

# HAKKO FR-810B

SMD Rework Station

## Instruction Manual

Thank you for purchasing the HAKKO FR-810B SMD Rework Station.

This unit features digital control and display of hot air temperature.

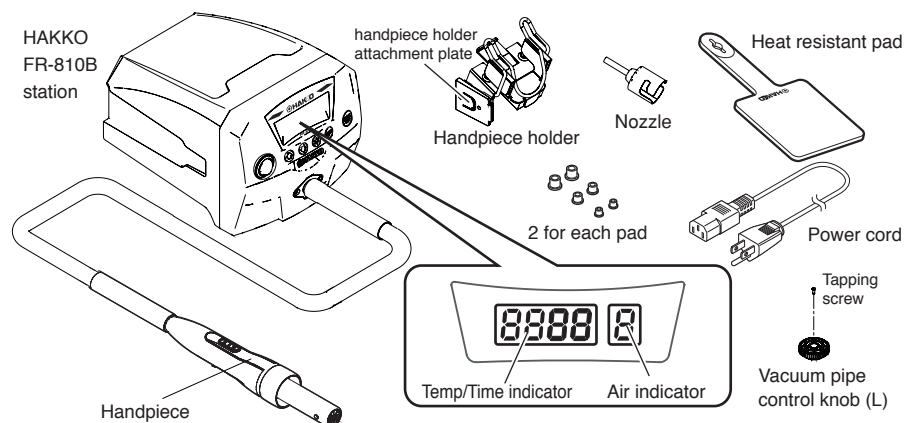
Please read this manual before operating the HAKKO FR-810B.

Keep this manual readily accessible for reference.

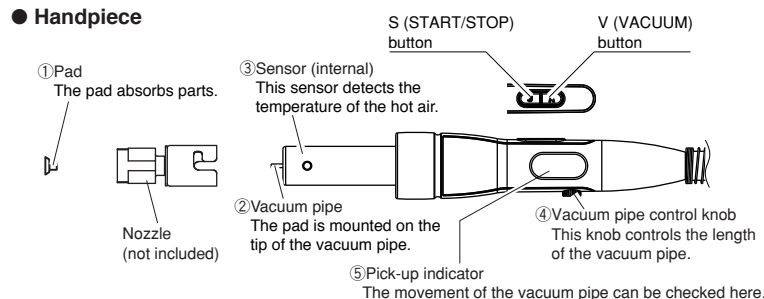
### 1. PACKING LIST AND PART NAMES

Please check to make sure that all items listed below are included in the package.

HAKKO FR-810B station.....	1	Power cord .....	1
Handpiece holder .....	1	Vacuum pipe control knob (L) (with Tapping screw) .....	1
Pads (ø3 mm (0.12 in.), ø5 mm (0.20 in.), ø7.6 mm (0.3 in.)...)	2 each	Nozzle N51-02 (ø4) .....	1
Heat resistant pad .....	1	Instruction manual .....	1
		Temperature distribution chart .....	1



#### ● Handpiece



### 2. SPECIFICATIONS

Power consumption	100V-700W 110V-840W 120V-820W 220V-1100W 230V-1200W 240V-1300W
-------------------	---

#### ● Handpiece

Power consumption	100V-670W 110V-810W 120V-790W 220V-1070W 230V-1170W 240V-1270W
Total length (w/o cord)	250 mm (9.8 in.)
Weight (w/o cord)	180 g (0.40 lb.)

\* This product is protected against electrostatic discharge.  
\* Specifications and design are subject to change without notice.

#### ● Station

Power consumption	30 W
Capacity (Airflow)	1 - 9 (5 - 115L/min*)
Control temperature	50 - 600°C (120 - 1120°F)
Outer dimensions	160(W) × 145(H) × 220(D) mm (6.3 × 5.7 × 8.7 in.)
Weight	1.5 kg (3.3 lb.)

\* Airflow capacity is rated as free flowing. Restrictions created by various nozzles may reduce the maximum airflow capacity.

※ 各言語（日本語、英語、中国語、フランス語、ドイツ語、韓国語）の取扱説明書は以下のURL、HAKKO Document Portalからダウンロードしてご覧いただけます。  
（商品によっては設定の無い言語がありますが、ご了承ください）  
\* 各國語言(日語,英語,中文,法語,德語,韓語)的使用說明書可以通過以下網站的HAKKO Document Portal 下載參閱。  
（有一部分的产品沒有設定外語對應,請見諒）  
\* Instruction manual for the language, Japanese, English, Chinese, French, German and Korean can be downloaded from the following URL, HAKKO Document Portal.  
(Please note that some language may not be available depending on the product.)

<https://doc.hakko.com>

#### ⚠ CAUTION

This product includes such features as electrically conductive plastic parts and grounding of the handpiece and station as measures to protect the device to be soldered from the effects of static electricity. Be sure to observe the following instructions:

- The handle and other plastic parts are not insulators, they are conductors. When replacing parts or repairing, take sufficient care not to expose live electrical parts or damage insulation materials.
- Be sure to ground the unit during use.

### 3. WARNINGS, CAUTIONS AND NOTES

Warnings, cautions and notes are placed at critical points in this manual to direct the operator's 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:** A NOTE indicates a procedure or point that is important to the process being described.

#### ⚠ WARNING

To avoid damage to the unit, do not turn the power switch OFF until the pump stops automatically by cooling down after use and [P-5] appears on the display.

When powered, the temperature of the hot air and the nozzle will become extremely hot, reaching a maximum temperature of 600°C (1120°F). Be sure of the following to avoid possible **burns / fires** :

- Do not direct the hot air toward personnel or touch the metal parts near the nozzle.
- Do not allow the nozzle to come close to, or touch, flammable materials.
- Inform others in the area that the unit is hot and should not be touched.
- Turn the power off and allow the unit to cool when changing parts or storing the HAKKO FR-810B.
- The unit is for a counter or workbench use only.

● 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 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.

To prevent accidents or damage to the HAKKO FR-810B, be sure to observe the following:

#### ⚠ CAUTION

- Turn the power off when not in use, or left unattended.
- Do not strike the handpiece against hard surfaces or otherwise subject it to physical shock.
- Be sure the unit is grounded. Always connect power to a grounded receptacle.
- Do not modify the unit.
- Use only genuine HAKKO replacement parts.
- Do not allow the HAKKO FR-810B to become wet, or use it when hands are wet.
- Remove the power cord by holding the plug - not the cord.
- Be sure the work area is well ventilated.

### 4. INITIAL SETUP

#### ● Controls and displays



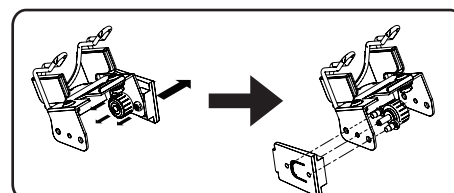
The front panel of HAKKO FR-810B includes five operation buttons.

- START/STOP** - Used to start or stop the station.  
• Pressing this button when the forced cool down bypass is enabled will turn the airflow off and stop the cooling process.
- ↑** - Used for changing values.  
• Pressing this button when using Preset Mode will cause the preset selection screen to appear.
- ↓** - Used for changing values.  
• Hold this button for at least two seconds to enter the Offset Mode.
- \*** - Used for finalizing entered values and checking settings.  
• Hold this button for at least two seconds to display the temp/timer screen.
- AIR** - Used to set air flow.  
• When setting the airflow, you may press **\*** or **AIR** to finalize your airflow setting value.

#### A. Station assembly

● Attach the handpiece holder.

- Turn and loosen the knob that locks the handpiece holder.
- Slide the handpiece holder along the groove on the station in the direction of the arrow. Turn the knob to lock the handpiece holder in place.



\* The handpiece holder can be attached to either side of the station by removing the handpiece holder attachment plate and attaching it to the opposite side of the handpiece holder.

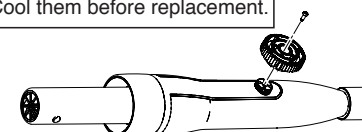
#### B. Handpiece

#### ⚠ CAUTION

The nozzle and pad will be heated at high temperature. Cool them before replacement.

#### NOTE:

The handpiece can be used with the provided vacuum pipe control knob (L).



### 4. INITIAL SETUP

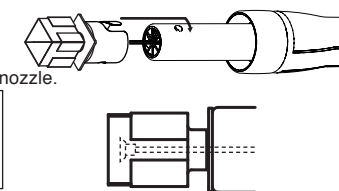
#### ● Using vacuum function operative nozzle

1. Attach the nozzle.

- Extend the vacuum pipe using the vacuum pipe control knob.
- Pass the vacuum pipe through the nozzle hole and attach the nozzle.

#### ⚠ CAUTION

- Vacuum pipe  
Do not use excessive force. When not using a nozzle, retract the vacuum pipe to the shortest length.



2. Attach the pad.

- Attach the pad.
- Adjust the pad to an appropriate position.  
Adjust the vacuum pipe so that the pipe and pad protrude as little as possible.

#### ⚠ CAUTION

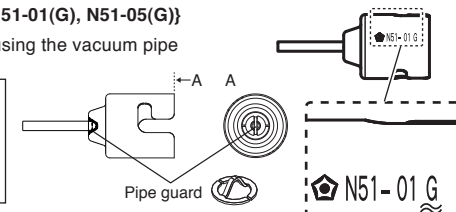
- Pad  
The pad does not last indefinitely. When it becomes deteriorated, replace it. Since exposure to high temperatures causes it to deteriorate faster, Hakko recommends it be cooled after use.

#### ● Using vacuum function inoperative nozzle {N51-01(G), N51-05(G)}

- Retract the vacuum pipe to the shortest length using the vacuum pipe control knob.

#### ⚠ CAUTION

The new N51-01/N51-05 nozzle has a pipe guard inside. These nozzles could not be attached to HAKKO FR-810B when the vacuum pipe is extended. Do not use excessive force.



- Tighten the nozzle mounting screw.

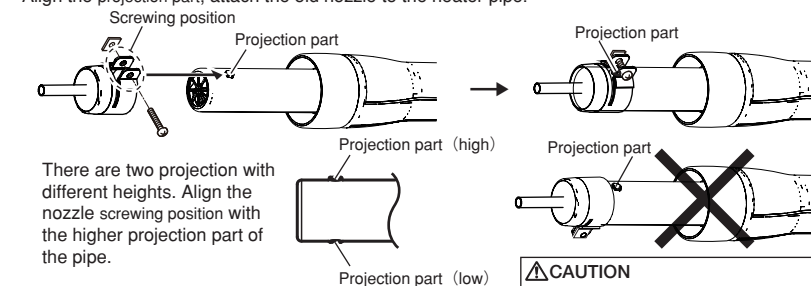
#### ⚠ CAUTION

When "G" is not marked on the nozzle, these nozzles do not have space to blow hot air. Using them with the HAKKO FR-810B may result in danger.

**NOTE:**  
Letter "G" is marked on the nozzle with the pipe guard.

#### ● How to Use a old nozzle

Align the projection part, attach the old nozzle to the heater pipe.



There are two projection with different heights. Align the nozzle screwing position with the higher projection part of the pipe.

\*When using the QFP nozzle, remove the inside screw (M3 x 5) of the nozzle.



⚠ **CAUTION**  
When attached in the wrong direction, the nozzle could not be fully inserted and can cause air leakage. Make sure to attach the nozzle in the correct direction.

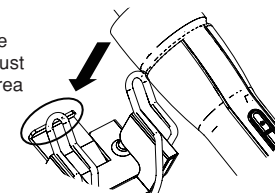
#### ⚠ CAUTION

● **Vacuum function inoperative nozzles. (Old nozzle)**  
A1124B, A1130, A1131, A1132, A1133, A1134, A1142B, A1183, A1190, A1191, A1192, A1325  
These nozzles could not be attached to HAKKO FR-810B when the vacuum pipe is extended. Do not use excessive force.  
A1124, A1142  
Do not use these nozzles with HAKKO FR-810B. These nozzles do not have space to blow hot air, using them with the HAKKO FR-810B may result in danger.

#### C. Electrical connection and power ON

- Insert the power cord into the receptacle on the rear panel of the station.
- Place the handpiece on the holder.
- Plug the other end of the power cord into a grounded wall socket.
- Turn the power switch ON.

The rim of the handpiece must rest on the area circled in the illustration.



⚠ **CAUTION**  
When not in use, place the handpiece on the holder.

⚠ **CAUTION**  
This product is protected against electrostatic discharge. Be sure the unit is grounded.

### 5. OPERATION

#### ● Air Blow

1. Start

Press the "S" button on the handpiece or **START/STOP** (START/STOP) button on the station to start blowing air. Hot air blows out of the tip of the nozzle. Hot air temperature is controlled according to the temperature setting.

2. Stop

Press the "S" or **START/STOP** button again. Power to the heater is shut off and cooling begins. When the temperature falls to 100°C (200°F), or after 1.5 minutes of cooling, air blow is automatically stopped. The display will show [P-5] indicating that the station is ready to start again.

## 5. OPERATION

### ⚠ WARNING

Do not stop the hot air by turning the power switch OFF.  
If power is turned off after use, there will be no cool-down. To avoid damage to the equipment, do not turn the power switch OFF until [P-5] appears on the display.

### ● Setting of the air flow

Pressing the AIR button in the station causes the LED for AIR display to blink and allows you to change air flow. The air flow setting range is 1 to 9.

Actual airflow may be affected by the size and shape of the nozzle(s) used.

Example: Changing the air flow setting from 5 to 7



### ● Setting/Changing the Temperature and Timer

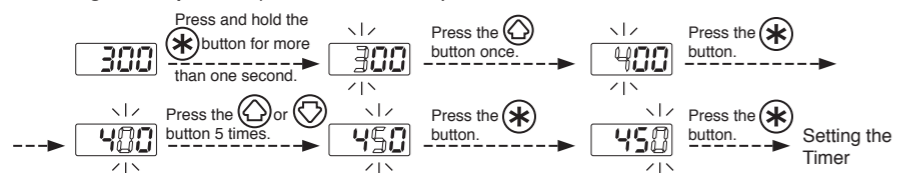
#### NOTE:

After accepting the value for the ones digit for temperature, you will have the option to set the timer starting over with the hundreds digit.

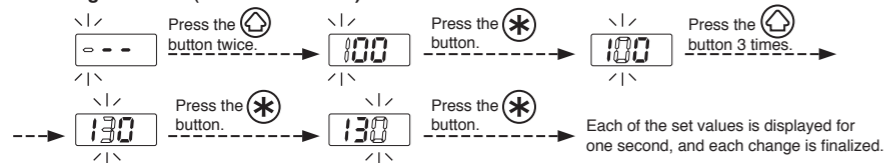
The factory default : "Temperature 300°C" "Timer --- (No setting)"

Example : When the set temperature is 300°C and the timer setting is ---.

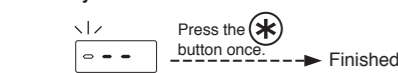
#### 1. Setting the Temperature (from 300°C to 450°C)



#### 2. Setting the Timer (from --- to 130sec)



\* When you want to leave the timer "----".



### \*Vacuum Function

Press the V (Vacuum) button on the handpiece. The vacuum pump turns ON and the part is held by suction.



### \* Timer function

In this product, setting the timer allows you to control the time during which hot air is blown. Either of the following two modes is selectable by parameter setting: Open Timing in which count is started from the time when temperature reaches the set temperature and Closed Timing in which count is started upon start. The timer setting range is 001 to 999 seconds. (When not using the timer function, select "----". When set in the timer setting "000", don't work.)

### ● Preset mode

In addition to the procedure described remove above, HAKKO FR-810B includes a preset mode allowing the selection of temperature, time, and airflow from the options you define (up to 5 temperature/time/airflow settings can be programmed). Enter the parameter setting to change the mode. (Please refer to [6. PARAMETER SETTING].)

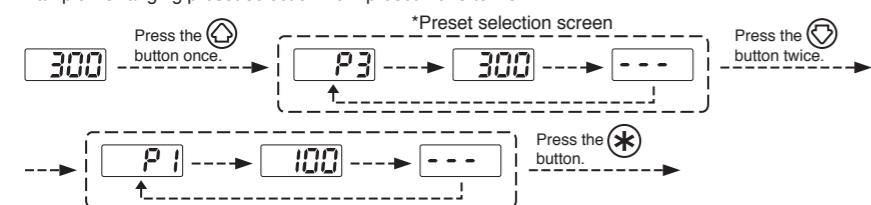
Initial preset settings:

[P1]	Temp. : 100°C	Timer : "----"	Air flow : 5	[P2]	Temp. : 200°C	Timer : "----"	Air flow : 5
[P3]	Temp. : 300°C	Timer : "----"	Air flow : 5	[P4]	Temp. : 400°C	Timer : "----"	Air flow : 5
[P5]	Temp. : 500°C	Timer : "----"	Air flow : 5				

The initial number of active presets is set to 5 at the factory.

The default selected preset is set to [P3] at the factory.

Example : Changing preset selection from preset No. 3 to No. 1.



Control will begin with new preset setting.

The procedure for making changes to the preset temperatures, timer and air flow is the same as the "Setting/Changing the Temperature and Timer" and "Setting of the air flow".

## 5. OPERATION

### ● Restriction on setting changes (Password function)

It is possible to restrict certain setting changes to the unit. There are three choices for the password setting. Enter the parameter settings to change the mode. (Please refer to [6. PARAMETER SETTING].)

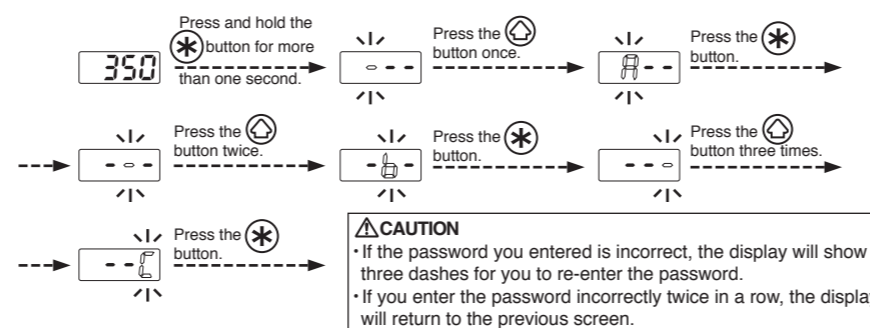
	0 : Open	1 : Partial	2 : Restricted
Switch to the parameter setting mode	○	×	×
Switch to the temperature setting mode	○	△	×
Switch to the preset selection mode	○	△	×
Switch to the offset setting mode	○	△	×
Make airflow adjustments	○	△	×

- : You can make changes without entering a password.
- △ : You can choose whether or not a password is needed to make changes.
- × : A password is required to make changes.

Select and input three letters for password from six letters on the right.



Example: The procedure for changing the set temperature when the unit is restricted by a password. (Password is "AbC")



#### CAUTION

• If the password you entered is incorrect, the display will show three dashes for you to re-enter the password.  
• If you enter the password incorrectly twice in a row, the display will return to the previous screen.

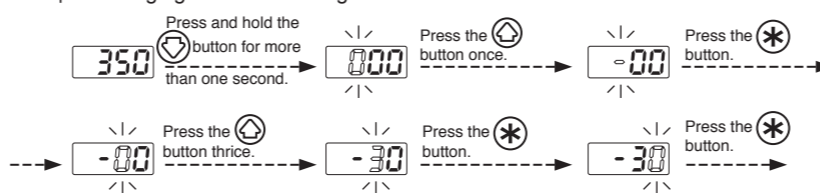
The unit will move to the change setting screen for each mode after entering the password. Please change the setting for each mode according to the procedure covered in this manual.

### ● Offset mode (Setting is available within the range of ±50°C (90°F))

#### ⚠ CAUTION

If the total of a set value and an offset value exceeds 600°C, the exceeding portion in the offset value is not effective.

Example: Changing the offset setting from 0°C to -30°C



Each of the set values is displayed for two seconds, and each change is finalized.

### Other main functions

#### ● Chain Presets function

In this station, when you turn on "Preset mode" and "Chain Presets function" in the parameter settings and set the timer for each preset, available presets are called in from "P-1" to "P-5" allowing you to simulate up to a 5 step rework profile.

A preset in which "000" is set in the timer setting is skipped and the next preset is automatically started.

#### ● Auto sleep function

When the handpiece is placed in the holder, the automatic sleep function starts working (by default). Pressing the START/STOP (HOT AIR) button in this state will not turn on the station. If the handpiece is placed in the holder while it is blowing hot air, start of automatic cooling is forced before the stop of operation.

#### ⚠ CAUTION

When installing this station, do not place flammable substances behind the outlet of the handpiece. If the handpiece is placed in the iron holder while blowing hot air, serious accidents such as fire may be caused by hot air.

#### ● Auto shutoff function

The auto shutoff function works by default after the station is idle for 30 minutes and it automatically enters a power save state.

#### ● Forced cooling bypass function

With this function enabled, if you press the "S" button (START/STOP button) again during cooling, cooling is stopped. This function is used when working temperature is low and you do not have to wait until automatic stop is made. When the set temperature is 380°C or more, the function is unavailable.

#### ⚠ CAUTION

Please do not use this function at high temperatures.

#### ● Check of settings

Example : When the set temperature is 350°C and the timer setting is 150 seconds.

Pressing the \* button once allows you to check the settings of the set temperature 350 and set time 150 in this order.

## 6. PARAMETER SETTING

The HAKKO FR-810B has the following parameters:

Parameter name	Parameter No.	Value	Initial value
°C / °F selection	01	C/F	°C
Auto sleep ON/OFF setting	07	0: OFF / 1: ON	1
Auto shutoff ON/OFF setting	08	0: OFF / 1: ON	1
Setting mode selection	11	0: Normal / 1: Preset	0
The number of preset *		[2P] (2 pcs)~[5P] (5 pcs)	[5P]
Password setting	14	0: Open/ 1: Partial / 2: Restricted	0
Temperature setting mode **		[10] : ○ / [11] : ×	[10]
Preset selection mode **		[20] : ○ / [21] : ×	[20]
Offset setting mode **		[30] : ○ / [31] : ×	[30]
Air flow mode **		[40] : ○ / [41] : ×	[40]
Password ***		A B C D E F Select three letters	-
Auto shutoff time setting	18	30~60min (Set in units of minutes)	30
Timer mode	20	o: Open Timing / c: Closed Timing	o
Forced cooling bypass	21	0: OFF / 1: ON	0
Preset connection ON/OFF setting	22	0: OFF / 1: ON	0

\* It is displayed only when "1: Preset mode" is selected in the setting mode.

\*\* It is displayed only when "1: Partial" is selected in the password setting.

\*\*\* It is displayed only when either "1: Partial" or "2: Restricted" is selected in the password setting.

Turn the power on while pressing the up/down button. Perform the setting to select the desired parameter No..

Press the up/down or left/right button to change the values, and press the \* button to execute.

After changing parameters, press and hold the \* button down for at least two seconds until [y] is displayed.

At this time, you can switch between [y] and [n] by pressing the up/down button. Select [y] if you are finished making changes or [n] if you need to go back and make more changes. Press the \* button to confirm your selection.

Changes will not be completed until [y] is displayed and you press the \* button.

Please note that no changes will be made if you turn off the power while making changes.

## 7. TROUBLE SHOOTING GUIDE

### ⚠ WARNING

Before checking the inside of the HAKKO FR-810B or replacing parts, be sure to disconnect the power plug. Failure to do so may result in electric shock.

● The unit does not operate when the power switch is turned on.

**CHECK** : Is the fuse blown?  
**ACTION** : Investigate why the fuse blew and then replace the fuse. If the cause can not be determined, replace the fuse. If the fuse blows again, send the unit in for repair.

● [5-E] is displayed

**CHECK** : Is the sensor broken?  
**ACTION** : Measure the resistance value of the sensor. When the resistance value is ∞, replace the heater. Details on the procedure of resistance value measurement are described in the corresponding manual in HAKKO Document Portal. Please refer to the document.

● [H-E] is displayed

**CHECK** : Is the heater broken?  
**ACTION** : Measure the resistance value of the heater. The correct values are approximately: 17Ω (±10% 120V and normal temperature). When the resistance value is not within the normal range, replace the heater. Details on the procedure of resistance value measurement are described in the corresponding manual in HAKKO Document Portal. Please refer to the document.

● [F-E] is displayed

**ACTION** : The fan may be broken. Replace the fan with a new one.

Didn't we just go over the parameters and what they mean and how to change them? The document on the portal will contain information on troubleshooting and replacement parts.

➔ <https://doc.hakko.com>



### HAKKO CORPORATION

#### HEAD OFFICE

4-5, Shiokusa 2-chome, Naniwa-ku, Osaka 556-0024 JAPAN  
TEL: +81-6-6561-3225 FAX: +81-6-6561-8466  
<http://www.hakko.com> E-mail: sales@hakko.com

#### OVERSEAS AFFILIATES

U.S.A.: AMERICAN HAKKO PRODUCTS, INC.

TEL: (661) 294-0090 FAX: (661) 294-0096

Toll Free (800)88-HAKKO

<http://www.hakkousa.com>

HONG KONG: HAKKO DEVELOPMENT CO., LTD.

TEL: 2811-5588 FAX: 2590-0217

<http://www.hakko.com.hk>

E-mail: info@hakko.com.hk

SINGAPORE: HAKKO PRODUCTS PTE LTD.

TEL: 6748-2277 FAX: 6744-0033

<http://www.hakko.com.sg>

E-mail: sales@hakko.com.sg

Please access to the following address for the other Sales affiliates.

<http://www.hakko.com>

中國RoHS: 產品中有毒有害物質或元素的名稱及含量

部件名稱	有毒有害物質或元素					
	鉛(Pb)	汞(Hg)	銅(Cd)	六價鉻(CrVI)	多溴聯苯(PBB)	多溴二苯醚(PBDE)
電路板	×	○	○	○	○	○
動力單元	×	○	○	○	○	○
真空泵	×	○	○	○	○	○
插座	×	○	○	○	○	○

○ : 表示該有毒有害物質在該部件所有均質材料中的含量均在SJ/T 11363-2006標準規定的限量要求以下。  
× : 表示該有毒有害物質至少在該部件的某一均質材料中的含量超出SJ/T 11363-2006標準規定的限量要求。