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# **HAKKO 928**

**SOLDERING STATION**

## **INSTRUCTION MANUAL**



Please read this instruction manual thoroughly before operating  
the HAKKO 928

# Specification

## ● Station

<b>Power Consumption</b>	120W (60W×2)
<b>Output Voltage</b>	AC24V (Both A iron & B iron)
<b>Temperature</b>	200~480°C / 392~899°F (Both A iron & B iron)
<b>Temperature Control</b>	±0.5°C (±0.9°F) <small>Control accuracy of setting at idling temperature.</small>
<b>Outer Dimensions</b>	135(W)×88(H)×190(D)mm (Without Cord Asse'y) 5.3" 3.5" 7.5"
<b>Weight</b>	Approx. 2.7kg (6 lb)

## ● Iron

Part No.	900S-ESD	900M-ESD	900L-ESD
<b>Power Consumption</b>	AC24V 50W		
<b>Insulation Resistance</b>	Over 300MΩ at 400°C / 750°F		
<b>Leak Voltage</b>	under 0.6mV		
<b>Heating Element</b>	Ceramic Heater		
<b>Cord Asse'y</b>	5 wire burn-proof silicon cord, 1.2m (4ft.) with Connecting Plug		
<b>Connecting Plug</b>	5 pin inter-lock system		
<b>Length (w/o cord)</b>	176mm (7")	190mm (7.5")	210mm (8.3")
<b>Weight</b>	25g (0.061lb)	45g (0.1lb)	55g (0.12lb)

## Conditions of Measurement

### ● Tip Temperature

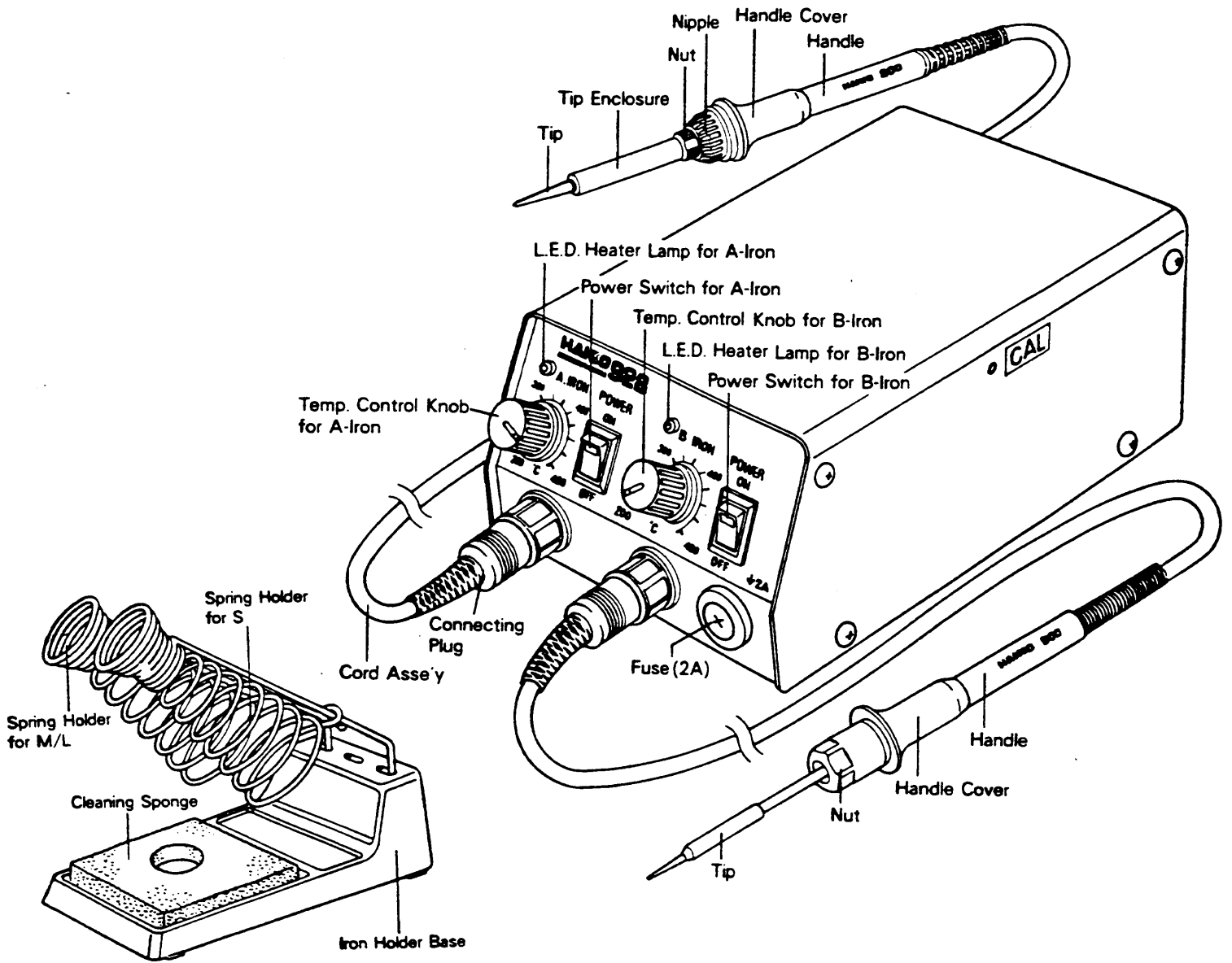
The tip temperature was measured using a CA thermocouple (0.2mmφ) with solder on the tip. Measurements taken with a surface thermometer may differ.

### ● Insulation Resistance

The insulation resistance was measured between the tip and the lead of the Heating Element using a 500V DC insulation resistance meter.

Caution : The insulation resistance cannot be measured between the tip and the power plug as the transformer between the secondary part (Heating Element) and the primary part acts as an insulator.

# Parts Name

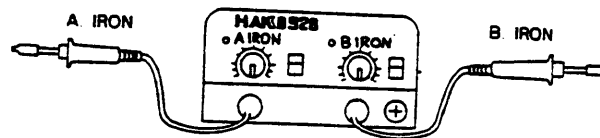


900M IRON		900S IRON	
TIP	900M-T-( )	TIP	900S-T-( )
TIP ENCLOSURE	900M-002 B1786	NUT	900S-003 900S-006
NUT	900M-006 B1784	HANDLE COVER	900S-034
NIPPLE	900M-044 B1921	HANDLE	900S-001/900S-001S (ESD)
HANDLE COVER	900-034 B1845	CORD BUSHING	900S-010
HANDLE	900M-001/900M-001S (ESD)	CORD ASS'Y	900S-039/900S-039S (ESD)
CORD BUSHING	900M-010/900M-010S (ESD)		
CORD ASSE'Y	900-039/900-039S (ESD)		
CONN. PLUG	777-008		
A SIDE		B SIDE	
LED HEATER LAMP	926-202	LED HEATER LAMP	926-202
TEMP. CONTRL. KNOB	926-204	TEMP. CONTRL. KNOB	926-204
POWER SWITCH	926-217	POWER SWITCH	926-217
FUSE	B1042	IRON HOLDER BASE	631-003 B1470
CLEANING SPONGE	609-029	SPRING HOLDER	B1468 B1469 631-001(M,L)/631-002(S)

## Operating Instructions

- 1) Insert a Spring Holder into each of the two Holder holes at the base of the Station.  
Note : There are two sizes of Spring Holder available ; select the appropriate size for each soldering iron you will be using.
- 2) Place the Cleaning Sponge in the Iron Holder Base and dampen it with clean water.  
Note : Specially coated soldering tips may be damaged if they are cleaned on a dry sponge.
- 3) Insert the 5-pin plug of Cord Ass'e'y into the Receptacle on the Station.  
Lock the Connecting Plug by turning the plug's outer ring clockwise.

Warning 1 : Each Soldering Iron has been tested and calibrated in the factory. Be sure to connect the A-Iron to the A-Iron receptacle and the B-Iron to the B-Iron receptacle. "A-Iron" and "B-Iron" are indicated on the Handle of the respective Soldering Irons.

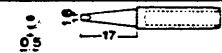
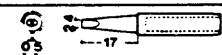
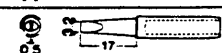
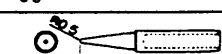
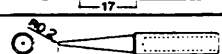
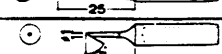

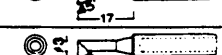
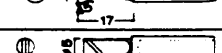
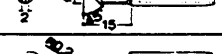
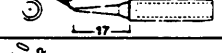


Warning 2 : To prevent damage to the Control PCB inside the Station, be sure to turn the power off before connecting or disconnecting the Soldering Iron.

## Precautions


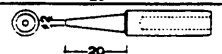
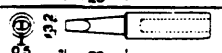
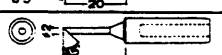
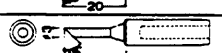
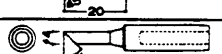
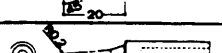
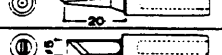
- 1) Never strike the Soldering Iron against the workbench or other solid surface as the ceramic Heating Element is very fragile and cannot withstand sharp blows.
- 2) Before using the Soldering Iron, make sure the Nut securing the Tip Enclosure is properly tightened.
- 3) When replacing the Heating Element, first unscrew the Nut, then the Nipple. After replacing the Heating Element, first screw on the Nipple, then the Nut. (Disassembly /assembly in the reverse order may result in damage to the Heating Element.)
- 4) Always remove excess solder from the Tip prior to soldering and tin the tip dairy. HAKKO recommends using a heavier tip with the 900L for heavy-duty soldering, and a fine tip with the 900S for micro soldering.
- 5) Even with the power switch off, the 928 still contains a 4W current when the power cord is plugged into an AC outlet. Therefore, always unplug the power cord whenever the 928 will not be used for a long period of time.
- 6) All HAKKO 900 soldering irons are tested and calibrated in the factory. Recalibration may be necessary, however, in the following cases.
  1. After replacing the Soldering Iron with a larger or smaller iron.
  2. After replacing the Heating Element.
  3. After replacing the tip with one of a different type.

# Replacement Tip

No.	Tip (mm)	Control setting resolution
900M-T-1.6D		0 480°C (896°F)
900M-T-2.4D		0 480°C (896°F)
900M-T-3.2D		0 480°C (896°F)
900M-T-B		0 480°C (896°F)
900M-T-LB		-10°C 470°C (878°F)
900M-T-1C		0 480°C (896°F)
900M-T-2C		0 480°C (896°F)
900M-T-3C		0 480°C (896°F)
900M-T-K		+30°C 510°C (950°F)
900M-T-I		-10°C 470°C (878°F)
900M-T-H		-20°C 460°C (860°F)

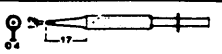
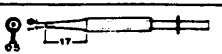

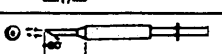
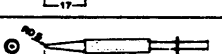
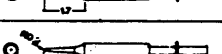
●900M Tip Out Dam 6.5φ

For heavy duty soldering HAKKO recommends  
The 900L Iron with heavier tips

900L-T-B		0 480°C (896°F)
900L-T-2B		0 480°C (896°F)
900L-T-3.2D		0 480°C (896°F)
900L-T-2C		-20°C 460°C (860°F)
900L-T-3C		0 480°C (896°F)
900L-T-4C		0 480°C (896°F)
900L-T-I		-20°C 460°C (860°F)
900L-T-K		+20°C 500°C (932°F)

●900L Tip Out Dam 8.5φ

For micro soldering HAKKO recommends  
The 900S Iron with fine tips

900S-T-1.2D		0 480°C (896°F)
900S-T-1.6D		0 480°C (896°F)
900S-T-2C		0 480°C (896°F)
900S-T-1C		0 480°C (896°F)
900S-T-B		0 480°C (896°F)
900S-T-I		0 480°C (896°F)

●900S Tip Out Dam 5.8φ

## ● Caution

- 1) Use exclusive tips for HAKKO 900 only.
- 2) The set temperature should be adjusted according to the tip configuration.  
If required, adjust the temperature with "CAL" potentiometer on bottom of station when changing tip configurations.  
The temperature is increased by turning "CAL" clockwise.
- 3) When using the Soldering Iron continuously loosen Tip and remove oxide once a week.  
This helps prevent seizure and reduction of Tip temperature.
- 4) Tin the tip daily as follows ;
  1. Clean the Tip.
  2. Set the temperature at 200°C (392°F).
  3. Melt the solder gradually at the tip.
- 5) Never file the specially plated tip.

## Trouble Shooting Guide

If the Soldering Iron doesn't heat-up or uncontrollable and Tip becomes over-heat when the Power Switch on, please check as follows ;

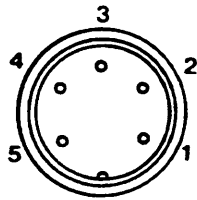
CAUTION : Disconnect the plug before checking.

### (Case 1) Power Lamp doesn't light up.

- Check Fuse ... Replace with 125V 2A Fuse if necessary.
- Check Power Cord ... Repair or replace with new one.

### (Case 2) Power Lamp lights up.

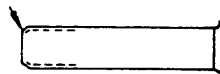
Confirm whether the Connecting Plug is connected correctly.  
Disconnect the Connecting Plug and measure the resistance value between pins of Cord Asse'y's Plug as follows ;



a	Between pin 4 & pin 5 (Heating Element)	2.5~3.5 ohm (Normal)
b	Between pin 1 & pin 2 (Sensor)	43 ~ 58 ohm (Normal)
c	Between pin 3 & Tip (Grounding)	Under 10 ohm

- (1) If the value of "a" & "b" is different from above value, replace the Heating Element (Sensor) or Silicon Cord.
- (2) On HAKKO 900M, 900L.

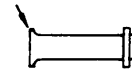
If the value of "c" – between pin 3 and tip (Grounding) is over above value, remove the oxidization film by rubbing points shown as under with sand-paper or steel wool.



Tip Enclosure



Tip



Element Support Pipe

### On HAKKO 900S.

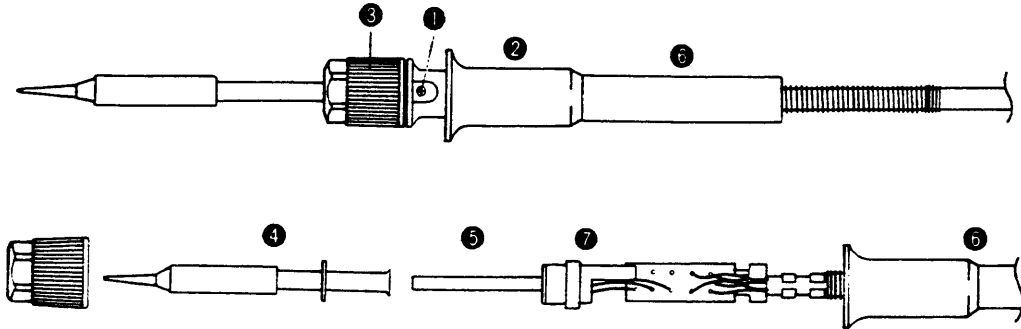
If the value of "c" – between pin 3 and tip (Grounding) is over above value, check the Cord Asse'y and replace it.

- If the problem remains unsolved after check in the Soldering Iron, the Station may have a problem.

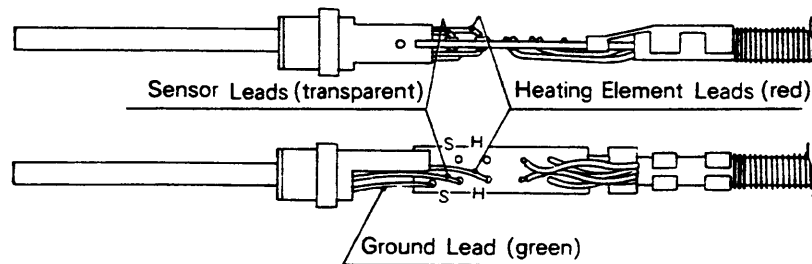
Please contact your nearest HAKKO representative.

# Replacing the Heating Element

## ● 900S Soldering Iron

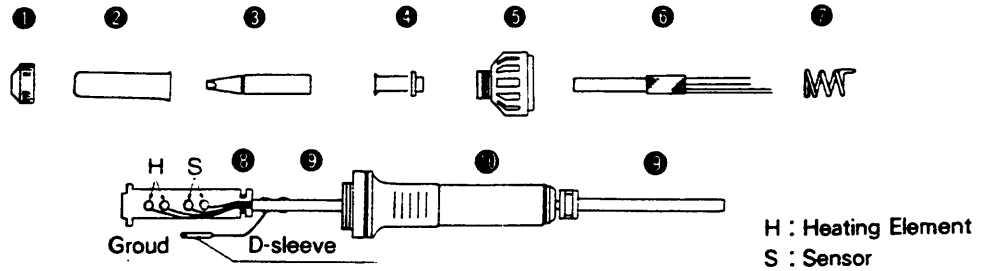


- 1 . Slide the Handle Cover ② toward the Power Cord and remove the Screw ① securing the Heating Element.
- 2 . Turn the Nut ③ counterclockwise and remove it.
- 3 . Remove the Tip ④.
- 4 . Pull both the Heating Element ⑤ & the Cord Asse'y toward the tip of the Iron and out of the Handle ⑥.
- 5 . Measure the resistance values at the Sensor and the Terminal. Should the resistance value be correct, the Cord Asse'y will have to be changed as it is disconnected.

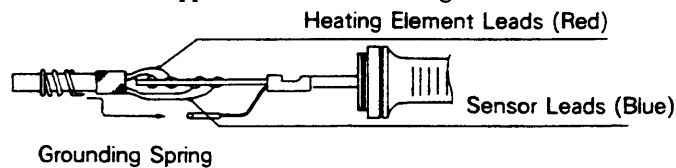


- 6 . Unsolder the Heating Element Leads, Sensor Leads and Ground Lead. Remove the Heating Element and the Heating Element Holder ⑦. Be careful not to damage the leads with soldering iron.
  - 7 . Solder the new Heating Element and resolder the Ground Lead. Resolder the two Sensor Leads (transparent) and the two Heating Element Leads (red). Be careful not to damage the leads.
- Note : There is no polarity between leads of the same color.
- 8 . Pull on the Cord Asse'y to reset the Heating Element in the Handle. Align the holes in the Heating Element Holder ⑦ with the holes in the Handle ⑥.
  - 9 . Secure the Heating Element with the Screw ①.
  - 10 . Insert the Heating Element ⑤ into the Tip and secure it with the Nut ③.
  - 11 . Slide back the Handle Cover ② in its place.

## ● 900M·900L Soldering Iron



- 1 . Turn the Nut ① counterclockwise and remove the Tip Enclosure ②, the Tip ③, the Element Support Pipe ④.
- 2 . Turn the Nipple ⑤ counterclockwise and remove it from Iron.
- 3 . Pull both the Heating Element ⑥ and the Cord Ass'e'y ⑨ out of the Handle ⑩ (toward the tip of the Iron).
- 4 . Pull the Grounding Spring ⑦ out of the D-Sleeve.
- 5 . Measure the resistance value at the sensor and the Heating Element of the Terminal.
- 6 . Desolder the Heater Lead Wire.
- 7 . Solder the new Heating Element, solder two Sensor Leads (blue) and Heating Element Leads (red) on the Terminal Board ⑧ as above drawing.
  - In the above Item 5 & 6, be careful not to damage the leads with soldering iron.
- 8 . Insert the Grounding Spring into the Heating Element. And connect the Grounding Spring and D-sleeve on the opposite side of Heating Element Leads.



- 9 . Pull the Power Cord and fix the Heating Element in the Handle to prevent rolling.
- 10 . Turn the Nipple and secure the Handle.
- 11 . Replace the Element Support Pipe ④, the Tip ③, the Tip Enclosure ② and secure the Nut ①.

## Recalibrating of Iron Temperature

After replacing the Heating Element, recalibrate the temperature of Soldering Iron.

- 1) Connect the Plug of Cord Ass'e'y to the Station and lock it.
- 2) Set Temperature Control Knob at 400°C (752°F).
- 3) Turn the Power Switch on and wait till the L.E.D. Heater Lamp comes on and off.
- 4) Adjust the temperature of Tip at 400°C (752°F) by "CAL" on the bottom of the Station using thermometer.