

5. OPERATION (Continued)

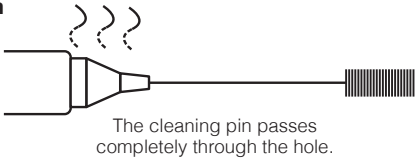
(3) Cleaning

Cleaning is extremely important and should be done frequently during the desoldering process. Parts should be checked periodically for wear and should be replaced if necessary. See the MAINTENANCE section of these instructions.

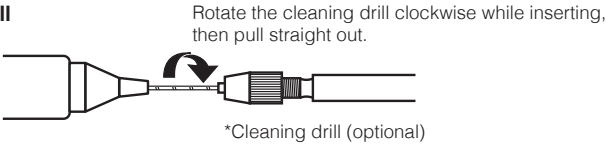
- Clean the nozzle as you would clean a soldering tip: wipe away any excess solder with a sponge moistened with de-ionized or distilled water, or using a wire tip cleaner. Before putting the desoldering tool away, apply a new coat of solder on the tip.
- Using a cleaning pin that matches the diameter of the nozzle, clean the inside of the nozzle opening. This must be done while the nozzle and heating core are still hot, so be careful.
- Discard any solder that has collected in the filter pipe. Do this carefully, as the solder will still be extremely hot.
- Replace the filter. See the MAINTENANCE section of these instructions.

The ceramic paper filter (L) should be replaced immediately when a stain appears or vacuum decreases. Failure to do this will reduce the performance of the pump and may damage it.

• Cleaning with cleaning pin

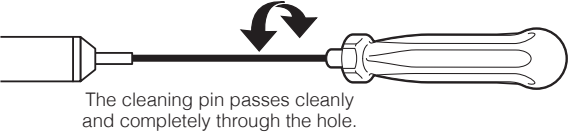


• Cleaning with cleaning drill



• Clean the heating core

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

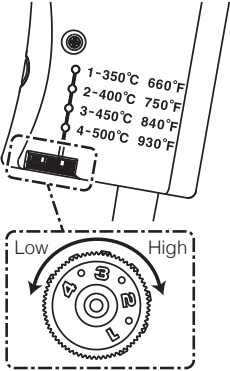


(4) Temperature setting

The temperature of the HAKKO FR-301 can be adjusted between 350 - 500 °C/660 - 930 °F. Set the temperature in accordance with the requirements of the job being done. Although the temperature needed for desoldering cannot be determined merely by the type of board to be desoldered, the values in the table below may be used as a general guide.

CAUTION	
Change the temperature only with the temp. control knob. Do not use the “CAL” trim pot.	
Type of board	Approximate setting (on scale)
Single-sided P.W.B.	1
Through-hole P.W.B.	2
Multilayer P.W.B.	3 to 4

- In general, the greater the temperature, the more quickly the nozzle will oxidize and wear out.
- As nozzle oxidation and wear increases, the nozzle temperature will decrease. In such cases, increasing the set temperature will only accelerate oxidation and hasten wear. Replace worn nozzles as soon as possible.



6. MAINTENANCE

The frequency of cleaning and part replacement greatly depends on a variety of factors, including the temperature at which the desoldering tool is operated, and the types of solder and flux used. Using the table below as a general guide, clean and replace parts in accordance with use conditions.

Maintenance	
During use	Clean nozzle
	Discard solder that has collected
	Clean nozzle and heating core
When necessary	Replace parts
Periodically	Clean pump

6. MAINTENANCE (Continued)

(1) A general guide to replacement part

Use the table below as a general guide to replacement part. Use only genuine HAKKO FR-301 replacement parts as the use of other parts may impair performance, or cause damage or injury.

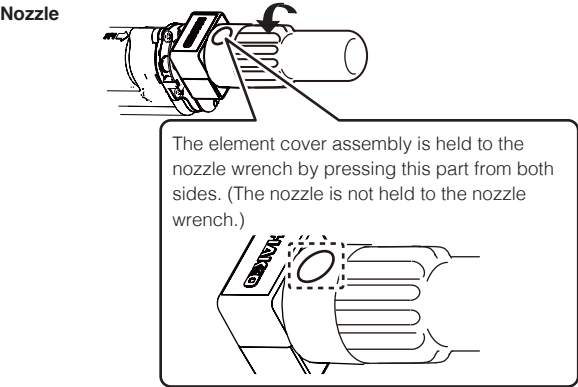
Part Name	Signs that replacement is needed
Pre-filter	Cannot hold solder
	Warping
Ceramic paper filter (L)	Hardened by flux staining
Front holder	Hardening has reduced air tightness
Nozzle	Repels solder
	Solder plating on tip is gone
	Clogging
	Hole has corroded and is larger
Heating core (in heater)	Temperature is low
	Clogged
	Normal heater resistance value: 35 Ω (100 - 120 V models) 160 Ω (220 - 240 V models)
Valve	Cracking
Diaphragm	Tearing
Inner hose	Hose is clogged with flux
	Hose has hardened and is no longer flexible
	Tearing

(2) Replacing parts

• Nozzle

NOTE: Be careful since the areas around the nozzle and heating element are very hot.

1. Remove the element cover and the nozzle with the included nozzle wrench.

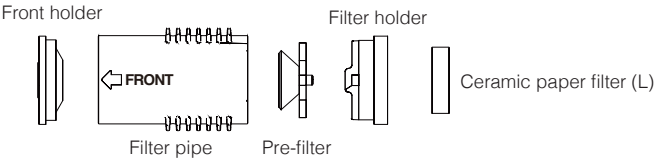
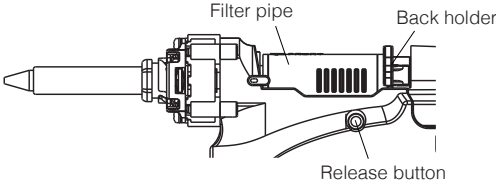


• Filter Pipe and related parts

Be careful since the area around the filter pipe is extremely hot.

1. Pull the rear holder back until it clicks (locks into place) and remove the filter pipe.

Filter Pipe and related parts

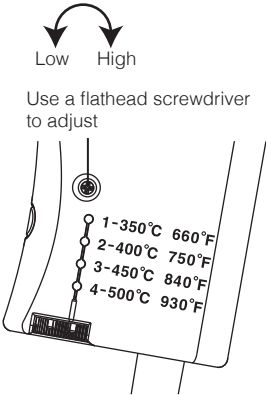


2. Inspect the filter and holders and replace as needed.
3. During assembly, be sure to insert the filter. Failure to do so may damage the unit. After the parts have been assembled, place the filter pipe assembly into position and push the release button. The back holder will spring forward and secure the filter pipe while creating a vacuum seal.

7. TROUBLESHOOTING

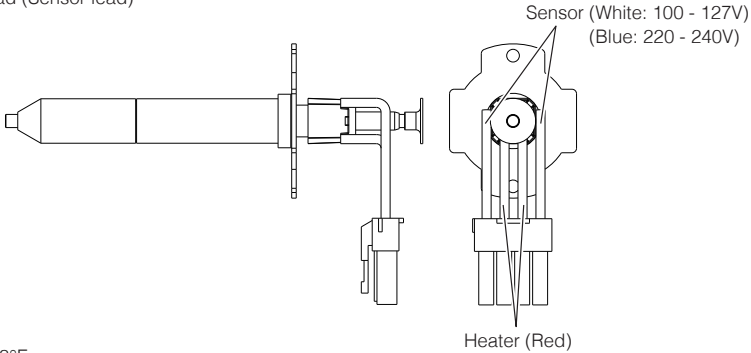
Calibrating the temperature

1. Install a new nozzle. The nozzle being used may have already started to wear, so use a new nozzle.
2. Insert the power plug into the outlet.
3. Set the temperature to 400 °C/750 °F.
4. Wait for about 1 minute until the nozzle will melt solder, then apply a generous coating of your solder to the end of the nozzle. When the iron temperature reaches the set temperature, the LED lamp will flash.
5. Use a soldering iron tip thermometer (optional accessory) to measure the temperature at the tip of the nozzle. Do not apply suction, as this will cause the temperature to drop.
6. Adjust CAL until the temperature is 400 °C/750 °F. Turn CAL clockwise to increase the temperature.
 - It may take several minutes for the nozzle temperature to stabilize after CAL is adjusted.
 - During CAL adjustment, make sure the set temperature does not go above 500°C/930°F, as this may damage the desoldering tool.



	Problem cause	Procedure
Tool does not heat up	Tool is not connected properly to power outlet	Connect properly
	Heating element burnout*	Replace heating element
	Sensor is broken*	
Temperature is low	Temperature is set too low	Reset
	Temperature has not been calibrated properly	Calibrate properly
	Nozzle is worn out	Replace nozzle
Pump does not operate	Nozzle or heating core (in heating element) is clogged	Clean
	Too much solder or flux has collected in the filter	Replace filter
Suction force is weak	Too much solder or flux has collected in the filter or inner hose	Replace filter or inner hose
	Vacuum leakage	Inspect nozzle, area around filter and pump hose
	Pump valve or diaphragm is broken	Replace valve or diaphragm

*Heater lead (Sensor lead)



*At 23°C/73°F,
Normal heater resistance value: 35 Ω (100 - 127 V models) 160 Ω (220 - 240 V models)
Normal sensor resistance value: 50 Ω (100 - 127 V, 220 - 240 V models)

NOTE:

Use of the tool when the nozzle, heating core, or filter is clogged may cause the pump to lock up and render operation impossible. Clean or otherwise eliminate the blockage before attempting to use the tool.

Repairs

When repair becomes necessary, check the following and then bring the desoldering tool to a HAKKO sales outlet or HAKKO dealer.

1. Is the nozzle or heating core clogged?
2. Is the valve plate cracked or missing?
3. Is the front holder or filter holder warped or cracked?
4. Is the pre-filter or ceramic paper filter dirty or warped?

Detailed information can be found in manuals available at the HAKKO Document Portal.

Please download and make use of them.

➡ <https://doc.hakko.com>