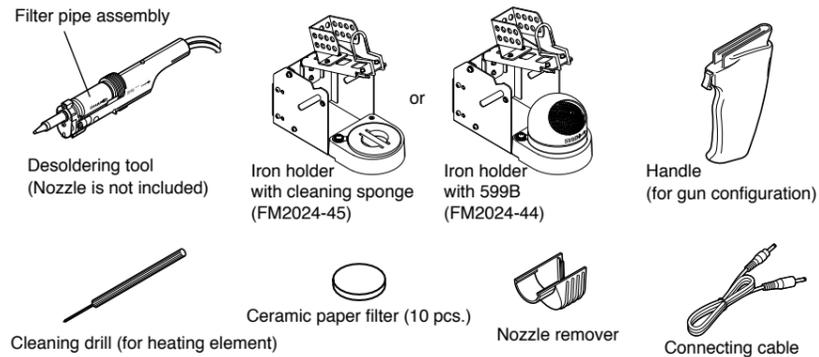


Thank you for purchasing MODEL FM-2024 desoldering tool.
Please read this manual before operating the MODEL FM-2024.
Please keep this manual readily accessible for reference.

1. PACKING LIST AND PART NAMES

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

Desoldering tool (Nozzle is not included)	1	Nozzle remover	1
Cleaning drill (for heating element)	1	Connecting cable	1
Iron holder	1	Ceramic paper filter (10 pcs.)	1
Handle (for gun configuration)	1	Instruction manual	1



2. SPECIFICATIONS

HAKKO FM-206

Output	24 V
Vacuum generator	Vacuum pump, cylinder type
Vacuum pressure (max.)	80 kPa (600 mmHg)
Suction flow	14 l/min
Tip to ground potential	< 2 mV

Desoldering tool

Power consumption	70 W (24 V)
Temperature range	350 - 450°C (650 - 840°F)
Tip to ground potential	< 2 mV
Tip to ground resistance	< 2
Length, less cord	180 mm
Weight, less cord & hose	65 g
Length of cord	1.2 m

NOTE:

- * The temperatures were measured using the HAKKO FG-100 soldering tester.
- * This product is protected against electrostatic discharge.
- * Specifications and design are subject to change without notice.

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:

1. 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.
2. Be sure to ground the unit during use.

※ 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。)
* 各言語 (日本語、英語、中文、法語、ドイツ語、韓国語) の使用説明書は通過以下网站的 HAKKO Document Portal 下载参阅。
(有一部分的产品没有设定外语对应, 请见谅)
* Instruction manual in the language of Japanese, English, Chinese, French, German, and Korean can be downloaded from the HAKKO Document Portal.
(Please note that some languages may not be available depending on the product.)

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. Two examples are given below.

NOTE: A NOTE indicates a procedure or point that is important to the process being described.

EXAMPLE: An EXAMPLE is given to demonstrate a particular procedure point or process.

Failure to do so may result in serious problems.

WARNING

- When the power is on, the nozzle temperature is between 350C/650F and 450C/840F. Since mishandling may lead to burns or fire, be sure to comply with the following precautions.
- Do not touch the metal parts near the nozzle, nearby plastic parts, or the metal parts of iron holder.
 - Do not use the product near flammable items.
 - Advise other people in the work area that the unit can reach a very high temperature and should be considered potentially dangerous.
 - Turn the power off while taking breaks and when finished using the unit.
 - Before replacing parts or storing the unit, turn the power off and allow the unit to cool to room temperature.
 - This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
 - Children should be supervised to ensure that they do not play with the appliance.

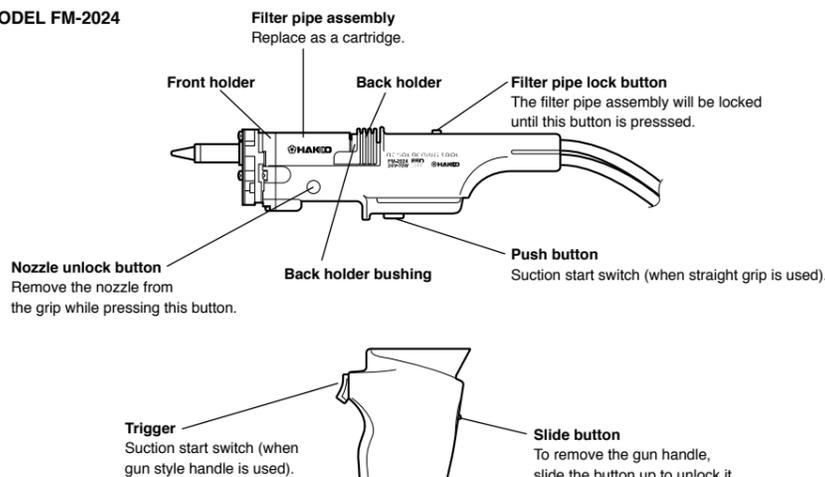
To prevent damage to the unit and ensure a safe working environment, be sure to comply with the following precautions.

CAUTION

- Do not use the unit for applications other than desoldering.
- Do not rap the desoldering tool against the work bench to shake off residual solder, or otherwise subject the iron to severe shocks.
- Do not modify the unit.
- Use only genuine HAKKO replacement parts.
- Do not wet the unit or use the unit when your hands are wet.
- When desoldering, ensure good ventilation for smoke.
- While using the unit, don't do anything which may cause bodily harm or physical damage.

4. PART NAMES

MODEL FM-2024

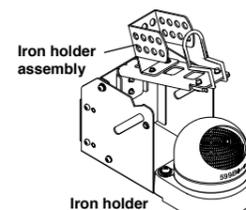


5. OPERATION

Assembling, connection operation and removing solder

● Assembling

1. Iron holder



5. OPERATION

2. Connecting and replacing the filter pipe
Pull the back holder (A) until it locks, then insert the filter pipe assembly with the opening to the nozzle side. Ensure that the outer surface of the filter pipe assembly is even with the handle support. If the filter pipe assembly is tilted, a leak may occur.
To replace the filter pipe assembly, press back holder unlock button (B), pull the back holder to lock it, change the filter pipe assembly, then lock the filter pipe assembly.
Replace the filter pipe assembly in the cartridge.

CAUTION
The surface of the filter pipe assembly may be very hot.

Attaching

Replacing Nozzle remover

Insert the grip fully into the nozzle cartridge as shown in the illustration. Once the nozzle cartridge is inserted, it is locked automatically.

To replace the nozzle cartridge, insert the nozzle remover into the flange of the nozzle cartridge and pull.

CAUTION
The nozzle can be very hot. To attach or remove the nozzle cartridge, be sure to use the nozzle remover to preclude the possibility of breaking the grip or cartridge.

Press the nozzle unlock button (A) and remove the nozzle cartridge.

CAUTION
The nozzle may be very hot.

The nozzle remover may be left mounted on the end of the straight grip when not in use to prevent it from being misplaced.

● Connection

CAUTION
Be sure to unplug the cord by holding the plug.

- The HAKKO FM-206 detects when the iron is removed from the iron holder and sends this data to the station via the relay cord. That data is then used for various functions.

NOTE:

The channel for connecting the relay cord of the iron holder must be the same as the channel for connecting the iron set in the iron holder.

CAUTION
Securely insert the relay cord all the way to the back.

1. Connect the plug from the MODEL FM-2024 to the receptacle on the HAKKO FM-206.
2. Put the MODEL FM-2024 into the iron holder.
3. Connect the hose from the MODEL FM-2024 to the filter case cover on the HAKKO FM-206.

● External switch

An optional hand and foot switch are available which can be connected to the unit to START/STOP preheating.

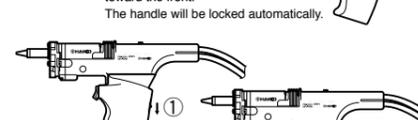
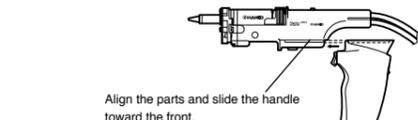
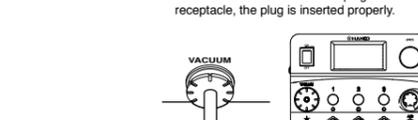
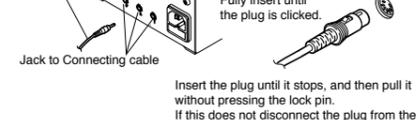
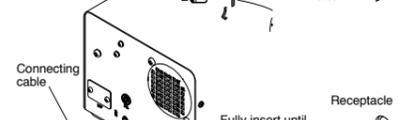
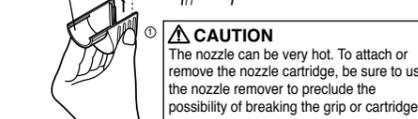
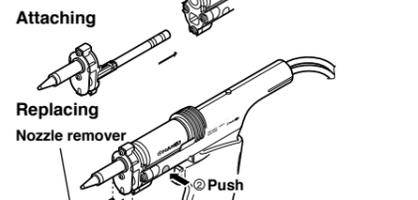
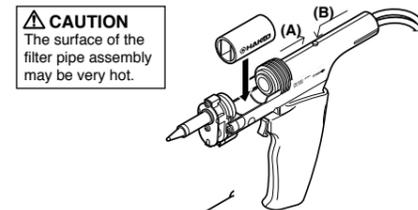
CAUTION
Please be careful not to connect an incompatible device.

● Using the desoldering iron in the gun configuration.

To use the desoldering iron in the gun configuration, attach the handle to the straight grip.

● Using the desoldering iron in the pen configuration.

To remove the handle, slide down the button located on the rear of the handle to unlock it, then slide the handle toward the back of the MODEL FM-2024.



5. OPERATION

● Operation

1. Turn ON the power.
2. By default, when the set temperature is reached, the buzzer sounds, indicating that the unit is ready.
About setting temperature, refer to the instruction manual for the soldering station (HAKKO FM-206)

⚠ CAUTION

- When not in use, set the iron in the iron holder.
- The MODEL FM-2024 does not function properly if the power is turned on with the trigger pressed. Release the trigger and then turn the power ON.

If the nozzle tip is coated with oxidized film or the like, its thermal conductivity deteriorates. In contrast, if the nozzle end is wetted with a small amount of clean solder, its thermal conductivity increases.

1. Melt the solder.

Position the nozzle above the lead to be desoldered as shown in the illustration and melt the solder.

⚠ CAUTION
Never allow the nozzle to touch the board itself.

Confirm that the solder is melted.

⚠ CAUTION
To confirm that all solder is melted, observe the inside of the hole and the backside of the P.W.B. If this is difficult to do, try slowly moving the lead with the nozzle. If the lead moves, the solder is melted. Never move the lead by force. If it doesn't move easily, the solder isn't yet fully melted.

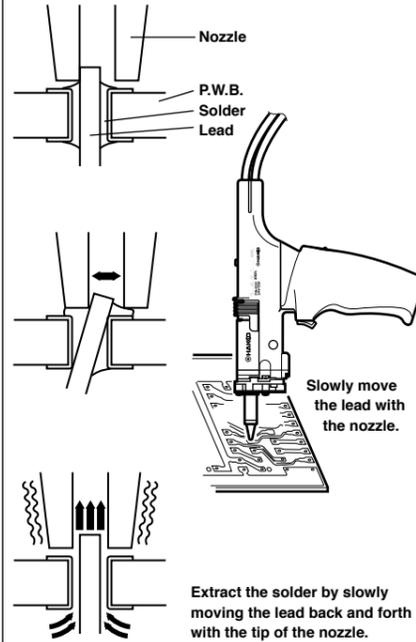
2. Extract the solder.

After confirming that the solder is completely melted, extract the solder by pressing the button (or squeezing the trigger)

⚠ CAUTION
Never leave any solder remaining inside the hole in the P.W.B.

3. Problems during desoldering.

If solder remains, resolder the component and repeat the desoldering process.



6. MAINTENANCE

Properly maintained, the MODEL FM-2024 desoldering tool should provide years of good service. Efficient desoldering depends upon the temperature, and the quality and quantity of the solder and flux. Perform the following service procedures as dictated by the conditions of the gun'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.

Maintenance of nozzle

⚠ CAUTION
The desoldering tool may be extremely hot. During maintenance, please work carefully.

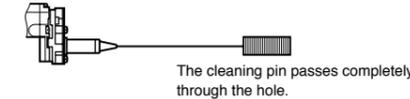
Inspect and clean the nozzle.

- Plug in the power cord, 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.

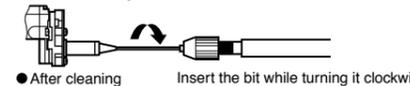
- Clean out the hole of the nozzle with the nozzle cleaning pin (not included as a standard accessories).
- If the cleaning pin does not pass through the hole in the nozzle, clean with the cleaning drill. (not included as a standard accessories).
- Check the condition of the solder plating on the nozzle tip.

Cleaning with the nozzle cleaning pin

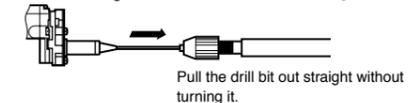


Cleaning with the cleaning drill

- Before cleaning



- After cleaning



⚠ 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.

6. MAINTENANCE

- Check visually if the nozzle was eroded.

⚠ CAUTION
The inside hole and the surface of the nozzle is plated with a special alloy. Should this alloy become eroded by high-temperature solder, the nozzle will not be able to maintain the proper temperature.

- If the nozzle is still in a good condition, put some fresh solder on the nozzle tip to protect solder plated area from oxidation.

Cleaning the inside of suction pipe

Move the nozzle cartridge to the cleaning position indicated in figure at right. Change the position of the nozzle cartridge before turning the power ON, to prevent accidents.

To clean the inside of the suction pipe, ensure that the solder remaining in the pipe has been completely melted.

For the cleaning of the suction pipe, set the nozzle temperature to 400°C/750°F or higher. Start this cleaning after the set temperature has been reached.

To clean the inside of the suction pipe, insert the cleaning drill fully into the suction pipe while turning it clockwise. Then remove the accumulated debris.

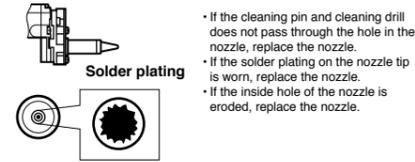
Check and clean the front and back holder bushings

If foreign matter gets stuck on the contact surface between the front holder and the filter pipe assembly, or between the back rubber holder bushing and the filter pipe assembly, air will be sucked into the tool, preventing normal desoldering. Remove the solder and flux adhering to the surface of front holder (A) and back holder (B) then connect the filter pipe assembly.

Checking and replacing the ceramic paper filter

The filter is clogged with hardened flux.

Fit the filter case cover in place.

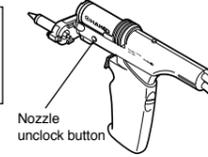


- If the cleaning pin and cleaning drill does not pass through the hole in the nozzle, replace the nozzle.
- If the solder plating on the nozzle tip is worn, replace the nozzle.
- If the inside hole of the nozzle is eroded, replace the nozzle.

Hole is damaged by erosion.

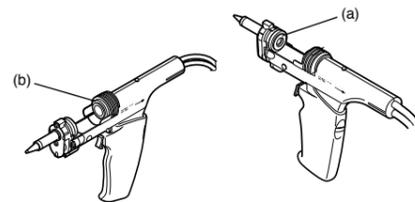
⚠ CAUTION
Unfortunately, it is often difficult to observe this condition. Therefore, if desoldering efficiency goes down and all other parts appear to be OK, the nozzle is probably eroded and should be replaced.

NOTE:
Once removing the nozzle from the grip while pressing the nozzle unlock button, then insert the nozzle as the following position.

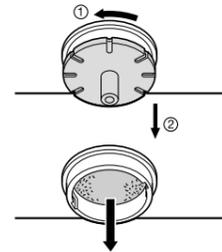


⚠ CAUTION
If you insert the drill without turning it or if you try to insert the drill at an angle, the nozzle cartridge may be broken.

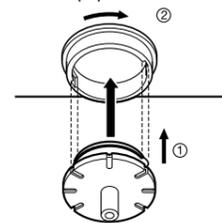
⚠ CAUTION
Remove the cleaning drill on axis with the nozzle. If it is difficult to remove the drill, turn it slightly whilst withdrawing it. If you forcibly remove the drill, the cartridge may be broken.



1. Turn the filter case cover on the DCB clockwise to unlock it, then remove the cover by pulling it straight out.



Replace the ceramic paper filter.



After replacing the ceramic paper filter, press the filter case cover with its tabs inserted into the corresponding slots in the filter case then turn clockwise to lock it.

7. TROUBLE SHOOTING GUIDE

⚠ WARNING

● To check inside or replace parts, be sure to turn the power switch OFF and remove the AC plug to avoid electric shock.

- No operation occurs when the power switch is turned ON.

CHECK : Is the power cord connected properly?
ACTION : Properly connect the power cable.
CHECK : Is the fuse blown out?
ACTION : After identifying the cause (e.g., short-circuit in the desoldering iron), replace the fuse.

- When the power switch is turned ON. "Grip Error" is displayed.

CHECK : Is MODEL FM-2024 connected?
ACTION : Connect MODEL FM-2024.
CHECK : Is the cord assembly connected properly?
ACTION : Connect again while referring to "Preparation - Assembling and Connections."
CHECK : Is the cord assembly broken?
ACTION : If the cord assembly is broken, replace the soldering iron, desoldering tool or handpiece.

- The nozzle is not heated. "Sens Error" is displayed.

CHECK : Is the nozzle cartridge fully inserted?
ACTION : Fully insert the nozzle cartridge.
CHECK : Is the cord assembly broken? Is the heater/sensor disconnected?
ACTION : If the resistance is outside this range, replace the nozzle assembly.

- The nozzle end does not extract solder.

CHECK : Is the set temperature for the nozzle too high?
ACTION : Set the nozzle temperature at the appropriate level.
CHECK : Is the nozzle end plugged or coated with oxide?
ACTION : Remove the oxide by cleaning the nozzle end.
CHECK : Has the nozzle end deteriorated due to corrosion?
ACTION : Replace the nozzle.

- The nozzle temperature is too high.

CHECK : Is the cord assembly broken?
ACTION : If the cord assembly is broken, replace the soldering iron, desoldering tool or handpiece.

- The nozzle temperature is too low.

CHECK : Is any oxide adhered to the nozzle end?
ACTION : Remove the oxide by cleaning the nozzle end with HAKKO 599B Tip cleaner.
CHECK : Has the nozzle end deteriorated due to corrosion?
ACTION : Replace the nozzle.

- The low-temperature alarm tolerance error "Low Temp" is displayed.

CHECK : Is the setting for the low temperature alarm too low?
ACTION : Increase the setting.

- Heater terminal short circuit error "Heater Short Error" is displayed.

CHECK : Is the nozzle cartridge for use with MODEL FM-2024?
ACTION : Turn the power switch OFF, press-fit the nozzle for the MODEL FM-2024, then turn the power switch ON.

- The solder cannot be removed.

CHECK : Is the heating value insufficient?
ACTION : In cases where the piece to be desoldered is large, HAKKO recommends the use of a pre-heater to preclude the possibility of damage to the board or components that might occur as a result of excessively high nozzle temperatures.

- The suction power has decreased.

CHECK : Is it difficult to get solder on the nozzle?
ACTION : Refer to "Maintenance of nozzle".

CHECK : Is the inside of the nozzle or suction pipe clogged?
ACTION : Refer to "Maintenance of nozzle" and "Cleaning the inside of suction pipe."

CHECK : Is the filter pipe full of extracted solder?
ACTION : If the filter pipe is 70 - 80% full of solder, replace the filter pipe assembly. If the ceramic paper filter is stiff with absorbed flux, replace the filter pipe assembly.

CHECK : Is solder residue stuck on the contact surface between the front holder or the back holder bushing and the filter pipe assembly?
ACTION : Refer to "Checking and cleaning front and back holder bushings."

CHECK : Has the ceramic paper filter deteriorated?
ACTION : The ceramic paper filter is full of flux, causing a loss of suction. Refer to "Checking and replacing the ceramic paper filter."

- "Zero-Cross Error" or "System Error" is displayed.

ACTION : Turn off the power switch. Turn on the power switch again. If the "Zero-Cross Error" / "System Error" continues to be displayed after turning on the power switch, contact your HAKKO representative.