as far as possible, don't let the redness and dry; It is forbidden to add tin for the first time only to throw tin tin furnace of the use of this kind of molten tin methods, or tin stove will be damaged due to dry burn; Daub after a period of time, until the tin furnace for more than one third of the molten tin, tin furnace nozzle from heating up installation, and then put boiling inside the new article tin melting, until the standard tin;

6) maintenance

1. One put at the bottom of the tin stove mouth, when used to clean up the tin stove liquid will come outside, often should check whether there is a drip;

2. Often observed in tin stove surface height and the liquid level (refer to the condition of tin pump does not work) shall not be lower than the furnace face 15 mm,

3. Often soldering temperature is measured with a mercury thermometer, prevent the liquid temperature controller show the actual temperature and the temperature difference is too big, affect the welding quality.
4. Keep clear of tin furnace oxide (at least once a day), supplementary anti-oxidation wax;
5. Once every half a year of tin furnace power supply cord to check, the aging of wires should be replaced in a timely manner;
6. When the tin stove temperature is too high due to abnormal, the power control circuit will automatically cut off, and alarm indication, in order to protect the temperature control and heating components. If, in the operation of the temperature control table show that temperature and set temperature deviation is too much, not stable, it could be non-contact switch has been breakdown, or hair heat pipe has been burning out, should be given to replace, and check the reason.

4. The transmission system

1) the system function

Transmission system is made up of motor, chain and control parts. Its function is to carry PCB, smooth finish welding a series of process. Control part by the governor, velocity components, PC and so on, in order to realize the transportation chain speed adjusting and monitoring functions.

2) daily maintenance

A, a month to transfer drag chain and guide with a grease;

B, transmission system at run time, do not put hand or groceries, falls to the chain, to affect the normal transport;

C, meet an emergency, immediately press "emergency zhi" button, stop running, in case of dangerous accidents.

3) chain claw replacement

From the transmission guide PCB conveyer parts of the chain cover, start transmission motor, such as to replace the chain claw to you convenient operation, closed transmission motor.

A, the leaf spring, remove the replacement of claw, change into a new claw;

B, in turn the springback reeds, adjust transport chain;

C, put on the chain cover

5. The claw implement

1) wash the claw

Wash your paw paw by water pump, box of box and alcohol. Its function is to transport chain claw flux clean contamination.

Press the "claw" switch on the main control panel, the pump will be alcohol store alcohol pumped in the claw in the box. When the chain claw through into the brush will claw chain of alcohol wash clean. Wash the claw box of alcohol after filter back to circular reoccupy liquid storage tank.

* * * * warning: alcohol is flammable items, please use caution, prevent fire! * * * *

2) daily maintenance

A, often check wash claw the amount of alcohol in the cabinet, youth should be added in time, to ensure the effective cleaning of claw chain. Supplement, generally should be added to the 4/5 position; If less than a third, should give added;

B, when washing brush after wear should be timely replacement.

7. The inlet connection device

1) the effect of inlet connection device

Inlet connection device is located in the front end of crest welder. Points left and right sides is symmetrical two parts. Its main function is to location on the machine (plug-in line, the component inserter or at the foot of the cutting machine, etc.) online connection, and introduce the PCB to certain Angle and speed crest welder.

Into the board with the supporting of institutions, which has two kinds of flat belt drive and chain drive. Users can according to their different characteristics and selection in combination with the practical situation of their own.

2) flat belt transmission mode (see figure 21) :

This way has the stable transmission, simple structure, no lubrication, etc.

Flat belt drive inlet connection device is mainly composed of transmission belt, the fixed Angle, belt guide rail, driving pulley and driven pulley and belt tension wheel.

3) chain mode (see figure 22)

This way has high strength, bearing, no sliding, synchronization and not running, etc.

Chain transmission inlet connection device is mainly composed of transmission chain, fixed Angle iron, chain guide, active chain wheel, the driven sprocket and chain tension wheel, etc.

4) daily maintenance and maintenance

Flat belt drive and chain transmission, while the structure is simple, but its smooth running is stable, is directly related to the whole machine performance. So the daily maintenance and maintenance work for the inlet connection device should be given the necessary attention.

5) flat belt drive inlet connection device of daily maintenance and maintenance

A, often should check whether there is a sliding phenomenon between belt and pulley. If a skid, two feeder belt will be out of sync, PCB can smoothly enter the crest welder. Blockages and even make the whole production line can't normal operation. Appear this kind of phenomenon is because the belt use for a long time was caused by wear or elongated, and adjust the belt tension wheel, proper increase of belt tension can be solved. If not, you should consider to replace the new belt;

B, often should check whether the belt running deviation. Belt running deviation can make the belt and pulley detaching, causing the machine doesn't work, the cause of the failure is mainly the belt loose or pulley shaft was caused by the wear. As long as the pulley or replace new pulley can solve;

C, belt guide is not parallel. This kind of situation if serious will cause the PCB into the board not free or card board. Adjust to loose the "screw", and then carefully adjust the adjusting screw make guide both sides parallel.

D width is improper, belt guide rail and PCB card plate off phenomenon. According to the width of the PCB, loosen the set screw, mobile "fixed Angle", both sides cooperate to adjust, the conveyor width than PCB 0.5 ~ 1 mm wide (be determined by the size of PCB dimension tolerance).

6) chain inlet connection device of daily maintenance and maintenance

A, between sprocket and chain tooth jumping right. This is usually due to inadequate strength of the chain tension or sprockets and chain caused by serious wear and tear. By adjusting the tension wheel, appropriate increase tension (but not too tight) or replace the sprocket and chain can;

A, chain guide is not parallel to the width is improper or width and PCB card plate off phenomenon. Adjustment method and flat belt transmission inlet connection device of daily maintenance and maintenance, paragraphs 3 and 4. Every two days to turn the pin shaft sprocket note a drop of machine

八. the welding problems and countermeasures

WELDING PROBLEMS	CAUSE	COUNTERMEASURE
Poor have some solder column wetting	Copper foil surface, element oxide foot	Clean by oxidation device
	The proportion of flux is not correct	Redeployment flux
	Components poor solderability	Check the quality of components

	Flux react with copper foil	Check whether there is any problem on flux
	Flux metamorphic	Replace the flux
	Lack of immersion tin	Adjust the wave height
	PCB warp	Adjust the wave height and temperature
Have some solder column	Flux oxidation affect its liquidity	Check the flux and temperature
	PCB board preheat enough	Adjust the preheating temperature
	The proportion of flux is not correct	Check the flux
	Soldering temperature is low	Check the tin stove temperature adjustment
	Transfer rate is too low	Adjust the transmission speed
	PCB immersion tin too deep	Adjust the wave height
	Copper foil area, pore size is too big	Improve the PCB design
	Components poor solderability	Avoid long stored components
Solder short	PCB fused coating time is short	Adjust the wave speed or transportation
	PCB board preheat	Adjust the preheating temperature
	The proportion of flux is not correct	Check the flux
	Circuit board design	Improve the PCB design
Solder joint luster difference	Solder in too many impurities	Check the solder purity
	Copper foil surface, element oxide foot	Clean by oxidation device
	The poor quality flux	check the flux
	Soldering temperature is not appropriate	Check the tin stove temperature adjustment
Virtual welding, bubble	Tin stove temperature low/	Check solder pot of temperature
	The poor quality flux	Check the flux
	Send too fast	Adjust the transmission speed
	PCB be affected with damp be affected with damp to produce bubbles	Dry PCB
	Copper foil area, pore size is too big	Improve the PCB design
Pcb warp	Through high tin furnace temperature	Check the solder pot temperature adjustment
	Transportation speed too slow	Adjust the transportation speed

九, typical faults and ruled out

Troubleshooting principle: when the fault occurs, the general information on the main menu display window will have corresponding fault, according to whether the fault prompt troubleshooting can; To meet troubleshooting, please refer to the following methods or the elementary electrical diagram of reference to solve!

malfunction	The cause of failure	How to troubleshoot	machine state
Power input light not on	<ol style="list-style-type: none"> 1. Open air switch in the main power supply connection place 2. The main power supply failure 3. The lamp is faulty 	<ol style="list-style-type: none"> 1. Open the air switch power supply 2. Replace the switch 	Stop state
Boot crest welder can't start up	<ol style="list-style-type: none"> 1. The control box insurance tube wire fuse 2. Current limiter jumped (thermal relay) 3. The leakage switch 	<ol style="list-style-type: none"> 1. The change of fuse 2. Current limiter is reset 3. Close the leakage switch 	stopped
The heating zone temperature rise less than the set temperature	<ol style="list-style-type: none"> 1. The heater damaged 2. The thermocouple is faulty 3. Solid state relay failure 	<ol style="list-style-type: none"> 1. Replace the heater 2. Inspect or replace thermocouple 3. Replace the solid state relay 	
The heating zone temperature limit overtemperature too much	<ol style="list-style-type: none"> 1. When the heater operation bad to adjust 2. Temperature control error 3. The upper limit of temperature alarm value Settings 4. The thermocouple is faulty 5. Solid state relay through short circuit 	<ol style="list-style-type: none"> 1. Manual restart 2. Review or change the temperature controller 3. Reset the temperature limit alarm value 4. Inspect or replace thermocouple 5. Replace the solid state relay 	Beacon signal normally on
Transmission motor is not normal	<ol style="list-style-type: none"> 1. The motor overload or stuck 2. Transmission motor insurance tube fuse 	<ol style="list-style-type: none"> 1. Check the transmission system of mechanical transmission parts 2. Inspect and replace the corresponding insurance tube 	
Wave motor is not normal	<ol style="list-style-type: none"> 1. Motor overload or stuck 2. The thermal relay measure motor overload or stuck 3. The thermal relay setting artificially changed 4. The frequency converter fault 	<ol style="list-style-type: none"> 1. Check the tin pump parts, troubleshooting 2. Eliminate the motor fault, reset thermal relay 3. The reference appendix 11.2 reset thermal relay current limit 4. Value, according to the frequency converter control function table, find out the value of the fault types (such as overload, leakage, etc.) 	<ol style="list-style-type: none"> 1. There is a clear noise 2. The motor stalling 3. No wave or wave is small
Emergency stop is not normal	<ol style="list-style-type: none"> 1. The principal part of emergency switch not bounce 2. Emergency zhi switch failure 	<ol style="list-style-type: none"> 1. A new emergency stop the operation 2. Inspect or replace the emergency zhi switch 	<ol style="list-style-type: none"> 1. The beacon signal turns red 2. All the driver to stop
Spray cylinder don't work properly	<ol style="list-style-type: none"> 1. Air pressure is not within the range specified 2. The cylinder of two limit sensor is loose 3. The two cylinder limit damage of sensors 	<ol style="list-style-type: none"> 1. Check the air supply, adjust the pressure regulating valve 2. Review and sensor is fixed 3. Replace the sensor 	
Counting inaccurate	<ol style="list-style-type: none"> 1. The counting of the sensor induction distance don't meet requirement 2. Count sensor damage 	<ol style="list-style-type: none"> 1. Adjust the induction distance of counting sensor 2. Replace the count sensor 	

Spray system failure	<ol style="list-style-type: none"> 1. The speed deviation of u-shaped sensor at the 2. The speed measuring plate of u-shaped sensor is damaged 3. The spray cylinder without air pressure supply 4. PCB transmission at the entrance of damage of sensors 	<ol style="list-style-type: none"> 1. Check and the sensor is fixed 2. Replace the sensor 3 .Check the air supply 	
Cooling or exhaust motor stalling	<ol style="list-style-type: none"> 1. The motor damage 2.Insurance tube fuse 	<ol style="list-style-type: none"> 1. Replace the motor 2.Replace the corresponding insurance tube 	<ol style="list-style-type: none"> 1. PCB overheating at the exit 2. From the poor, Have obvious smell
System communication failure	<ol style="list-style-type: none"> 1. The upper limit set or mechanical parameters of the machine system setting is not correct, communication beyond; 2. PLC or 485 communication module of telecommunication lines loose or fall off; 3. The frequency converter set parameters is not correct; 4. Communication module is damaged; 	<ol style="list-style-type: none"> 1. To refer to the above parameters set parameters;And then click resend after reset; 2. Check and reconnect; 3. With reference to the above reset frequency converter operation parameters 4. Replace the communication module; 5. Reinstall the serial driver, and confirm the PC and PLC communication (COM2) PC - frequency converter serial port (COM1) effectively 	Fault buzze

十、Maintenance and maintenance

NO	ITEM	<u>operational approach</u>	TIME
1	Soldering	Cleaning spray tin oxide on the mouth	1st/Week
2	System	Replace the tin solder inside the furnace	1st/Year
3		Tin keep anti-oxidation oil to cover the entire surface	1st/4Ours
4		Cleaning spray tin tin slag around mouth	1st/day
5		Tin stove temperature were examined with a thermometer	1st/day
6		Check the tin furnace heating tube connection	1st/half a year
7		Check whether the tin pump bearing vibration and noise	1st/week
8		Check whether there is the first wave nozzle clogging	1st/ 4ours
9		Preheating	Open preheating the bottom plate, remove deposit sundry
10	system	Check whether the set temperature is consistent with indicating temperature	1st/ours

11		Check the preheating of heat pipes in the attachment	1st/half a year
12	Fog system	Switch alcohol/flux, cleaning the nozzle inside	1 st /day
13		Soaked the spray system at the top of the screen pack cleaning in alcohol	1ST/day
14	All sensors	Check whether all the sensors is loose or normal induction	1st/month
15	Cooling and exhaust	Check the cooling and exhaust fan, to ensure the normal work	1st/day
16	transmission system	Give all bearing grease	1st/month

* this manual are just regular maintenance cycle time, the user can modify according to their specific situation

十一、 User attention

<p>Warning:</p> <p>When the device only by professional maintenance and repair personnel and training qualified personnel to operate</p> <p>Make sure that the external input power low electricity before are in conformity with the equipment of the rated voltage and current</p> <p>This equipment contains high temperature equipment and mechanical transmission, operation should pay attention to safety</p> <p>When this equipment is used in flux and cleaner inflammables, must be equipped with necessary fire prevention facilities</p>

Note:

1. Please read the user manual carefully before operating this equipment.
2. Please click this equipment maintenance instructions of this manual for maintenance and maintenance;
3. Please don't take this equipment installation near the electromagnetic interference sources;
4. Do not change the software of the device in the electric cabinet and hardware Settings;
5. Please keep this manual for reference when maintenance and repair;