

※Before using maintenance system, please read this User' manual carefully. It can acquaint yourself with the system easilier, and know how to use it quicklier.

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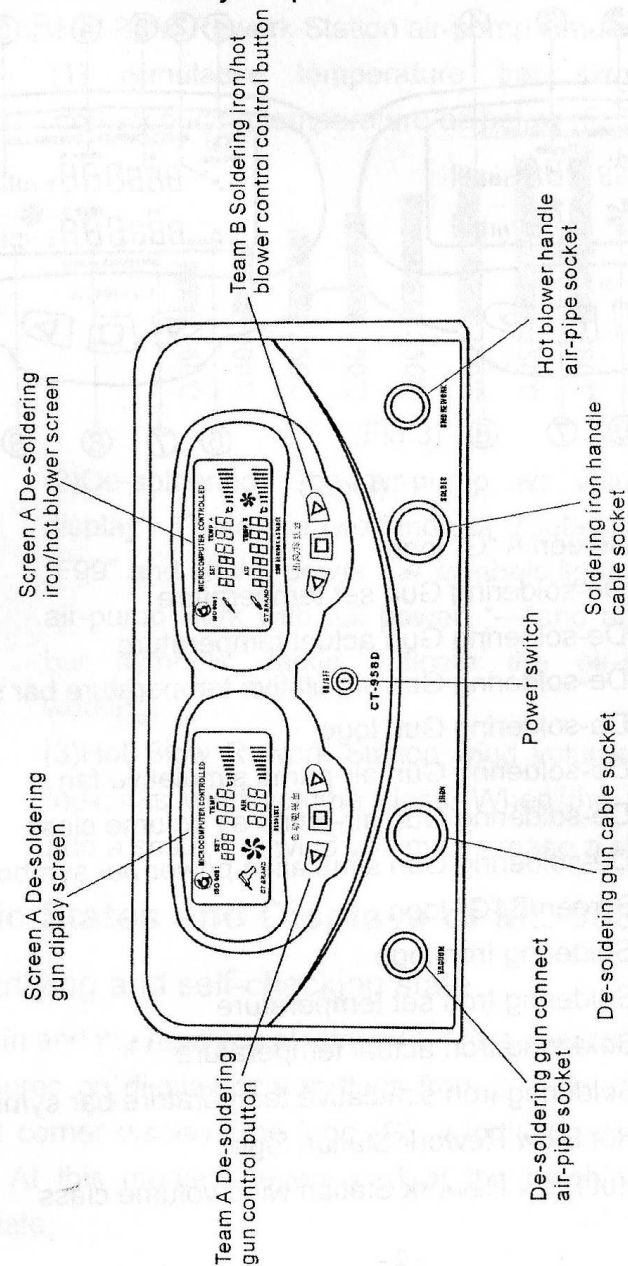


### Caution:

1. While set up ML-958D maintenance system, must make sure it has been safely grounded.
2. After three parts of this system are started, they will be very hot, please be careful of scald. Must not use it near flammable air, paper or other tinder.
3. Please pull the plug out of socket if you will not use for a long time.

## I . Introduction of Operation Board

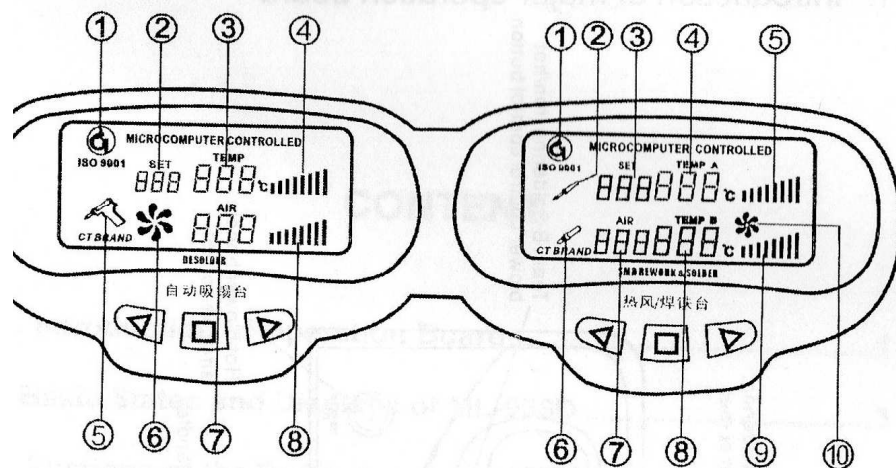
### 1. Introduction of major operation board



(Fig. 1)

## Introduction of display screen

In the working station, the meaning of the symbols in the board as below (fig.2)



(Fig.2)

Screen A: ①Screen A "G" logo

②De-soldering Gun set temperature

③De-soldering Gun actual temperature

④De-soldering Gun simulative temperature bar symbol

⑤De-soldering Gun logo

⑥De-soldering Gun air-pump simulative fan

⑦De-soldering Gun air-pump air volume class

⑧De-soldering Gun simulative power bar symbol

Screen B: ①Screen B "G" logo

②Soldering Iron logo

③Soldering Iron set temperature

④Soldering Iron actual temperature

⑤Soldering Iron simulative temperature bar symbol

⑥Hot Blow Rework Station logo

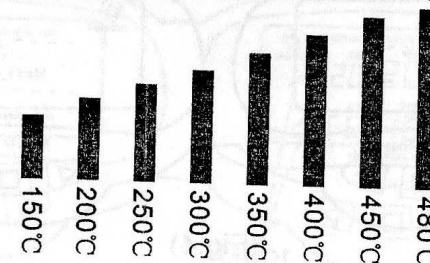
⑦Hot Blow Rework Station wind volume class

⑧Hot Blow Rework Station actual temperature

⑨Hot Blow Rework Station simulative temperature symbol

⑩Hot Blow Rework Station air-pump simulative fan

Remark: (1) Simulative temperature bar symbol, it corresponding temperature as below (fig 3):



(Fig.3)

(2)De-soldering Gun air-pump air volume power display There are two kinds of display in this station "F99" and all the power bar symbols light indicate the air-pump work with full power; "---" and all the power bar symbols dark indicate the air-pump stop working.

(3)Hot Blow Rework Station wind volume "F40-F99" indicates wind volume class. When the bar symbol add a scale, the wind volume increase a class.

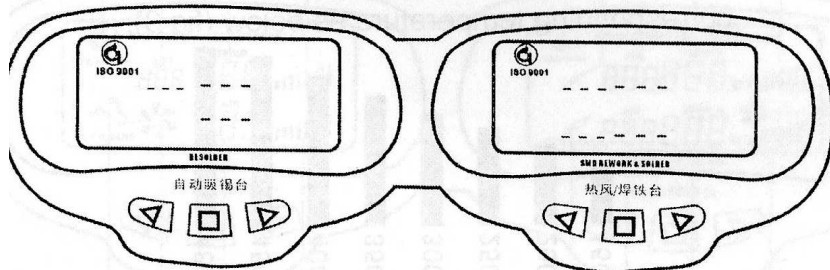
## II. Basic States and Displays of ML-958D

### 1. Electrifying and self-checking state

Plug in and the machine electrified. At first, it will self-checking all the figures on display screen flops from 0 to 9, after that the upper left corner displays the logo "G", it indicates self-checking normally. At this moment, every part of the machine is in the closure state.

## Standby state

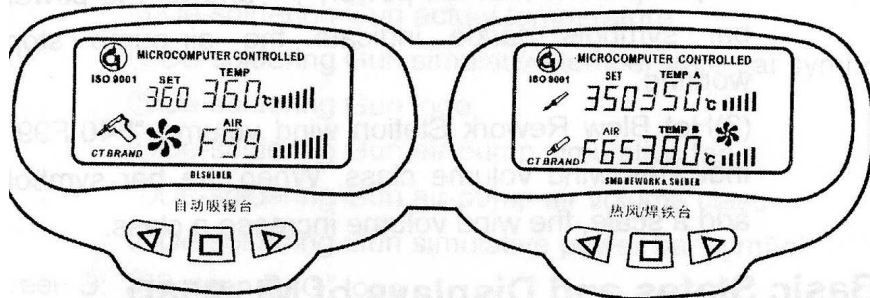
After the self-checking, switch ON/OFF, it displays as fig.4, the whole machine turns on. The de-soldering gun, soldering iron and hot blower are standby, the corresponding figures of each part in standby state are displayed as “- - - - -”.



(Fig.4)

## Working state

When every part of the machine works normally, the corresponding figures are as fig.5 displayed. At this moment, the temperatures are constant.



(Fig.5)

## Dormancy and standby state

When every part of the machine don't be used for a while, it change the working state to the dormancy so to slower down speed of machine aging and save the energy, meanwhile, can complete resumption of stable operation within a short span of

time. Under this state, the corresponding logos of the de-solder gun, soldering iron and hot blower are flashing constantly indicate it has been in the dormancy and standby state. [The dormancy temperature sets to: ①De-soldering gun: 280℃, ②Soldering iron: 200℃, ③Hot blower: 200℃, F60.]

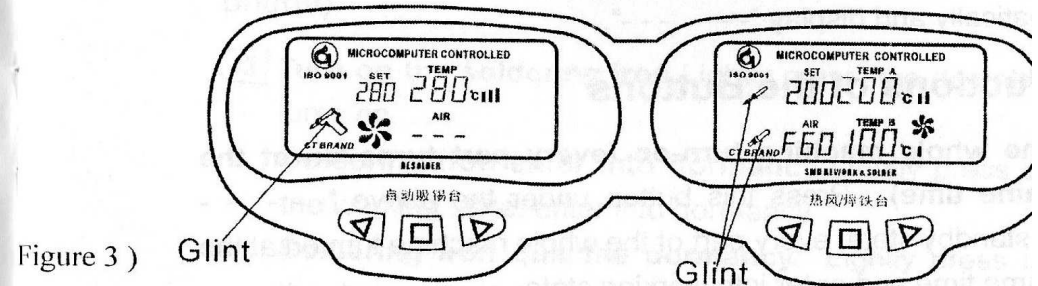


Figure 3 )

(Fig.6)

## 5. Setup state

Setting adjustable temperature and hot blower wind volume in this state. When screen A “SET” and its corresponding figure flash on screen B “SET” and its corresponding figure, or “AIR” and its corresponding figure, or “TEMP B” and its corresponding figure, press the adjustable button, the corresponding figures change accordingly. It indicates the figure has been input.

## 6. Turnoff the machine

### ① Turnoff the whole machine

Press the button NO/OFF last for a while, the whole machine closes. At this moment, if the hot blower is working, it will turn to cooling self-checking closure status. (as II-6-③)

### ② De-soldering gun and soldering iron close up independently.

When de-soldering gun and soldering iron close up independently, their corresponding figures display “- - - - -”, at the part closes.



Hot blower self-examine closure.


When the hot blower in the closure state, the machine cut off  
ing, spurt out the cold wind (wind volume adjuste to MAX.,  
play F99), and the temperature comes down constantly, "AIR,  
)" and "TEMP B" and their corresponding figures flashing, when  
temperature indicates 100 °C , the hot blower close  
omatically and display "- - - - -".

## Fuctions of the Buttons

**)The whole machine turn-on (every part turns on at the same time).** Press this button under the above "- - - - -"  
- " standby state, every part of the whole machine turn on at the  
same time and enter into working state.

**The whole machine turnoff** Last press for a while, enter  
into turnoff save, the figures flop from 0 to 9. After that, screen  
displays logo "G" only, the whole machine turns off.


### Team A button (De-soldering gun control button)

 **Turnon** Lightly press, the de-soldering turnon.

**Enter into dormancy** Lightly press under the working  
state, enter into dormancy.


**Quit the dormancy** Lightly press under the dormancy  
state, and quit the dormancy.

**Adjust temperature** Press under the set temperature  
state, the figure increases.

 **Turnon** Lightly press, the de-soldering gun turnon.


**Adjust temperature** Press under the set temperature  
state, the figure reduces.

**Turnoff** Lasting press for a while, the de-soldering gun  
turns off.

 **Turnon** Lightly press, the de-soldering gun turnon.

**Setup temperature** In working state, press into se  
temperature state. After that, pr  
again to quit the setup state.

### Team B button (Soldering iron / Hot blower cont button)


 **Turn on the soldering iron** Lightly press, the de-solder  
turns on.

**Soldering iron enter into dormancy** Lightly press un  
the working state, enter into dormancy.

**Soldering iron quit the dormancy** Lightly press un  
the dormancy state, and quit the dormancy.

**Adjust temperature, wind volume** Press under the  
temperature state of soldering iron / hot blower or the st  
of wind volume , the figure increases.

**Turn off the soldering iron** Lasting press for a while  
the working state, the soldering iron turns off.

 **Turn on the hot blower** Lightly press, the hot blower tu

**Hot blower enter into dormancy** Lightly press under  
working state, enter into dormancy.

**Hot blower quit the dormancy** Lightly press under  
dormancy state, and quit the dormancy.

**Adjust temperature, wind volume** Press under the  
temperature state of soldering iron / hot blower or the st  
of wind volume , the figure increases.

**Turn off the hot blower** Lasting press for a while in t  
working state, the hot blower iron turns off.

**Hot blower auto cooling off** Lasting press for a while  
the working state, the hot blower turn into self-exami

turnoff.

**Adjust temperature, wind volume** Under the working state of de-soldering iron / hot blower  $\xrightarrow{\text{press}}$  enter into the temperature setup of the soldering iron  $\xrightarrow{\text{press}}$  enter into the wind volume setup of the hot blower  $\xrightarrow{\text{press}}$  enter into the temperature setup of the hot blower  $\xrightarrow{\text{press}}$  quit the setup state.

### **Button of adjusting wind volume on the hot blower handle**

**Adjust wind volume** Press the  $\triangle$  or  $\nabla$  button under the working state of hot blower adjust the output wind volume.

**Enter into dormancy** Press the  $\triangle$  and  $\nabla$  button at the same time under the working state, enter into dormancy.

**Quit the dormancy** Press the  $\triangle$  or  $\nabla$  button under the dormancy state, quit the dormancy.

## **Operation**

### **1. The whole machine's turnon and turnoff**

#### **(1) The whole machine's turnon**

- Electrify** Plug in and the machine electrified, it enters into self-checking, all the figures on display screen flops from 0 to 9, after that the upper left corner displays the logo "G".
- Standby state** Press ON / OFF, the whole machine turn on, every part enter into standby state.
- The whole machine work state** Press ON / OFF under the standby state, the whole machine enter into working state, every part can use.

### **(2) The whole machine's turnoff**

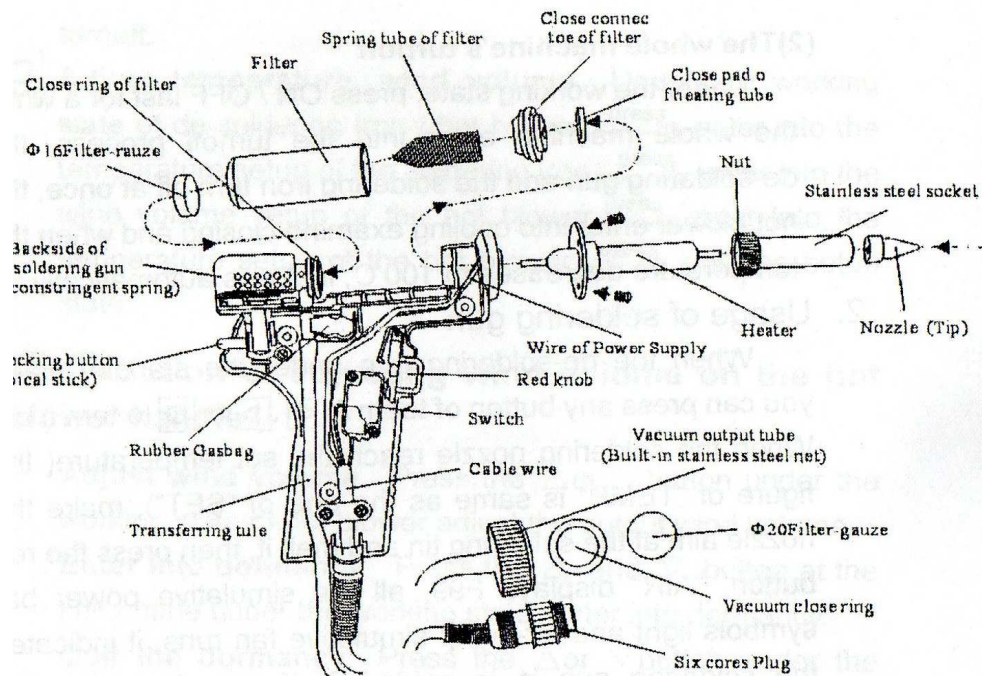
Under the working state, press ON / OFF last for a while the whole machine enter into the turnoff process, de-soldering gun and the soldering iron turn off at once, hot blower enter into cooling examine closing and when temperature decreases to 100°C, it closes automatically.

### **2. Usage of soldering gun**

When the de-soldering gun under the standby state you can press any button of team A  $\triangleleft$ ,  $\triangleright$  or  $\square$  to turn it on. When the soldering nozzle reach the set temperature (figure of "TEMP" is same as the one of "SET"), make nozzle aim at the soldering tin and melt it, then press the button, "AIR" displays F99, all the simulative power symbols light and air-pump simulative fan runs, it indicates the soldering gun is in soldering. If you don't use soldering gun for a while, you can press  $\triangleleft$  lightly to make into dormancy. If you will use it again, press  $\triangleleft$  once again to quit the dormancy. When you need to adjust the soldering gun's temperature, press button  $\square$ , the "SET" and corresponding figure flash, press button  $\triangleleft$ , the figure increases, press button  $\triangleright$ , the figure decreases. After finish the setting, you can press the button  $\square$  to quit temperature setup. When work finish, you can press button  $\triangleright$  to turn off the soldering gun.

- Caution:**
- After the turnon and temperature setup, and "TEMP" reach the "SET" temperature, please wait a moment to make the temperature of the soldering nozzle well-balanced before work.
  - Structure of the soldering gun as (fig.7).





(Fig.7)

## Checking the soldering gun

1. Shortage of suction, it may cause by the following reasons:

A. Inspiratory pipeline may be jammed, it need to clean the filter and pipeline of filter. (Refer to fig.7)

Cleaning the filter: press the lock-button (red) at the back end of the handgun by hand, the lock button will be flicked backward by the spring at the back end of the desoldering gun, and then take out the filter to clean the inside tinny scrap, please replace the filter-gauze. There is a filter-gauze inside the vacuum unit of output on the panel of desoldering station. Please clean it frequently, or replace it when it can't use any more.

Cleaning the pipeline: Nozzle was connected with pipeline

of stainless steel, was easy to be jammed by scrap. Under the hot condition, please clean it with steel needle.

**⚠ Caution:** Only in the hot condition, can the scrap be melt.

## B. Vacuum system leak

When vacuum system leak happen, please check if the vacuum connection-tube is Leak, if the nozzle is fixed, the vacuum unit of output is screwed down, and if the rubber sealed cover is damaged, which is inside the desoldering gun 958. If the above problem happens, please airproof or replace parts.

## C. Aging of rubber component inside vacuum suction pump.

Aging and distortion may appear in the rubber component inside vacuum suction pump, and affect the shortage of suction. If the above problem happens, please send to the manufacturer for checking and repairing.

## D. Vacuum suction pump block by oily-smoke

the oily-smoke of the melting solder (aid) was inhaled during process, which will block the suction pump. And this may happen after 600hrs working, please clean the interior piston of the pump with diluted alcohol.

**⚠ Warning:** Gas, or other corrosive solution is prohibited to be used for cleaning.

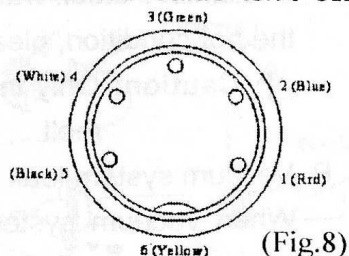
## 2. The connection plug of desoldering station and desoldering gun

When the part of heater doesn't work, or fail to connect, please measure the plug of wire of gun as the figure 3 (plug of 6 cores)

A. When the resistance value "a" and "b" are out of gear, please replace the heater.



- }. When press the knob "c", the resistance value isn't  $0\Omega$ , please replace the switch.
- }. When the "d" is grounding wire, the resistance value of it and stain steel must less than  $2\Omega$ .



#### Caution:

① and ② are K type thermocouple, ① is  $\oplus$ , ② is  $\ominus$ , the blue wire of heater is  $\oplus$ , and white wire is  $\ominus$ . The anode and cathode of K type thermocouple should not be connected crossly.

i.	Between pins 4 & 5 (Heating element)	Around $16\Omega$
i.	Between pins 1 & 2 (Sensor)	K style ( $2\Omega$ under normal temperature)
i.	Between pins 3 & 4 (Switch)	Infinite(without touching), 0 (touching)
i.	Between pins 6 & Tip	

#### Usage of soldering iron

When the soldering iron under the standby state, you can press Team B button  $\triangleleft$  to turn it on. When the soldering iron reach the set temperature (the figure of "TEMP" is same as the one of "SET"), it can be used. If you don't use the soldering iron for a while, you can press lightly  $\triangleleft$  to make it into dormancy. If you will use it again, press  $\triangleleft$  once more to quit the dormancy. When you need to adjust the soldering iron's temperature, press button  $\square$ , the "SET" of Screen B and its corresponding figure flash, press button  $\triangleleft$  or button  $\triangleright$ , to make the figure increase or decrease. After

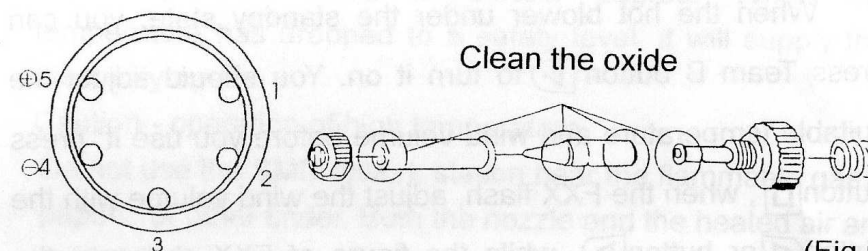
finish the setting, you can press the button  $\square$  to quit the temperature setup. You can press button  $\triangleleft$  last for while to turn it off when the soldering iron in the working state.

Caution: 1) Checking the damage of heating elements and connecting cord

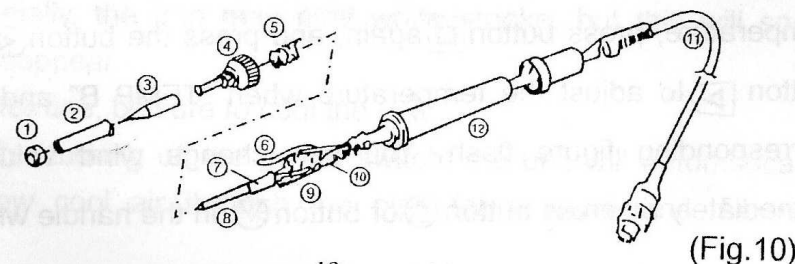
Disconnect the plug and measure the resistance value between the connecting plug pin as below:

a.	Between pins 1 & 2(Heating element)	$12\sim15\Omega$ (Normal)
b.	Between pins 4 & 5 (Sensor)	$< 4\Omega$ (Normal)
c.	Between pins 3 & Tip	Under $2\Omega$

Remark: the figures are measured at the room temperature. If the values of "a" and "b" are outside the above value replace the heating element (sensor) wire. If the value of "c" is over the above value, remove the oxidization film by lightly rubbing with sand-paper or steel wool the points as shown.



2). Disassembly the handle of soldering iron



- Turn the nut (1) counterclockwise and remove the tip enclosure (2), the tip (3).
- Turn the nipple (4) counterclockwise and remove it from the iron.
- Pull both the heating element (6) and the cord assembly (11) out of the handle (12). (Toward the tip of the iron)
- Pull the grounding spring (5) out of the D-sleeve.










Measure when the heating element is at room temperature:

- Resistance value of heating element  $12\Omega$ - $15\Omega$ .
- Resistance value of sensor  $< 4\Omega$







If the resistance value is not normal, replace the heating element.


**Caution: Sensor should divide the “ $\oplus$ ” and “ $\ominus$ ”, red line “ $\oplus$ ” and blue line “ $\ominus$ ”, should not be connected crossly.**

### Usage of hot blower

When the hot blower under the standby state, you can press Team B button  to turn it on. You should adjust the suitable temperature and wind volume before you use it: press button , when the FXX flash, adjust the wind volume with the button  or button , while the figure of FXX changes, the wind volume changes accordingly. If you need to adjust the temperature, press button  again, and press the button  or button  to adjust the temperature when “TEMP B” and its corresponding figure flash. You can change wind volume immediately by press button  or button  on the handle while

you need to do that during the de-soldering.

Enter into dormancy in the working state: a. press  lightly; press the handle button  and  at the same time. Quit dormancy: a. press  lightly; b. press the handle button   directly.

Turn off hot blower in the working state: press button  last for a while, the hot blower display on Screen B flash at the same time, and it enter into cooling off state. (fig. IV-1-(2).)

### Caution!

- Installing nozzle slightly, screws it down; do not pull the side the nozzle with pliers.
- Please don't unload the nozzle until the heater and it are cooled.
- Protector of heat.

For safety, the handle that was installed protector of heat inside will automatically stop supplying the electricity, when the temperature rises to certain degree. When the temperature has dropped to a safety level, it will supply the electricity again.

- Caution - operation of high temperature.  
Do not use the SMD rework station near the flammable gas paper, or other tinder. Both the nozzle and the heated air are extremely hot and can cause painful burns. Never touch the heater pipe or allow the heated air to blow against your skin. Initially, the iron may emit white smoke, but this will soon disappear.
- After use, be sure to cool the unit  
After turning off the power switch, the unit will automatically blow cool air through the pipe for a short time. Do not



disconnect the plug during this cooling process.

Never drop or sharply jolt the unit

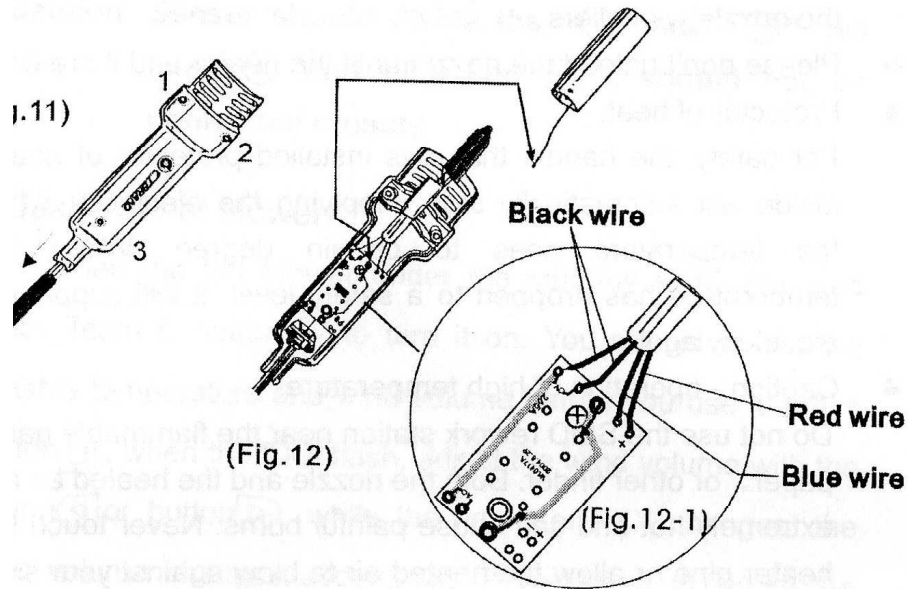
The pipe contains quartz glass, which can break if the unit is dropped or jolted sharply.

## Replacing the Heating Element

Parts for replacing

S/NO.	Name/ Specification
1085001	Material of heating (220V-240V) 350W

Material of heating for replacing



Remove the screws, slide the tube.

Remove the 3 screws (fig.11--1, 2, 3), which secure the handle and slide the cord tube.

Open the Handle.

Disconnect the ground wire sleeve (fig.12) and remove pipe. In the pipe, the quartz glass and heat insulation installed. Do not drop or miss it.

- Remove the Heating Element.

Solder out the heating element connecting line and remove the heating element.

The heating element connecting lines and the PC board connection as the little figure. (fig.12-1)

Measure the resistance value between the connecting lines as below:

- a. Between lines black & black , about  $88\Omega$
- b. Between lines red & blue ,  $< 4\Omega$  (Normal)
- c. Middle one is the safe ground wire.

**Caution:** Red line soldering “+” and blue line soldering “-”, should not be connected crossly.

- Anew Assembly.

Handle it with care. Never rub the heating element with. When the heating element damaged, anew soldering a new heating element and reconnect the terminal. Reconnect the ground wire after replacing the element. Assemble the handle in the reverse order of disassembly. Insert the handle's projection into the hole in the pipe.

For “ML-958D's malfunction judgement, temperature revision and parameter setup, please refer to <<3rd Fascicule. Management manual>>.”