



HAKKO 700

REPAIR SYSTEM

INSTRUCTION MANUAL

700C

Please read this Instruction Manual thoroughly before operating the HAKKO 700.

SPECIFICATION 700C

■ CONTROL STATION

Power Consumption	AC100—120, 220, 240V 150W
Output Voltage	24V
Outer Dimensions	260 (W) × 145 (H) × 255 (D) mm (10.2 × 5.7 × 10")
Weight	7.2 kg (15.84 lb) approx.
Soldering Side	
Temperature	200—480°C (392—896°F)
Desoldering Side	
Temperature	350—450°C (662—842°F)
Vacuum Power	600 mmHg max.

■ SOLDERING IRON (No.900M)

Power Consumption	AC24V 50W
Temperature Control	Control Accuracy of setting at idling temperature ±0.5°C (±0.9°F)
Insulation Resistance	Over 300M ohm at 400°C (752°F) by DC500V tester
Leak Voltage	under 0.6mV
Heating Element	Ceramic Heater
Length	190 mm (7.5")
Weight	45g (0.10 lb)

■ DESOLDERING GUN(No.800L)

Power Consumption	AC24V 60W
Heating Element	Ceramic Heater
Filter Pipe	Pyrex Heat Resistant Glass
Nozzle Inside Diam.	1.0 mm (0.039")—standard 0.8 mm (0.031"), 1.3 mm (0.051") & 1.6 mm (0.064")—optional
Weight	230g (0.51 lb) approx. w/o Cord & Suction Tube

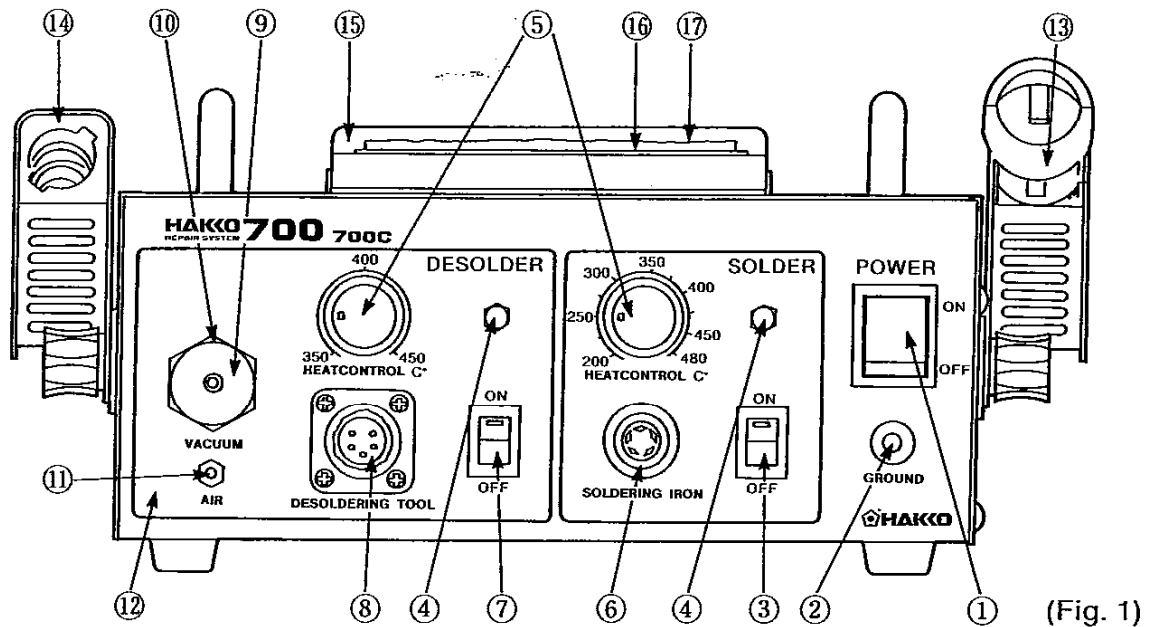
※The specifications written here may be subject to change without notice.

ACCESSORIES

Holder Part for Soldering Iron	1	Cleaning Pin-L	1
Holder Part for Desoldering Gun.....	1	(for Heating Core)	
Cleaning Sponge	1	Cleaning Wrench	1
Tip & Sponge Tray	1	Filter Set (steel wool & white felt filters) ..	5
Magnetic Tray Holder	1	Anti Seizure	1
Cleaning Pin-S	1	Check Valve	1
(for Nozzle & Heating Core)			

PART NAMES

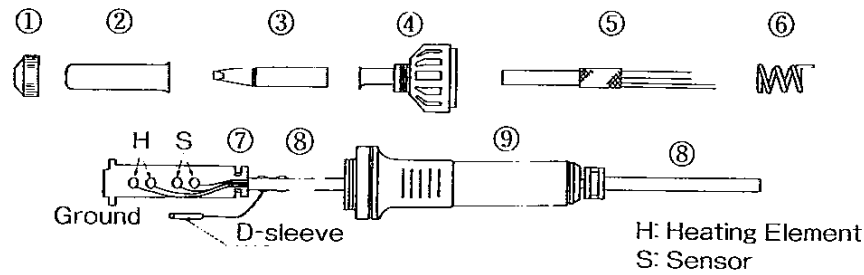
■ CONTROL STATION



(Fig. 1)

- | | |
|-----------------------------------|-------------------------------------|
| 1. Power Switch | 10. Vacuum Outlet Retainer |
| 2. Grounding Terminal | 11. Air Nozzle |
| 3. Switch for Solder | 12. Chassis |
| 4. L.E.D. Lamp | 13. Holder Part for Soldering Iron. |
| 5. Temp Control knob | 14. Holder Part for Desoldering Gun |
| 6. Receptacle for Soldering Iron | 15. Magnetic Tray Holder |
| 7. Switch for Desolder | 16. Tip & Sponge Tray |
| 8. Receptacle for Desoldering Gun | 17. Cleaning Sponge |
| 9. Vacuum Outlet Cap | |

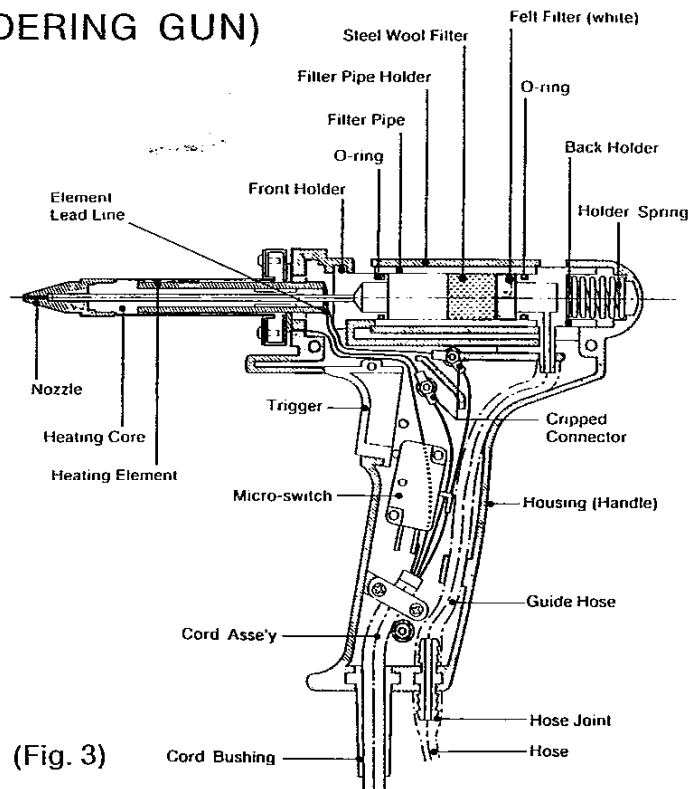
■ 900M(SOLDERING IRON)



(Fig. 2)

- | | | |
|------------------|---------------------|----------------|
| 1. Nut | 4. Nipple | 8. Cord Asse'y |
| 2. Tip Enclosure | 5. Heating Element | 9. Handle |
| 3. Tip | 6. Grounding Spring | |
| | 7. Terminal Board | |

■ 800L(DESOLDERING GUN)



(Fig. 3)

OPERATING INSTRUCTION

(1) Remove the packing cover from Vacuum Outlet Retainer (Fig.1, No.10), screw Vacuum Outlet Cap (Fig.1, No.9) with White Felt Filter onto Vacuum Outlet Retainer (Fig.1, No.10).

(2) Set Holder Parts to both sides of Control Station with supplied Thumb Screws and adjust the angle by fixing Screws.

REMARKS: Holder Part for Desoldering Gun shall be set on left side of Control Station and another Holder Part with Iron Receptacle for Soldering Iron shall be attached to right side.

(3) Put Desoldering Gun into leftside and Soldering Iron into right side Holder Parts respectively.

- (4) Connect the Cord Asse'ys of both 800L/900M to Receptacles and also connect Guide Hose of Desoldering Gun to Vacuum Outlect Cap.
- (5) Put two Cleaning Pins into the holes of Station top.
- (6) Dampen Cleaning Sponge with water. And set it on Station top with Tip & Sponge Tray and Tray Holder (Fig.1,17/18).
WARNING: Special coated Tips/Nozzle may be damaged if cleaned in dry condition.
- (7) Confirming Power Switch (Fig.1, No.1) is set at 'OFF' position, connect Main Plug to power supply source.
 Set the temperatures by turning Temp, Control Knobs (Fig.1, Nos.5/9), and turn Power Switch (Fig.1, No.1) on.
WARNING: Always connect or disconnect Plugs of Iron /Gun and Mains after Power Switch off, or Control Printed Wire Boards inside of Station may be damaged.
- (8) Turn on the either switch of solder/desolder desired to use.
- (9) Soldering Iron can be operated when L.E.D. Lamp (Fig.1, No.4) starts to come on and off.
 Exceptionally high thermal recovery allows a lower temperature setting thereby protecting sensitive components and extending Tip life.
WARNING: Ceramic Heating Element cannot stand excessive force. Never strike Soldering Iron against work-bench or solid surface.
 Always remove excess solder from Tip prior to soldering.
- (10) For Desoldering Gun,wait approx 10 minutes for heating-up after switch for Desolder on.
WARNING: Never attempt to use Iron before it has sufficiently heated-up as Nozzle hole and/or Heating Core inside may become clogged with cold solder and/or flux.
- (11) To remove any materials that may clog Nozzle and Heating Core insert Cleaning Pin-S from Nozzle top and clean it's inside.
- (12) Place Nozzle on the lead of the component to be removed and gently move Desoldering Gun back and forth for 2 or 3 seconds. When the lead begins to move freely, the solder is sufficiently melted.
 Then, pull Trigger of Iron, and Vacuum Pump will absorb the melted solder.
REMARKS: If the solder is not sufficiently melted, the component will not be properly desoldered due to insufficient suction.
 Should this occur, resolder the component and repeat desoldering process from step item (11) above mentioned.
- (13) Air Nozzle (Fig.1, No.11) is to give optional usage for air blowing. Use it connecting to Air Tube.
REMARKS: Air suction and air blow functions can not be used at the same time.

MAINTENANCE

■ FOR SOLDERING SIDE 900M

a. Replacing Heating Element

- (1) Turn Nut (Fig.2, No.1) counterclockwise and remove Tip Enclosure (Fig.2, No.2), Tip (Fig.2, No.3).
- (2) Turn Nipple (Fig.2, No.4) counterclockwise and remove it from Iron.
- (3) Pull both Heating Element (Fig.2, No.5) and Cord Asse'y (Fig.2, No.8) out of Handle (Fig.2, No.9) : toward Iron Tip.
- (4) Pull Grounding Spring (Fig. 2, No.6) out of D-Sleeve.
- (5) Measure the resistance value at Sensor and Heating Element of Terminal Board (Fig.2, No.7).
- (6) Desolder the Heater Lead Wire.
- (7) Solder new Heating Element. Solder two Sensor Leads (blue) and Heater Leads (red) on Terminal Board (Fig 2, No.7)
*In the above item (6) and (7), be careful not to damage the leads with soldering iron.
- (8) Insert Grounding Spring (Fig.2, No.6) into Heating Element (Fig.2, No.5). And connect Grounding Spring and D-Sleeve on the opposite side of Heater Leads.
- (9) Pull Cord Asse'y (Fig.2, No.8) and fix Heating Element in Handle to prevent rolling.
- (10) Turn Nipple (Fig.2, No.4) and secure Handle.
- (11) Replace Nipple (Fig.2, No.4), Tip (Fig.2, No.3), Tip Enclosure (Fig.2, No.2) and secure Nut (Fig.2, No.1)

WARNING: Make sure Nut securing Tip Enclosure assembly is properly tightened.

When Heating Element is replaced, unscrew Nut first, then unscrew Nipple. After replacing Heating Element, screw Nipple first and screw Nut. Opposite Procedure may cause the damage of Heating Element.

b. Recalibration of Iron Temperature

- (1) After replacing Heating Element, recalibrate the temperature of Soldering Iron.
- (2) Connect Plug of Soldering Iron to the Control Station and lock it.
- (3) Set Temperature Control Knob (Fig.1, No.5) at 400° C (752° F).
- (4) Turn Power Switch (Fig.1, No.1) on and wait till L.E.D. Heater Lamp (Fig.1, No.4) comes on and off.
- (5) Adjust the temperature of Tip at 400° C (752° F) by "CAL" (Soldering) on the rear pannel of Control Station using thermometer.

■ FOR DESOLDERING SIDE 800L

a. Replacement of the Filters in Desoldering Gun

Should the suction power of the Desoldering Gun become reduced due to the accumulated solder in the Filter Pipe, replace the Steel Wool and Felt Filters in the following manner.

- (1) Pull the Pipe Holder backward, then raise the front of the Holder and release it.

Caution: 1. If the Filter Pipe is hot, turn the Power Switch off and wait until the Pipe has cooled, or wear a glove while handling it.
2. Do not drop the Filter Pipe. It is made of Pyrex glass and is very fragile.

- (2) Remove the accumulated solder from the Filter Pipe. If necessary, replace the Steel Wool and Felt Filters. The Felt Filter should be replaced whenever it has become colored or hardened with flux.

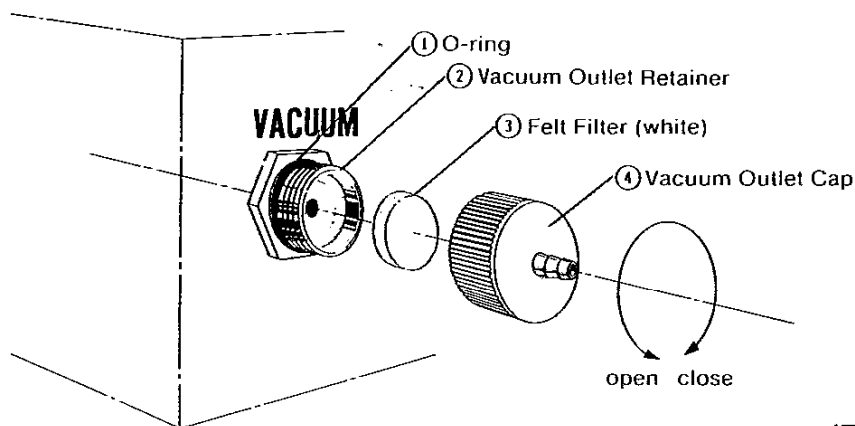
Caution: Never attempt to use the Desoldering Gun without the Filters in place as the Vacuum Pump may be damaged.

Note: Be sure to insert the Filters so that the Felt Filter is at the back and Steel Wool Filter is at the front of it.

b. Replacement of Filter in Vacuum Outlet Retainer

- (1) Should the suction power remain still weak after replacement of Filters in Filter Pipe, Felt Filter in Vacuum Outlet Retainer (Fig.4, No.2) must be replaced. This should be done as follows.
- (2) Turn Vacuum Outlet Cap (Fig.4, No.4) to left and remove it.
- (3) Replace White Felt Filter (Fig.4, No.3) that is inside Vacuum Outlet Retainer (Fig.4, No.2).

REMARKS: Felt Filter in Vacuum Outlet Retainer is the same one used in Filter Pipe.



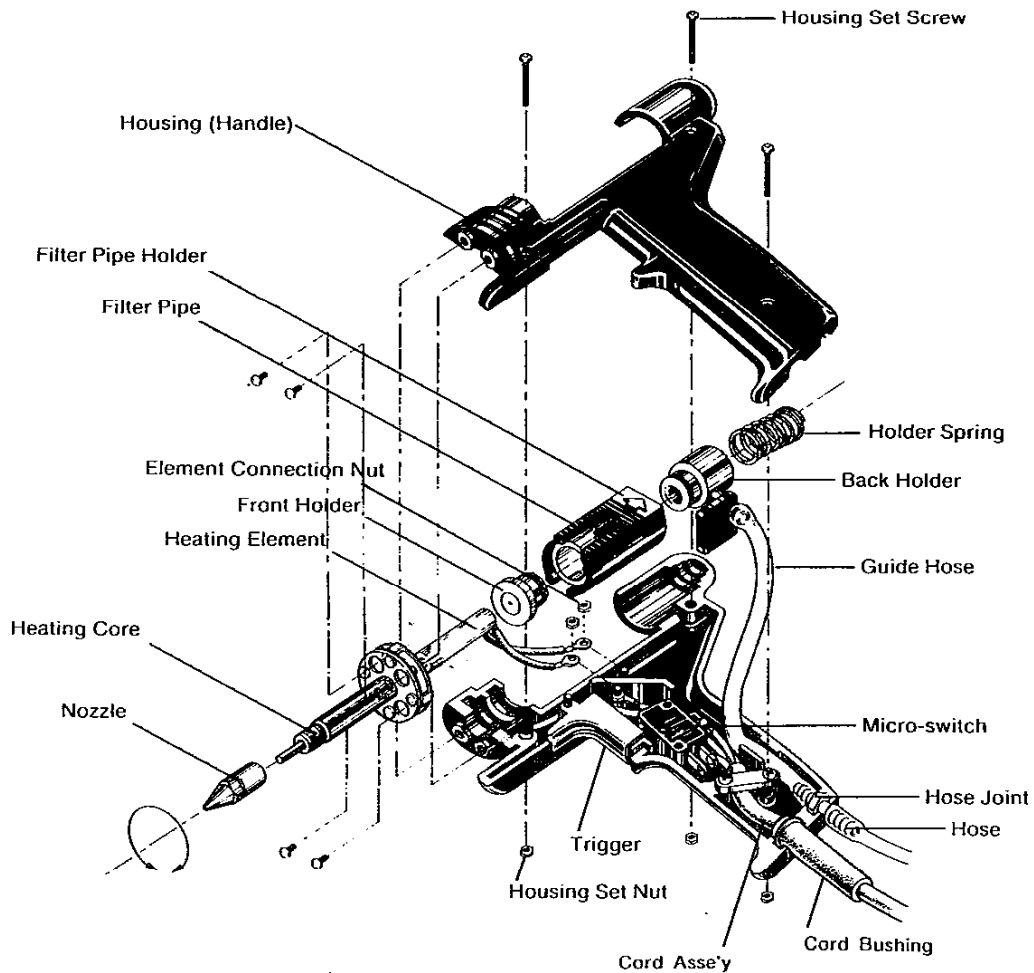
(Fig. 4)

c. Replacement of Nozzle

- (1) Use Cleaning Wrench to unscrew Nozzle.
- (2) Coat the threads of New Nozzle with supplied Anti Seizure and screw Nozzle onto Desoldering Gun.

REMARKS: Nozzle should be replaced while Desoldering Gun is hot as solder may be binding Nozzle to Heating core.
Be careful not to overtighten new Nozzle as you may slip the threads.
At the end of daily use, loosen Nozzle to prevent it from "freezing".

DESOLDERING GUN CONSTRUCTION



d. Replacement of Heating Element

Should the Heating Element break, replace it in the following manner.
Disconnect the Cord Ass'y of Desoldering Gun.

- (1) Remove the Filter Pipe Holder by referring to steps 1 and 2 of the filter replacement procedure (P.6-a-1)
- (2) Remove the Flange Set Screws.
- (3) Remove the Housing Set Screws.
and carefully lift off the Housing.
- (4) Unscrew the Heating Element Connection Nuts.
- (5) Remove the Front Holder.
- (6) Replace the Heating Element.
- (7) Reassemble the Desoldering Iron by following the disassembly steps in reverse order.

*** * * After Replacement of the Heating Element * * ***

- (1) Loosen the fastener marked "CAL" on the back side of the pump unit.
- (2) Using a "minus"(-) screwdriver, turn the temperature control potentiometer to Low (fully counterclockwise). After connecting the unit to the power supply, allow it to sit for 10 Minutes.
- (3) Turn the temperature control potentiometer clockwise until the temperature of the Nozzle reaches a stable 400°C /750° F.

f. Replacement of Heating Core

- (1) Remove the Filter Pipe Holder by referring to step 1 and 2 of the filter replacement procedure (P.6-a-1)
- (2) Remove the Nozzle by referring to step 1 of the Nozzle replacement procedure (P.7-c)
- (3) Remove the 4 Flange Set Screws.
- (4) Remove the Front Holder.
- (5) Remove the Heating Core by gently pulling it off.
- (6) Replace the Heating Core.
- (7) Insert the small stainless steel pipe of the Heating Core into the hole in the Front Holder.
- (8) Reassemble the Desoldering Gun by following the disassembly steps in reverse order.
- (9) Coat the threads of the new Nozzle with supplied Anti Seizure and screw the Nozzle onto the Desoldering Gun.

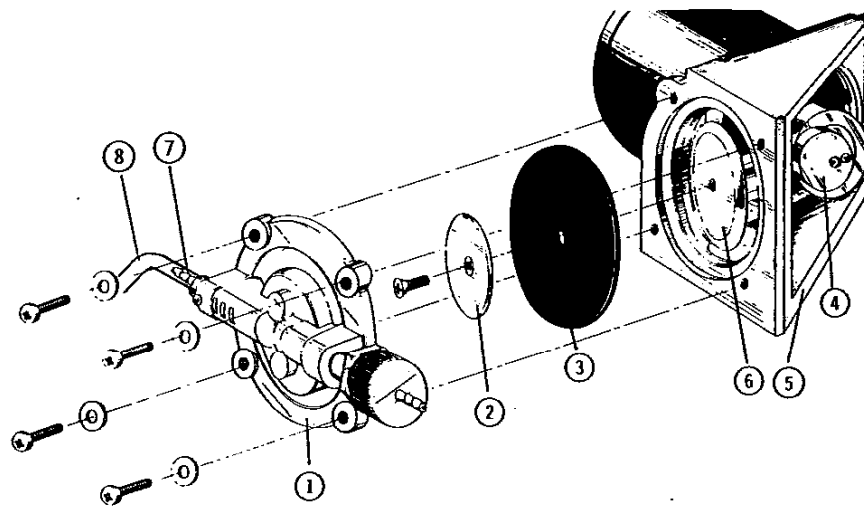
g. Cleaning and Replacement of Diaphragm and Valve

- (1) Even though 700C incorporates a 3-ply Filter structure in Desoldering side, flux may still occasionally cling to Diaphragm or Valve Plate, causing the vacuum suction power to drop after several days of usage.
To clean or replace Vacuum Pump Diaphragm and Valve, follow the procedure outlined below.
- (2) Disconnect Power Cord (Fig.1, No.25) from the power supply.
- (3) Unscrew Vacuum Outlet Retainer (Fig.4, No.2) and remove it.
- (4) Remove Holder Parts Cleaning Pins and Sponge Tray/Tray Holder from Control Station.
- (5) Unscrew the screws that secure Cover to Chassis and remove Cover.
- (6) Remove Pump Head (Fig.6, No.1).
- (7) Unscrew and remove Diaphragm Adjustment Plate (Fig.6, No.2) and Diaphragm (Fig.6, No.3).
- (8) Unscrew and remove Fixing Plate (Fig.7, No.3) from inside Pump Head (Fig.7, No.1), and remove Valve Plate (Fig.7, No.2).
- (9) Clean off any flux that is adhering to Valve Plate and Diaphragm with alcohol, etc. If any of Pump parts are cracked or deformed, replace them with new parts.
- (10) Reassemble the unit by above disassemble steps in reverse order.

WARNING: Be sure to reassemble Fixing Plate (Fig.7, No.3) in proper direction, i.e., so that the countersink in Fixing Plate is opposite the counterbored holes in Pump Head (Fig.7, No.1). Make sure that Crank Arm Asse'y (Fig.6, No.6) is at the lowest position before replacing Diaphragm (Fig.6, No.3), Diaphragm Adjustment Plate (Fig.6, No.2) and Pump Head (Fig.6, No.1). Apply a little silicon oil to the surface of Valve Plate (Fig.7, No.2) and Diaphragm (Fig.6, No.3) before reassembling them. This will make future disassembly much easier. Be careful not to allow any dust or other foreign matter to enter Pump inside during reassembling.

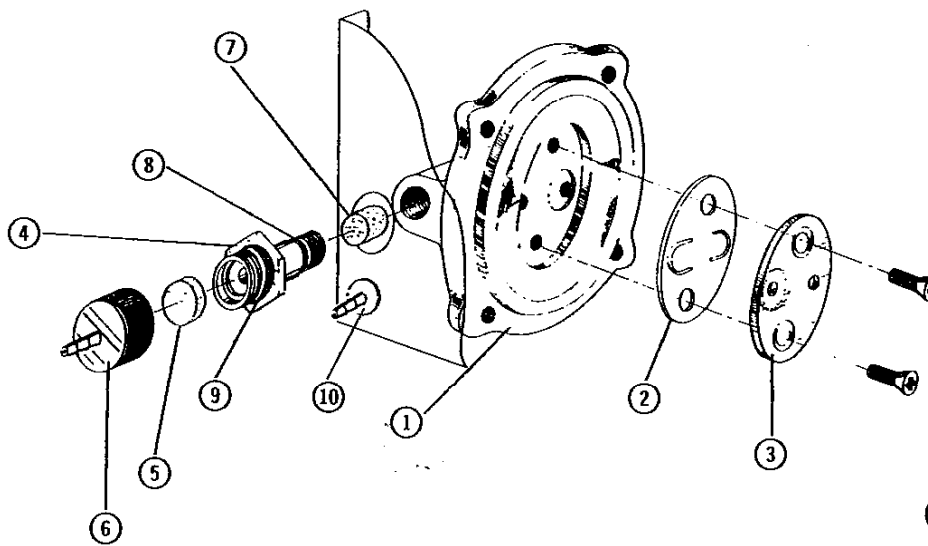
h. Others for Maintenance

It is very recommendable to clean Nozzle and Heating Core in daily use referring Instruction Sheet which is attached to Cleaning Wrench.



(Fig. 6)

- | | |
|-------------------|-------------------------------|
| 1. Pump Head | 2. Diaphragm Adjustment Plate |
| 3. Diaphragm | 4. Balance Weight |
| 5. Pump Flare | 6. Crank Arm Asse'y |
| 7. Air Hose Joint | 8. Air Lead Hose |



(Fig. 7)

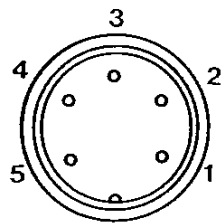
- | | |
|---|----------------------|
| 1. Pump Head | 6. Vacuum Outlet Cap |
| 2. Valve Plate | 7. Air Inlet Filter |
| 3. Fixing Plate (Pay special attention not to make an error of the direction when attaching.) | 8. O-Ring P-9 |
| 4. Vacuum Outlet Retainer | 9. O-Ring P-18 |
| 5. Felt Filter | 10. Air Nozzle |

TROUBLE SHOOTING GUIDE

If Power Lamp does not light up and Unit cannot be operated, check first "Fuse" and "Power Cord" from power supply source before checking the following. Replace or repair them, if necessary.

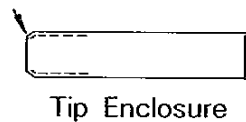
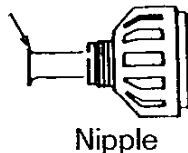
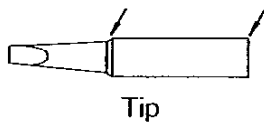
■ FOR SOLDERING SIDE

In spite Power Lamp lights up, but Soldering Iron does not heat-up, or uncontrollable and Tip becomes over-heat. After confirming the Connecting Plug is connected properly, disconnect the Connecting Plug and measure the resistance value between pins of the Connecting Plug as under :



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

- a. If the value of "a" and "b" is different from above value, replace Heating Element (Sensor) or Cord Ass'y.
- b. 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.



■ FOR DESOLDERING SIDE

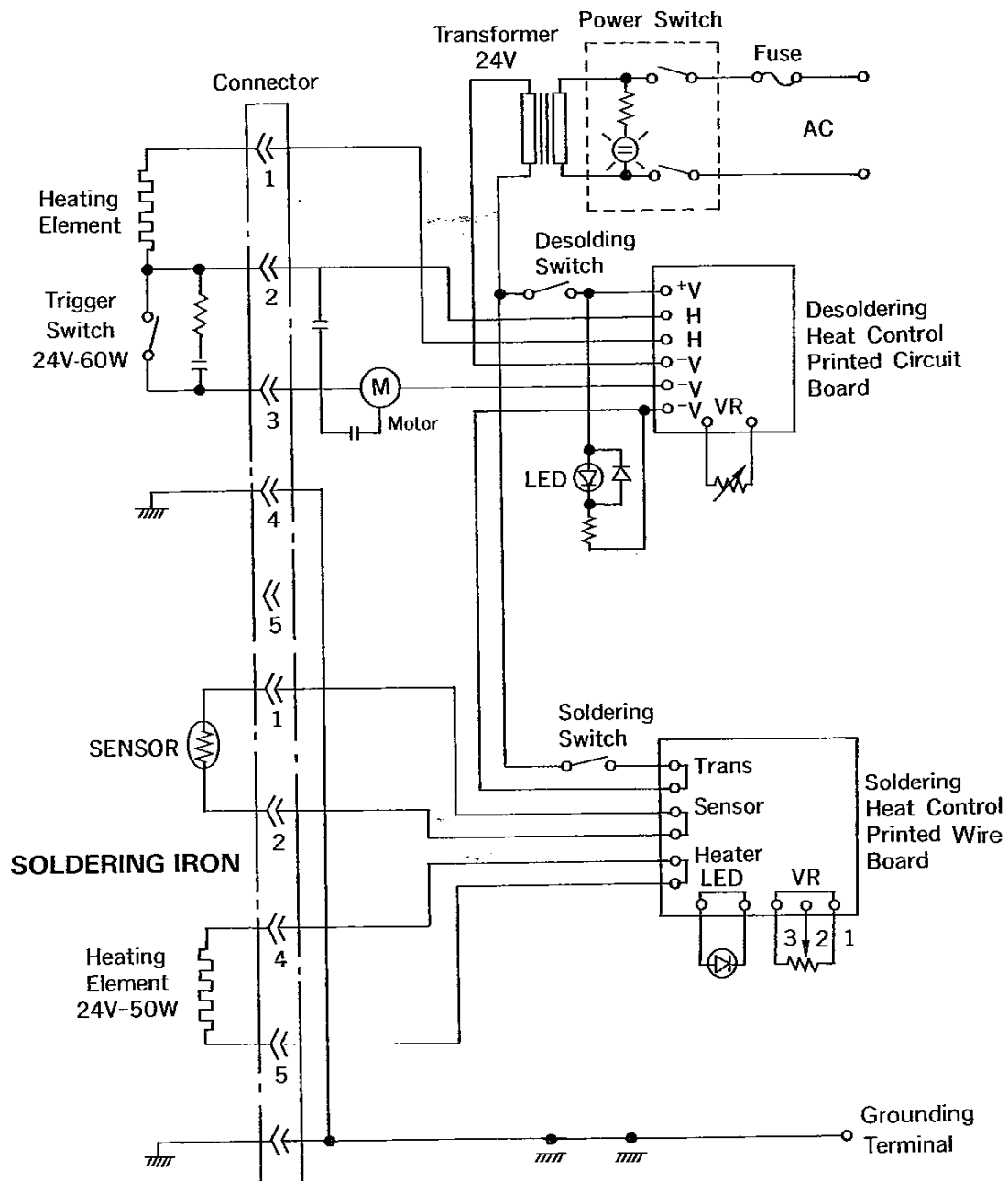
- a. Vacuum Pump does not work.
 - Is Desoldering Gun properly connected?
- b. Solder is not absorbed.
 - Is Vacuum Pump working?
 - Is Suction Tube properly connected?
 - Is Nozzle hot enough?
 - Is Filter Pipe full of accumulated solder?
 - Are Felt Filter hardened or discoloured with flux?
 - Is there a vacuum leakage between Filter Pipe and either Front or Back Holders?
 - Is there a vacuum leakage between Vacuum Outlet Retainer and Cap?
 - Is Nozzle or Heating Core clogged with solder?
- c. Solder cannot be melted completely.
 - Is Desoldering Gun properly connected?
 - Is Heating Element broken?
(in this case, Nozzle does not become warm at all)
 - Is Nozzle properly tightened?
 - Is Nozzle oxidized or become contaminated with flux?

- d. Melted solder is blown-out from Nozzle, when Pump begins to work.
- Place supplied Check Valve into Pump Head instead of Sponge Filter referring Instruction Sheet which is attached to Check Valve.

If the problem remains unsolved after checking Unit, please contact with your nearest HAKKO representative.

WIRING DIAGRAM

DESOLDERING GUN



REPLACEMENT PARTS

■ SOLDERING SIDE

		Control setting resolution
900M-T-1.6D		0 (480 C)
900M-T-2.4D		0 (480 C)
900M-T-3.2D		0 (480 C)
900M-T-B		0 (480 C)
900M-T-LB		-10 C (470 C)
900M-T-1C		0 (480 C)
900M-T-2C		0 (480 C)
900M-T-3C		0 (480 C)
900M-T-4C		0 (480 C)
900M-T-K		+30 C (510 C)
900M-T-I		-10 C (470 C)
900M-T-H		20 C (460 C)

● 900M Tip Out Diam 6.5φ

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 dial as follows :
 1. Clean the Tip.
 2. Set the temperature at 200°C (392° F).
 3. Melt the solder gradually at the tip.

Part No.	Part Name
900M-H	Heating Element
900M-044	Nipple

■ DESOLDERING SIDE

DESOLDERING GUN

Part No.	Part Name	Specifications															
800-T-0.8	Nozzle ϕ 0.8	<table border="1"> <tr> <td></td> <td>0.8ϕ</td> <td>1.0ϕ</td> <td>1.3ϕ</td> <td>1.6ϕ</td> </tr> <tr> <td>A</td> <td>0.8</td> <td>1.0</td> <td>1.3</td> <td>1.6</td> </tr> <tr> <td>B</td> <td>2.5</td> <td>2.5</td> <td>3.0</td> <td>3.0</td> </tr> </table>		0.8 ϕ	1.0 ϕ	1.3 ϕ	1.6 ϕ	A	0.8	1.0	1.3	1.6	B	2.5	2.5	3.0	3.0
	0.8 ϕ		1.0 ϕ	1.3 ϕ	1.6 ϕ												
A	0.8		1.0	1.3	1.6												
B	2.5		2.5	3.0	3.0												
800-T-1.0	ϕ 1.0																
800-T-1.3	ϕ 1.3																
800-T-1.6	ϕ 1.6																
800-T-1.0S	Nozzle ϕ 1.0S	<table border="1"> <tr> <td></td> <td>1.0ϕ</td> </tr> <tr> <td>A</td> <td>1.0</td> </tr> <tr> <td>B</td> <td>2.0</td> </tr> </table>		1.0 ϕ	A	1.0	B	2.0									
	1.0 ϕ																
A	1.0																
B	2.0																
800-021	Filter Set	Steel Wool & Felt Filter(5 sets)															
800-002	Filter Pipe Holder	with Filter Pipe/Filters															
800L-H	Heating Element	Ceramic Heater															
800L-012	Heating Core																
800-101	Front Holder	with O-ring															
800-102	Back Holder	with O-ring															
800-103	O-Ring	P-12															
800-024S	Cleaning Pin-S	For Nozzle & Heating core															
800-024L	Cleaning Pin-L	For Heating Core															
800-020	Cleaning Wrench																
800-026	Anti Seizure																

CONTROL STATION

700-029	Cleaning Sponge	
700-201	Pump Set (Diaphragm, Valve Plate, Air Inlet Filter)	For maintenance of Pump Head
700-022D	Holder Part for 800L	
700-022S	Holder Part for 900M	



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