HAKKO

REWORK SYSTEM

FX-973

Instruction Manual

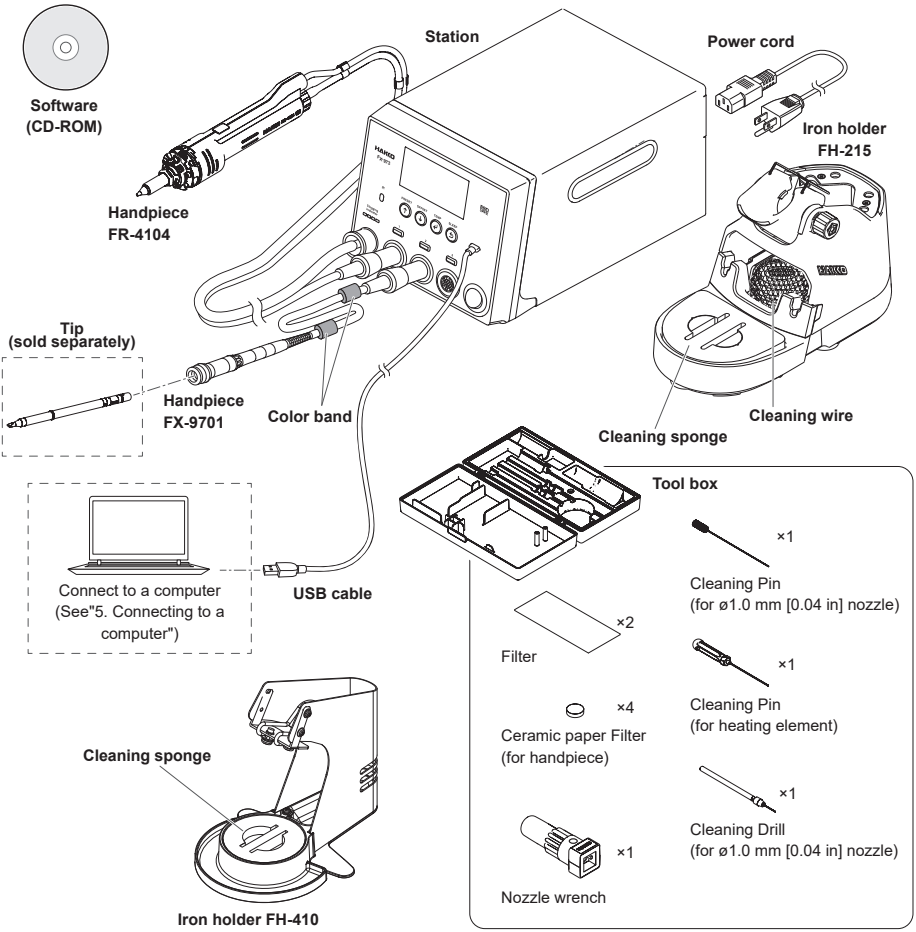
Thank you for purchasing a HAKKO product.
This product is a rework system that combines the functions of soldering and desoldering.
Make sure to read this manual before using the product,
and keep it in a safe place for future reference.

Table of contents

1. Set contents

Confirm the contents before use.
*This product may differ from the following:

Station FX-973	1	
* Handpiece FX-9701	1	
* Handpiece FR-4104	1	
* Iron holder FH-215 (with cleaning sponge and cleaning wire)	1	
* Iron holder FH-410 (with the cleaning sponge)	1	
Tool box	1	
Color band (green)	2	
Color band (orange)	2	
USB cable	1	
Power cord	1	
Instruction manual	1	
* Software(CD-ROM)	1	



2. Specifications

Power consumption	400 W
Temperature range	FX-9701/FX-9702 : 50 to 450ºC (120 to 850ºF) FX-9703/FX-9704 : 50 to 450ºC (120 to 850ºF) FX-9705 : 50 to 450ºC (120 to 850ºF) FX-9706 : 50 to 450ºC (120 to 850ºF) FX-9707/FX-9708 : 50 to 500ºC (120 to 940ºF) FR-4104 : 330 to 450ºC (620 to 850ºF)
Temperature stability	FX-9701/FX-9702 : ±3ºC (±5ºF) (at idle temperature) FX-9703/FX-9704 : ±3ºC (±5ºF) (at idle temperature) FX-9705 : ±3ºC (±5ºF) (at idle temperature) FX-9706 : ±3ºC (±5ºF) (at idle temperature) FX-9707/FX-9708 : ±5ºC (±9ºF) (at idle temperature) FR-4104 : ±5ºC (±9ºF) (at idle temperature)

Station

Output	AC 24 V
Vacuum generator	Vacuum pump , double cylinder type
Vacuum pressure (max.)	80 kPa (600 mmHg)
Suction flow	15 L/min
Dimensions	158 (W) ×135 (H) ×254 (D) mm (6.2×5.3×10 in)
Weight	5.3 kg (11.7 lb)

Handpiece

Model No.	FX-9701 soldering iron
Power consumption	95 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m (3.9 ft)
Total length	206 mm (8.1 in) (with T39-D24 tip)
Weight	31 g (1.1 oz) (with T39-D24 tip)

Model No.	FR-4104 desoldering tool
Power consumption	140 W(24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Cord length	1.2 m (3.9 ft)
Total length	206 mm (8.1 in) (with N61-05 nozzle)
Weight	180 g (6.4 oz) (with N61-05 nozzle)

- The total length and weight do not include cord and hose.
- This product is applied with electrostatic countermeasures.
- Please note that specifications and appearance are subject to change without notice in the interest of product improvement.

⚠CAUTION

■ Handling precautions for ESD Safe products

This product contains electrostatic countermeasures, so please use the following precautions:

1. Not all plastic parts are insulators, they may be conductive. Be careful not to expose live electrical parts or damage insulating materials when performing repairs or replacing parts.
2. Be sure the product is grounded before use.

3. Warnings, cautions, and notes

Warnings, cautions, and notes are placed at critical points in this manual to direct your attention to significant items. They are defined as follows:

⚠WARNING: Failure to comply with a WARNING may result in serious injury or death.

⚠CAUTION: Failure to comply with a CAUTION may result in injury to the operator, or damage to the items involved.

NOTE: This indicates procedures or information that are important in a process described in this document.

Be sure to observe the following precautions to ensure safety.

⚠WARNING

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- When this product is not used, place the handpiece on the iron holder.
- The tip reaches high temperatures when the power source is turned on. You may risk getting burned or causing a fire if mishandled.
- Do not touch the metal parts around the tip or nozzle.
- Do not place anything that easily burns or ignites near the product.
- Make sure that people nearby are aware of the "high temperature danger".
- When the product is not in use, being repair, or being cleaned, turn the power switch off and disconnect the plug from the power outlet.

Failure to observe the following precautions to ensure safety might result in electric shock, malfunction or other trouble.

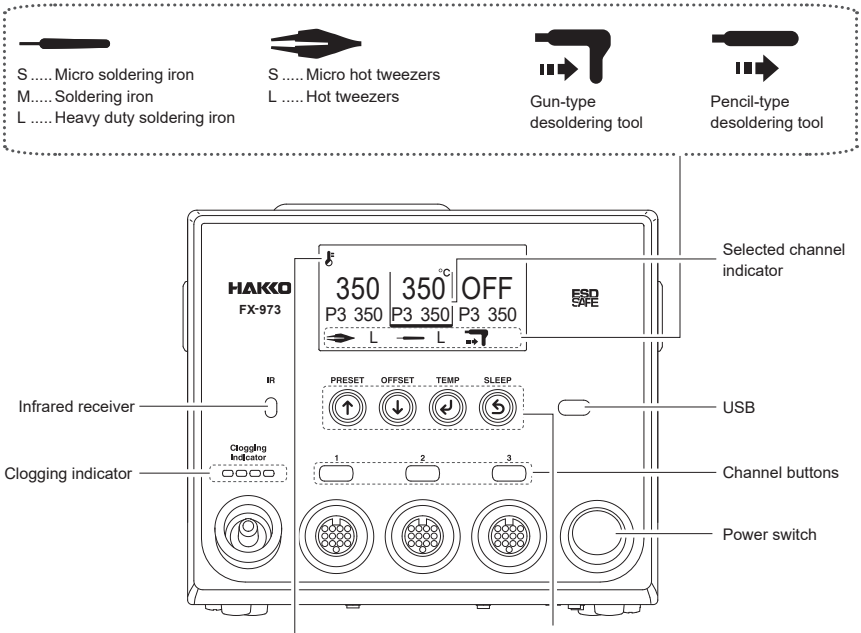
⚠CAUTION

- Before using this product, fully read all descriptions in this document.
- Do not hit the handpiece against a workbench or subject it to strong shocks to remove solder residue.
- Soldering produces smoke, so make sure to work in a well-ventilated area.
- Use genuine HAKKO parts for included parts/replacement parts/options.
- Do not modify this product.
- Do not use damaged cords or plugs. Doing so can result in malfunction or injury.
- Do not use the product if it has been dropped or shows signs of damage.
- When inserting and removing the cord, hold the plug body and do not pull the cord.
- Do not allow this product to get wet. Also, do not handle it with wet hands.
- Do not perform any other actions that may be considered to be dangerous.
- Do not use for any other purpose than that described in the instruction manual.

4. Names and functions of parts

4-1. Station

The type of handpiece connected can be identified on the display.



Icon Name

	Temperature icon
	Offset icon
	Maintenance icon
	Lock icon
	Parameter icon
	Communication icon

Operation button

↑	Up button	Preset No. Mode
↓	Down button	Temperature Correction Mode
↵	Confirm button	Temperature Setting Mode
↩	Back button	Sleep Mode

● Channel buttons

Selected channel can be switched by pressing the channel buttons.
The selected channel indicator on the display will reflect the channel button pressed.

● Clogging indicator

The suction status of the desoldering tool is displayed.
・Blue: Suction OK
・Red: Possible restriction.
(See"7. Maintenance")

4. Names and functions of parts (cont'd)

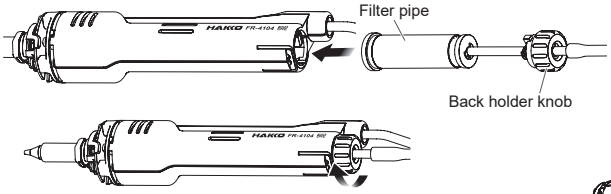
⚠CAUTION

Be sure to hold the plug when inserting or removing the handpiece cord.

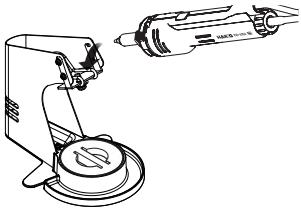
● Connection

(1) Connect the power cord to the receptacle on the rear of the station.

(2) Attach the filter pipe. Insert the filter pipe (with a filter holder, spring filter and ceramic paper filter) into the housing. Push and turn the back holder clockwise.

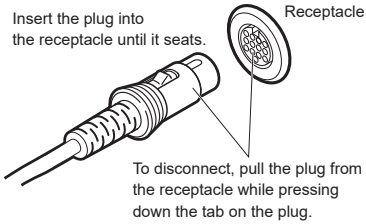


(3) Set the handpiece FR-4104 in the iron holder.



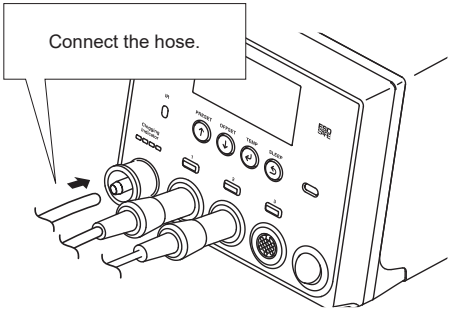
(4) Connect the hose from the headpiece to the vacuum outlet cap.

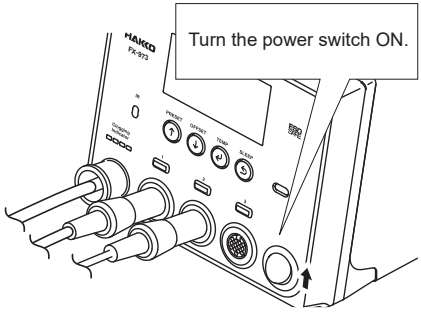
(5) Connect the plug from the handpiece to a receptacle on the station.



NOTE Connect the plug to the receptacle, aligning the tab on the plug with the opening on the receptacle.

(6) Plug the power cord into a grounded power outlet. Ensure that the power switch is OFF before plugging in the power cord.





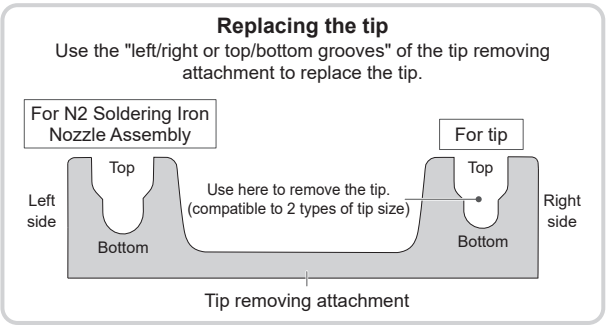
(7) Turn the power switch ON.

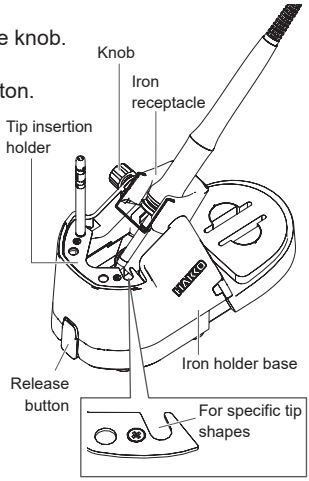
NOTE Channels that are not connected to a handpiece will display **[C-E]** and the buzzer will sound. Press and hold the corresponding channel button for 2 seconds to change the channel to **[OFF]** and the buzzer will stop sounding.
(See" ■ Channel power ON/OFF" in "4-3. Operation")

4-2. Iron holder

4-2-1. Iron holder (FH-215)

- The iron receptacle angle can be changed 45±10 degrees with the knob.
- Make sure to wet the cleaning sponge before using it.
- The iron holder base can be removed by pressing the release button.
- The tip can be stored in the tip insertion holder.
- You can quickly and safely replace the tip using the iron holder.





(1) Insert the tip until the handpiece contacts the "right side groove." (Figure 1)

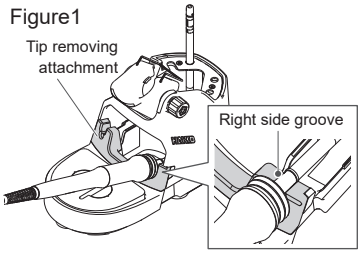
(2) Pull the handpiece straight out. (Figure 2)

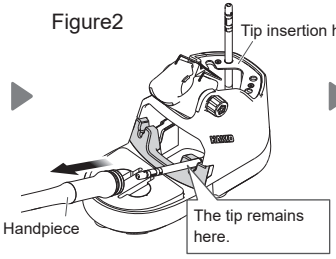
NOTE Cool the tip in the tip removing attachment, and then rotate it to pull it out.
Note that using too much downward force can damage the tip or handpiece.

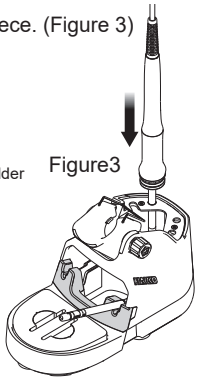
NOTE For safety purposes and to prevent damage to the product, make sure to press the iron holder with your hand.

(3) Insert the tip that has been placed in the tip insertion holder into the handpiece. (Figure 3)

NOTE By using the tip insertion holder, tip can be inserted firmly to the end.







4. Names and functions of parts (cont'd)

4-2-2. Iron holder (FH-410)

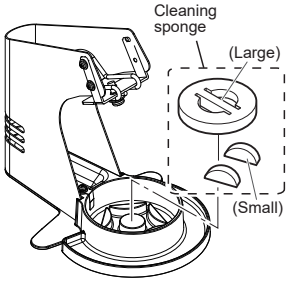
● How to use the cleaning sponge

The sponge is compressed. It will swell when moistened with water. Before using the unit, dampen the sponge with water and squeeze it to remove excess water.

(1) Fit the small sponge pieces into the hollows in the cleaner base.

(2) Add an appropriate amount of water into the cleaner base. The small sponge pieces will absorb water and help keep the larger sponge damp at all times.

(3) Dampen the large sponge, squeeze it to remove excess water and put it on the cleaner base.



⚠CAUTION

Be sure the sponge is moistened with water before use to avoid damaging the tip or nozzle.

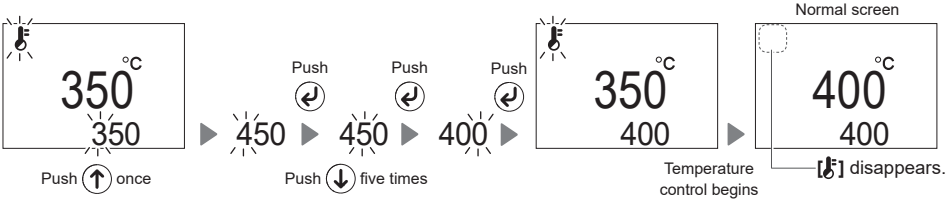
4-3. Operation

Place the handpiece into the iron holder and then turn on the power. Select the channel you want to set by pressing its channel button.The following settings can be made for the selected channel.

■ Changing the temperature setting

TEMP Push ↵	Push this button once to display [🌡] and transition to "temperature setting mode." This mode is used when changing the set temperature.

To change to 400ºC

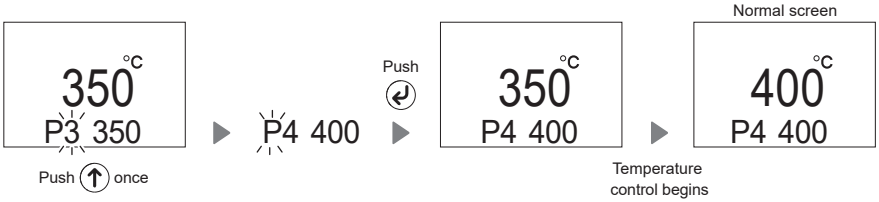


■ Changing the preset No.

You can register up to five frequently used setting temperatures for each channel on the product, and then select the preset No. to change the setting temperature.

Push PRESET	Push this button once to transition to "preset No. mode." Select one of the five temperatures registered in this mode. (Factory default temperature settings: P1 250ºC (600ºF) , P2 300ºC (700ºF), P3 350ºC (750ºF) , P4 400ºC (800ºF), P5 450ºC (850ºF))

To change to P4 (400ºC)



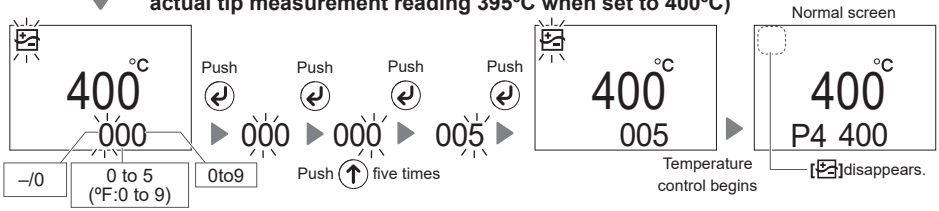
NOTE Setting between 451ºC (851ºF) to 500ºC (940ºF) is only available if a heavy duty soldering iron is connected.
Setting between 330ºC (620°F) to 450°C (850°F) is only available when a desoldering tool is connected.

NOTE To change the registered temperature for each preset No., use **[Preset temperature]** to change the setting, and to restrict the change of the setting temperature, use **[Password lock]** to change the setting. (See"6. Parameter settings")

■ Tip temperature correction (offset)

Push OFFSET	Push this button once to display [ ] and transition to "temperature correction mode." If the setting temperature and the measured value of the tip temperature differ in this mode, you can correct the temperature. (Correction range: ±50ºC/±90ºF)

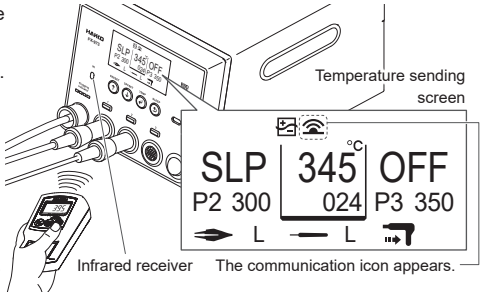
To correct a temperature by 5ºC for a setting of 400ºC (to correct actual tip measurement reading 395ºC when set to 400ºC)



*Note that temperatures that exceed the correction range cannot be entered.

Once a tip degrades from wear, the tip temperature tends to drop. The tip temperature changes if you replace the tip, the offset will need to be readjusted. Make sure to change the offset value as needed while monitoring the actual tip temperature.

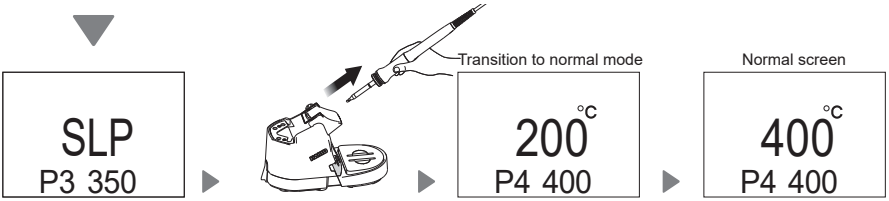
You can automatically change the offset value using a HAKKO thermometer with a temperature sending function.Transmit the measured value of the thermometer after transitioning to "temperature correction mode". (See the figure on the right)



4. Names and functions of parts (cont'd)

■ Pausing work (sleep mode)

Push SLEEP	Push this button once to immediately transition to "sleep mode (state where the tip temperature has dropped to the set activation temperature)." Use this function occasionally to prevent tip oxidation. (Factory default setting: **[Sleep]** setting is enabled and the activation temperature in **[Sleep act temp]** is 200ºC)



- Lift the handpiece from the iron holder.
- Push any of the operation buttons.

Temperature control begins

The product will not transition to sleep mode in the following cases:

- When the setting temperature is lower than 300ºC (570ºF)
- When the **[Sleep]** setting is disabled

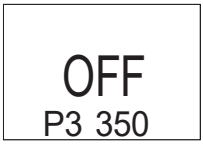
Approximately six minutes after placing the handpiece on the iron holder, the product automatically transitions to sleep mode. Change **[Sleep time]** and **[Sleep act temp]** settings as necessary for your work. (See"6. Parameter settings")
The desoldering tool activates when the trigger is pulled.

To further prevent tip oxidation, set auto shut-off.

(1) Enable the **[Auto shut-off]** setting.
(2) Set the time until the product is automatically shut-off in **[Auto shut-off time]**
The shorter the set time, the more effective it is. If you disable the **[Auto shut-off]** setting, the product will not automatically shut-off even when the set time has elapsed.

■ Channel power ON/OFF

Pressing the channel button for 2 seconds will turn the channel power ON/OFF. When a channel is turned off, **[OFF]** will be displayed.
Channel button light will turn ON/OFF based on the power status.



■ Setting the priority channel

When three handpieces are connected to the station, the channels may be configured so one channel is the priority channel (powered), one channel is in idle, and one channel is in sleep. You can set the priority channel by pressing its channel button.

5. Connecting to a computer

The following will become available when the software is installed.

- Change the parameter setting value from the PC
- Save the parameter settings as a CSV file
- Copy the saved parameter settings on another unit
- Save the automatic calibration results as a CSV file
- Search the saved automatic calibration results by"Date" or "Number of recent histories," and display the results in a graph
- Monitor the tip temperature and save its history as a CSV file
- Turn off the power to the heating element

5-1. Operating environment

SupportedOS	Windows 10, Windows 11 (Excluding ARM-based Windows)
CPU	1GHz or faster processor or SoC (Excluding ARM processors)

Supported operating systems are based on information as of April 2025 and are subject to change. The latest information is available on the HAKKO website.

5-2. Downloading the software (Online)

(1) Go to the HAKKO website and visit **[Customer support\Support & service\Login/Signup]**.

https://www.hakko.com/doc_support-e

(2) Follow the on-screen instructions to complete user registration.
Once user registration is complete, you can use My Page.

(3) Click **[My page (Product registration from here)]** to register the product.

NOTE You can only download the software after registering the product.

(4) Click **[Download of product data]** from the menu at the top right of the page.

(5) Select **[SOFTWARE]** in the document search area.

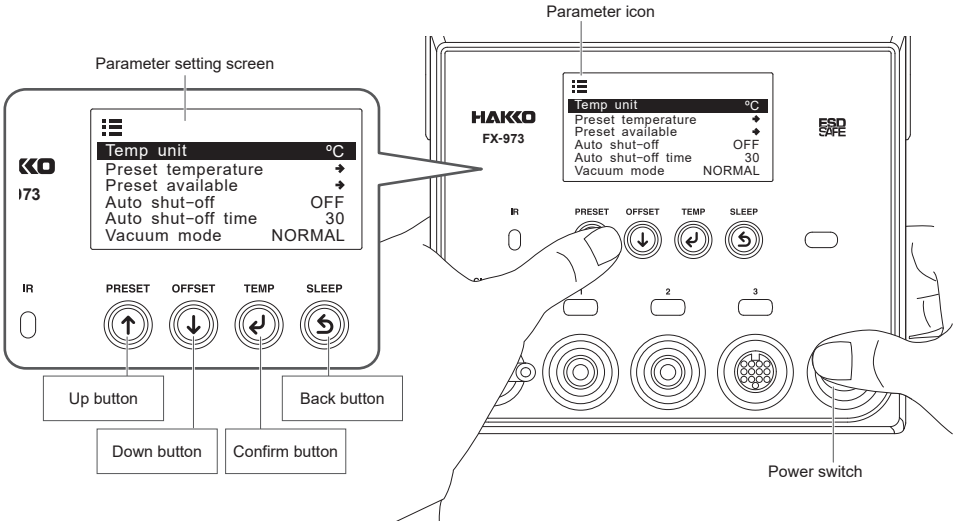
(6) Enter the product name as a keyword.

(7) Select a language, and then click **[Search by Condition]**.

(8) Click **[Download]** in the search results.

Please refer to the manual included in the download data for instructions on installing the software and operation.

6. Parameter settings

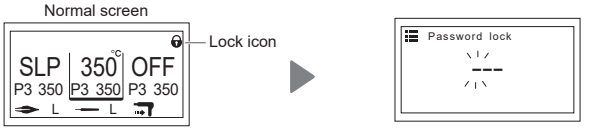


Parameter	Parameter name/summary	Setting value	
Temp unit	**Display temperature unit** Select from ºC or ºF. ● All set values are converted to the changed display temperature unit.	ºC/ºF	
Preset temperature	**Preset temperature: Changing registered temperatures** You can register up to five frequently used setting temperatures for each channel. This function saves time when changing the setting temperature ・Default value: P1 250ºC (600ºF), P2 300ºC (700ºF), P3 350ºC (750ºF), P4 400ºC (800ºF), P5 450ºC (850ºF) ・Temperature range: Heavy duty soldering iron 50 to 500ºC (120 to 940ºF) Other handpieces 50 to 450ºC (120 to 850ºF) Desoldering tool 330 to 450ºC (620 to 850˚F) ・Preset temperature outside the setting range cannot be selected.	50 to 500ºC 120 to 940ºF	
Preset available	**Preset temperature: [ON]/[OFF] setting** Set whether or not to use the preset temperature function for each temperature.Set Channel 1 first and then Channel 2, followed by Channel 3. Default value: ON/P3 350ºC ● The **[PRESET]** button is disabled if you set all five options to **[OFF]**. ● If you change P3 to **[OFF]** and push the **[PRESET]** button in the normal screen, the display switches between P1 > P2 > P4 > P5.	ON/OFF	

(1) Turn on the power while pressing the ↑.
(2) Select the parameter number using the ↑ or the ↓.
(3) Push the ↵.
(4) Change the setting using the ↑ or the ↓.
(5) Push the ↵.
(6) Push the ↩.
(7) The normal screen reappears.

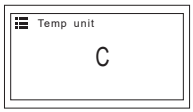
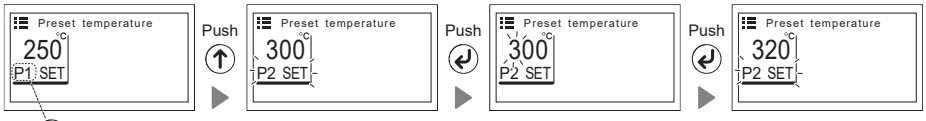
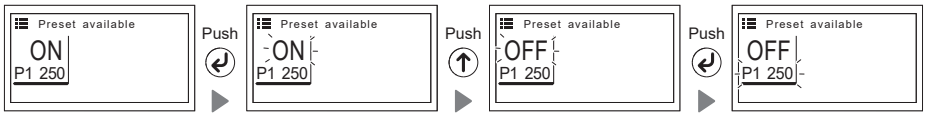
Note

- If the power is turned off while configuring settings, the changes may be lost.
- If you set the password in **[Password lock]** the lock icon appears on the normal screen and a password prompt appears before transitioning to the parameter setting screen.Contact us if you do not know the password.
  E-mail: support@hakko.com



Enter the password here to switch to the parameter setting screen.

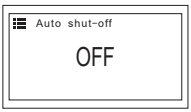
Default values are factory default settings.

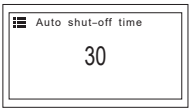
Default value(Value when implementing **[Initial reset]**.)/Procedure
 (For USA: ºF)
 Use ↑ to cycle through P1 > P2 > P3 > P4 > P5, for Channel 1 first and then, Channel 2, followed by Channel 3. Change the P2 temperature. Temperature changed
 P1 has been disabled.

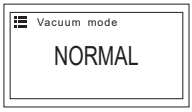
6. Parameter settings (cont'd)

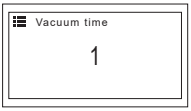
Parameter	Parameter name/summary	Setting value	
Auto shut-off	**Auto shut-off: [ON]/[OFF] setting** Set whether or not to automatically turn the product off once the time set in **[Auto shut-off time]** is reached.	ON/OFF	
Auto shut-off time	**Auto shut-off: Time setting** Set the time until the product transitions to powered down mode after the handpiece is placed on the iron holder. If a time of 30 minutes is set, the buzzer sounds three times every 30 minutes. ● The normal screen also reappears if you push any operation button. ● A shorter set time is more effective for preventing tip oxidation.	30 to 60 min	
Vacuum mode	**Vacuum mode:** Set whether the suction of the desoldering tool is controlled manually, or by a timer. ・**NORMAL**: Suction only while pulling the trigger ・**TIMER**: Suction for a set amount of time after releasing the trigger.	NORMAL/TIMER	
Vacuum time	**Vacuum time:** Set the vacuum time. This is effective when **[Vacuum mode]** is set to **[TIMER]**.	1 to 5 sec	
Sleep	**Sleep: [ON]/[OFF] setting** Set whether or not to automatically transition to sleep mode once the time set in **[Sleep time]** is reached.	ON/OFF	
Sleep time	**Sleep: Time setting** Set the time until the product transitions to sleep mode after the handpiece is placed on the iron holder. Set Channel 1, first and then Channel 2, followed by Channel 3. ● A shorter set time is more effective for preventing tip oxidation. ● This function is only activated if the temperature is set to 300ºC (570ºF) or higher. ● The normal screen reappears if you lift the handpiece from the iron holder. The normal screen also reappears if you push an operation button.	1 to 29 min	
Sleep act temp	**Sleep: Activation temperature setting** Set the tip temperature during sleep configured in **[Sleep time]** Set Channel 1, first and then Channel 2, followed by Channel 3. ● A lower setting temperature is more effective for preventing tip oxidation. ● The normal screen also reappears if you push any operation button.	200 to 300ºC 390 to 580ºF	
Low temp alarm	**Low temp alarm** Set the temperature range to notify via buzzer if the tip temperature drops while soldering. ● The buzzer sound cannot be turned off.	30 to 150ºC 50 to 300ºF	
Error alarm	**Error alarm set: [ON]/[OFF] setting** A buzzer sound notifies of soldering iron error **[C - E]** or sensor error **[S - E].** Select **[OFF]** if you do not wish to use this function.	ON/OFF	

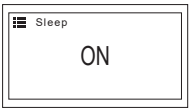
Default value/Procedure

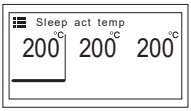




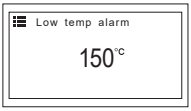




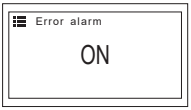




(ºF : 400)



(ºF : 270)



Leave the [Sleep] default value set to [ON], and set [Sleep time] and [Sleep act temp] to desired settings.

In sleep and auto shut-off, tip oxidation is prevented, which can extend the tip lifetime.

Set [Auto shut-off] to [ON], and set [Auto shut-off time] to desired settings.

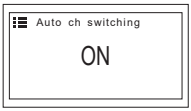
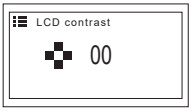
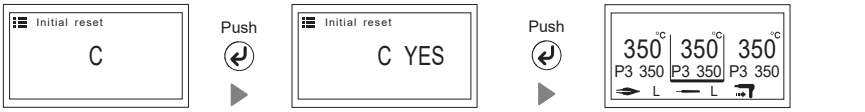
This function is convenient for when you want to work within a specified temperature range.

To solder between 320 and 350ºC at a setting temperature of 350ºC, change the setting value to **[30]** in **[Low temp alarm]** before beginning soldering. The buzzer will sound, notifying you when the tip sensor temperature is lower than 320ºC while soldering. The upper limit is restricted by the setting temperature.

6. Parameter settings (cont'd)

Parameter	Parameter name/summary	Setting value	
Ready alarm	**Ready alarm: [ON]/[OFF] setting** A buzzer sound notifies that the tip has reached the setting temperature. Select **[OFF]** if you do not wish to use this function.	ON/OFF	
Auto ch switching	**Auto channel switching: [ON]/[OFF] setting** Select whether to automatically switch channels when handpiece is lifted from iron holder .	ON/OFF	
Password lock	**Password lock: [ON]/[OFF] setting** Limit the scope of change using a combination of six characters **[A][B][C][D][E][F]** and three digits. ・Select **[OFF]** ..... None are locked ・Select **[ON]** ..... Locks all ・Select **[PAR]** > [ ] ..... Locks changes to offset temperature ・Select **[PAR]** > [P] ..... Locks preset temperature selection ・Select **[PAR]** > [ ] ..... Locks temperature changes via the **[TEMP]** button	OFF ON * PAR * *When selected, a lock icon[ ] appears on the right side of the normal screen.	
LCD contrast	**LCD contrast:** Set the contrast of the LCD display.	-10 to 10	
Initial reset	**Initial reset** Reset the product to factory default settings.	ºC/ºF	

Default value/Procedure


Process when [PAR] is selected  When **[PAR]** is selected 



7. Maintenance

⚠ CAUTION
Do not file oxidation attached on the tip. This will shorten the tip lifespan.

Conducting maintenance will help keep the product in good condition and prolong the usage of the unit.

■ Inspection

● Soldering tip inspection

Measure the resistance between the heating element and sensor, and if the measured value is abnormal, replace the tip. The normal resistance values are as follows:

FR-4104: 3.9 Ω±10% (at room temperature)
T39/T51: 5.7 Ω±10% (at room temperature)　T50: 8.0 Ω±10% (at room temperature)
T52: 7.5 Ω±10% (at room temperature)　T53: 2.9 Ω±10% (at room temperature)

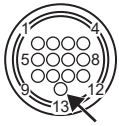
For the measurement location, see "8. Troubleshooting".

● Ground line inspection

Unplug the iron connection cord from the station.
Disconnect the power plug from the power outlet and measure the following resistance.

(1) Power cord
(2) Resistance between the tip and the plug (Pin 13) of the iron connection cord
For both, the normal resistance is <2 Ω (at room temperature). If the resistance is abnormal, replace the power cord or the iron connection cord.

The plug of the iron connection cord



■ Daily maintenance

Setting temperature	Using the product at a temperature that is higher than necessary can accelerate tip deterioration and damage parts that are susceptible to heat. Use the lowest temperature whenever possible.
Before beginning work	Perform a visual check of the tip. Replace it if it is bent or considerably worn. Use the cleaning sponge to wipe off any oxidation or old solder from the tip. Impurities on a circuit board can result in poor soldering.
When pausing work	Use sleep mode instead of leaving the handpiece set to a high temperature for a long period of time. This prevents tip oxidation which helps to maintain workability, which can extend the tip lifetime. Turn off the power switch when not using the product for a long period of time. (See" ■ Pausing work (sleep mode)" in "4-3. Operation")
After finishing work	Thoroughly clean the tip with the cleaning sponge and then coat it with new solder. Doing so can prevent oxidation of the tip.

■ Periodic maintenance

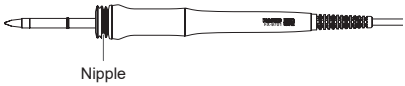
● Tip

Wear and tear on the tip will vary due to the operating temperature as well as the quality and amount of solder/flux used. Maintenance should be performed based on what suits your usage.

(1) Turn the power ON.
(2) Set the temperature to 250ºC (482ºF).
(3) Once the temperature is stable, use the cleaning sponge to wipe the tip.
(4) If there is any black oxidation on the solder plating, apply new solder containing flux and then wipe it off with the cleaning sponge. Repeat this process until the oxidation is removed. Afterward, coat it with new solder.
(5) Turn the power off and remove the tip once it has cooled.
If you find flux, debris, and other particulates on anything other than the end of the tip, wipe it off with industrial alcohol.

● **Handpiece**

Remove flux, debris, and other particulates adhering to the nipple. It may cause contact failure inside the handpiece.



● **Iron holder**

- Press down the release button and remove the iron holder base, then clean the collected solder waste from the iron holder.
- Rotate the cleaning wire as need to a clean side where solder is not accumulated.

Properly maintained, the desoldering tool should provide years of good service.
Efficient desoldering depends upon the temperature, solder/flux selection, and proper routine maintenance. Perform the following service procedures as dictated by the conditions of the station's usage.

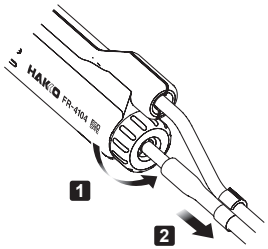
⚠WARNING

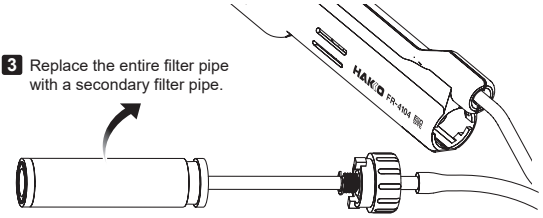
Since the desoldering tool can reach a very high temperature, please work carefully. Except when cleaning the nozzle and heating element, ALWAYS turn the power switch OFF and disconnect the power plug before performing any maintenance procedure.

During suction, the clogging indicator is active. If the indicator is displayed in red, the vacuum system may be restricted. There may be solder or other debris clogging the nozzle or heating element, or the filter may be blocked. Clear the nozzle and heating element, and replace the filter.

■ Replacing the filter pipe

Replace the filter pipe as shown following steps **1** to **3**. During operation, the filter pipe is very hot. Wait until the filter pipe is cool before replacing the filter or cleaning.

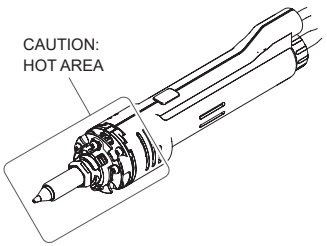




We recommend keeping a second filter pipe containing new filters handy, and replacing the installed filter pipe with this secondary filter pipe.

⚠CAUTION

The section from the heating element to the filter pipe is provided with pipes through which melted solder passes, so it may become very hot. Be very careful when handling this section.



7. Maintenance (cont'd)

■ Nozzle Maintenance

⚠CAUTION

The handpiece may be extremely hot. During maintenance, please work carefully.

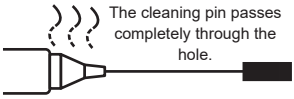
● **Inspect and clean the nozzle**

Turn the power switch ON and let the nozzle heat up.

⚠CAUTION

The cleaning pin will not pass through the nozzle until the solder inside the nozzle is completely melted.

Cleaning with the nozzle cleaning pin

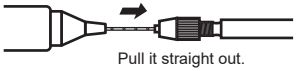


Cleaning with the cleaning drill

●When inserting

Insert while turning it to the right.

●When removing



Pull it straight out.

⚠CAUTION

●If the cleaning drill is forced into the nozzle, the drill bit could break or be damaged.

●Please use the proper size cleaning pin or cleaning drill for the nozzle diameter.

Use the proper size cleaning pin or cleaning drill for the nozzle diameter.

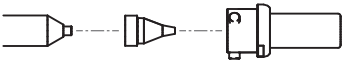
● **Disassemble the heating element**

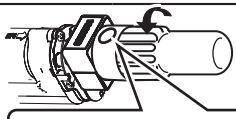
Remove the enclosure pipe and the nozzle with the provided wrench.

⚠CAUTION

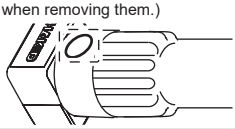
The heating element is very hot during operation.

Heating Element Nozzle Enclosure pipe





The enclosure pipe is held to the nozzle changing tool by pressing this part from both sides. (The nozzle is not held to the nozzle changing tool. Be careful when removing them.)

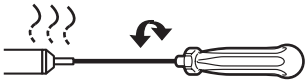


● **Clean out the heating element**

(1) Clean with the cleaning pin (thick one) for the heating element.

(2) Turn the power off after cleaning.

Scrape away all oxidation from the tube in the heating element until the cleaning pin passes cleanly through the tube.



⚠CAUTION

●Be sure the solder in the tube in the heating element is completely heated, before cleaning the tube.

●If the cleaning pin does not pass through the tube in the heating element, replace the heating element.

■ Replacing the filters

When the desoldering tool is connected, the maintenance icon lights up every 2000 suctions as a guide for replacing the filter on the main unit side. Check the condition of the filter, and if any part of the surface shows yellow discoloration, replace it. The maintenance icon turns off by turning off the main unit power once.

- **Handpiece filter**

(1) Turn the power switch OFF.

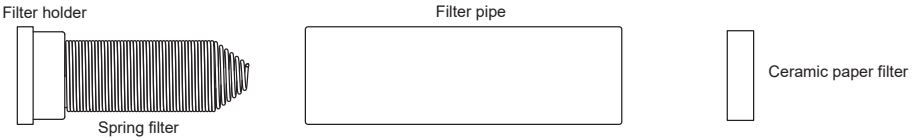
(2) When the filter pipe is cool to the touch, turn the back holder knob counterclockwize and pull out the filter pipe.

⚠CAUTION
The filter pipe is very hot.

(3) Examine the seal of filter holder at the end of the filter pipe. Replace:Stiff and/or cracked.

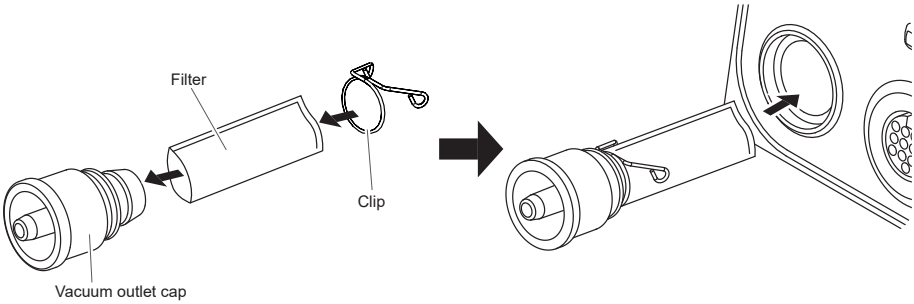
(4) Examine the spring filter. Replace:Solder is collected in two-thirds of the spring filter.

(5) Examine the ceramic paper filter. Replace:Ceramic paper filter is showing signs of stains from flux, is stiff, or contains any solder.



- **Station filter**

Replace the filter if it is significantly discolored.
Squeeze the ends of the clip to loosen it and attach the filter as shown.



7. Maintenance (cont'd)

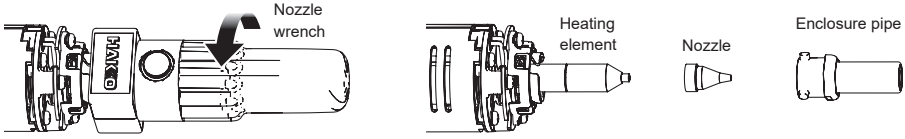
■ Replacing the heating element (heating core)

⚠CAUTION

Except the case especially indicated, always turn the power switch OFF and disconnect the power plug before performing any maintenance procedure.

● Disassemble the heating element

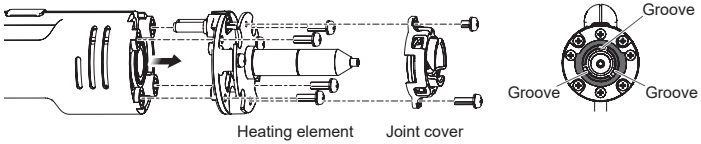
(1) Remove the nozzle and enclosure pipe.



Remove the enclosure pipe and the nozzle with the attached wrench.

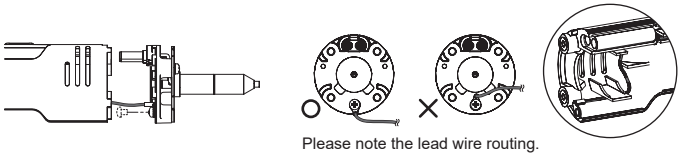
(2) Remove the 2 screws fixing the joint cover and remove the joint cover.

(3) Remove the screw from the handpiece and disconnect the heating element.



(4) Remove the ground line.

(5) Secure the ground line to the flange with the screw.



* Caution of the heating element installation

The installation/disassembly with the quick changer smoothens. Please attach it to have the groove of the movable joint and the guide hole of the joint cover coming at the same position (see figure above).

⚠CAUTION

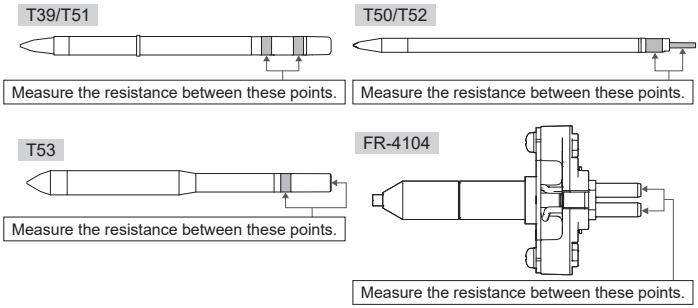
Be sure to change the offset value (temperature adjustment) of the nozzle temperature after replacing the heating element. Failure to do this may result in a heater temperature that is much higher or lower than the previous one.

8. Troubleshooting

⚠CAUTION
Turn the power off and unplug the power cord before inspecting or replacing any internal components.

No operation even if power switch is turned ON.	Has the power cord or connection plug been removed?	▶ Plug unit into outlet.
	Is the fuse blown?	▶ Replace the fuse. If the fuse is blown again, send the main unit (including handpiece, power cord) back for service.
[C - E] is displayed.	Is there a channel not being used?	▶ Turn the channel not being used to **[OFF]**.
	Is an incompatible soldering iron connected?	▶ Connect the compatible handpiece.
	Has the handpiece plug been removed?	▶ Turn off the power switch, reconnect the handpiece, and turn the power switch back on again.
[H - E] is displayed.	Is the heat capacity of the tip too small for the object to be soldered?	▶ Use a tip with a larger heat capacity.
	Is the set value for the low temp alarm too small?	▶ Increase the set value. (See **[Low temp alarm]** in "6. Parameter settings")
[H D E] is displayed.	Is the tip temperature too low?	▶ Turn on the power switch again. If the problem persists,send the main unit (including handpiece, power cord) back for service.
[H S E] is displayed.	Is the tip an applicable genuine tip?	▶ Turn off the power switch, insert an applicable genuine tip, and turn on the power switch again. If the problem persists, replace the tip.

8. Troubleshooting (cont'd)

<table>
<tr><td rowspan="2">[S - E] is displayed.</td><td>Is the tip fully inserted?</td><td>▶ Insert tip firmly into the handpiece. (Do not use excessive force)</td></tr>
<tr><td>Is the heating element/sensor disconnected?</td><td>▶ Measure the resistance between the heating element and sensor, and if the measured value is abnormal, replace the tip. The normal resistance values are as follows:
T39/T51:5.7 Ω±10%(at room temperature)
T50: 8.0 Ω±10%(at room temperature)
T52: 7.5 Ω±10%(at room temperature)
T53: 2.9 Ω±10%(at room temperature)
FR-4104: 3.9 Ω±10%(at room temperature)
 
</td></tr>
<tr><td>[T R G] is displayed.</td><td>Did you pull the trigger before the desoldering tool heater reached its set temperature?</td><td>▶ Please wait until the heater reaches its set temperature.</td></tr>
<tr><td>[- - -] is displayed.</td><td>Is there a strong noise source around the soldering iron?</td><td>▶ Move the soldering iron away from the noise source, or use other circuit for the power.</td></tr>
<tr><td rowspan="2">Cannot get solder on the tip.</td><td>Is the tip setting temperature too high or too low?</td><td>▶ Set an appropriate temperature.</td></tr>
<tr><td>Is there any oxidation on the tip?</td><td>▶ Remove the oxidation. (See"7. Maintenance")</td></tr>
</table>

The tip temperature is too high/low.	Is the offset value entered correct?	▶ Measure and adjust the value. (See" ■ Tip temperature correction (offset)" in "4-3. Operation")
It does not switch to the sleep mode.	Is the setting temperature less than 300ºC (570ºF)?	▶ Set the temperature at 300ºC (570ºF) or more. (See **[Sleep time]** in "6. Parameter settings")
	Is there a vibrating object near the soldering iron?	▶ Move the soldering iron to a place where it is not affected by the vibration.
The auto shut-off function does not work.	Is **[Auto shut-off]** disabled **[OFF]**?	▶ Change it to **[ON]** to enable feature.
Pump does not operate.	Is the desoldering gun cord assembly properly connected?	▶ Connect it tightly.
	Is the nozzle or hole in the heating element clogged?	▶ Perform maintenance.
Solder is not being absorbed.	Is the filter pipe full of solder?	▶ Remove the solder.
	Is the ceramic paper filter hardened?	▶ Replace the ceramic paper filter.
	Is there a vacuum leak?	▶ Check the connections and filter pipe seals and replace any worn parts.
	Is the heater tube or nozzle clogged?	▶ Perform maintenance.

8. Troubleshooting (cont'd)

The nozzle does not heat up.	Is the desoldering gun cord assembly properly connected?	▶ Connect it tightly.
	Is the heating element damaged?	▶ Replace the heating element.

If you cannot find a solution in this manual, or if another problem occurs, please contact the distributors where you purchased the product.

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