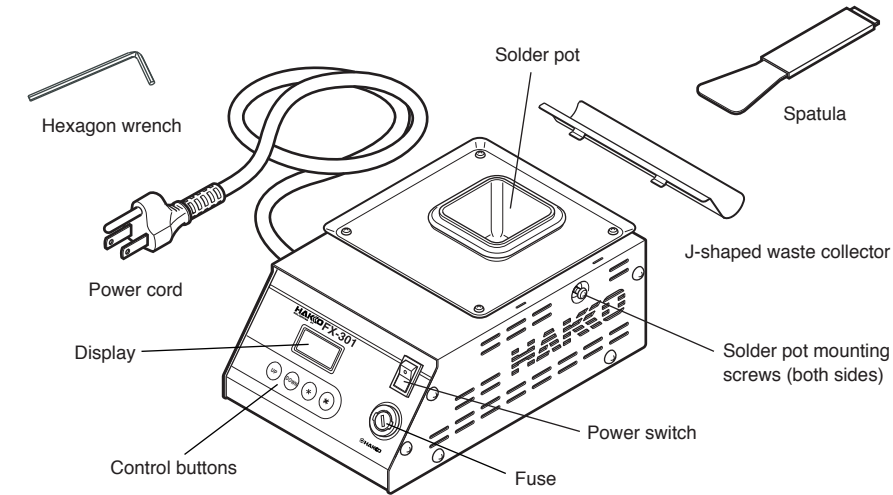# HAKKO FX-301

SOLDERING POT

Instruction Manual

Thank your for purchasing the HAKKO FX-301 soldering pot.
Please read this manual before operating the HAKKO FX-301.
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.

Unit 1
Spatula 1
J-shaped waste collector 1
Hexagon wrench 1
Instruction manual 1

- Solder pot
- Spatula
- Hexagon wrench
- J-shaped waste collector
- Power cord
- Display
- Control buttons
- Power switch
- Fuse
- Solder pot mounting screws (both sides)

2. SPECIFICATIONS

	50 × 50 Square	75 × 75 Square
Power consumption	100V - 200W, 110V - 260W, 120V - 310W, 220V - 240W, 230V - 260W, 240V - 280W	
Temperature range	200 - 450°C (400 ~ 840°F)	200 - 380°C (400 ~ 720°F)
Solder pot dimensions	50 (W) × 50 (D) × 42 (H) mm (2.0 × 2.0 × 1.7 in.)	75 (W) × 75 (D) × 55 (H) mm (3.0 × 3.0 × 2.2 in.)
Molten solder capacity	0.85 kg (1.87 lb.)	1.2 kg (2.64 lb.)
Weight (w/o solder and cord)	1.7 kg (3.74 lb.)	
Outer dimensions	143 (W) × 100 (H) × 220 (D) mm (5.6 × 4.0 × 6.7 in.)	

* Only a 50 × 50 square solder pot is included in this product.
* The 75 × 75 square solder pot is an optinal part.
* Specifications and design are subject to change without notice.

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3. SAFETY INSTRUCTIONS

⚠ WARNING

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.

⚠ WARNING

When the power is ON, the temperature of the melted solder in the solder pot is approximately 450°C/842°F. Before changing the solder pot, be sure to unplug the power cord and let the solder and the unit cool to room temperature.

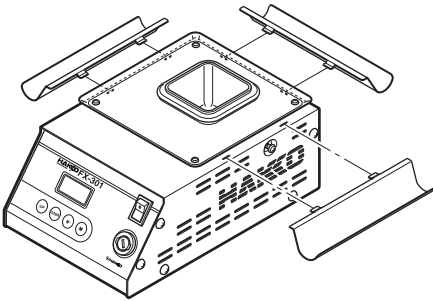**Observe the following precautions to ensure safety.**

⚠ CAUTION

The molten solder in the solder pot is dangerous since it reaches about 450°C/842°F. The pot cover also becomes a high temperature when the power is ON. Wrong handling may cause burns or fire. Be sure to observe the following precautions.
- Use this product on highly stable metal workbench. Never use it near paper or other flammable materials.
- Inform others in the area that the product is hot and should not be touched.
- Never put water in the solder pot as this will cause solder to spatter out of the solder pot.
- Turn the power off when not in use, or left unattended.
- Before changing parts or storing the unit, be sure to turn the power off and allow the unit to cool to room temperature.

Observe the following precautions to prevent accidents or damage to the unit.

- Do not use the HAKKO FX-301 for applications other than soldering.
- Do not modify the HAKKO FX-301.
- Use only genuine HAKKO replacement parts.
- Do not allow the HAKKO FX-301 to become wet, or use it with wet hands.
- Be sure the work area is well ventilated. Soldering produces smoke.
- Do not do anything else that might be dangerous.
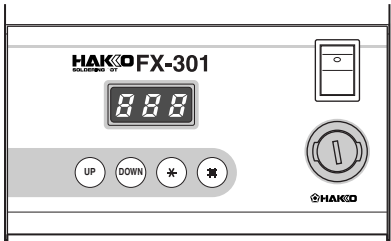
4. INTIAL SETUP

1. Install the J-shaped waste collector to the unit. (Three-way installation is possible to meet your operating needs.)

2. Cut the solder sticks into small pieces and put them in the solder pot.

3. Plug the power cord into a grounded wall socket.

⚠ CAUTION

Make sure the power switch is off before plugging in the power plug.
This product is protected against electrostatic discharge.
Make sure this product is grounded before using.

5. OPERATION

Display and operation

● Display

The front panel of the HAKKO FX-301 soldering pot has the following controls:

UP - Increases the value in the appropriate display window.

DOWN - decreases the value in the appropriate display window.

✳ - Holding down the button for one second or more will enter into the temperature setting mode. If the button is otherwise pressed for only less than one second, the current set temperature will remain displayed. In the input mode, establish the entered value and exist the data input mode.

✱ - Holding down the button for one second or more will enter into the offset input mode. If the button is otherwise pressed for only less than one second, the current offset value will remain displayed.

Operation

1. Turn the power switch ON.
2. The temperature set at factory is displayed.
   *The temperature was set to 350°C at factory.

3. The temperature control is started, causing the temperature to increase.

NOTE:
The display blinks when the power is turned ON or when settings are changed. This blinking occurs because the temperature control is in progress. The current temperature will be displayed in a short time.

6. PARAMETER SETTINGS

Before changing the setting temperature

The HAKKO FX-301 comes from the factory with the following values preset:

°C or °F temperature display selection	1 C	°C
Setting a solder type	2 1	Sn-Pb (Tin an lead)
Setting the solder pot type	3 1	50 × 50 square
Setting the timer	4 0	OFF or disabled

● Entering the parameters
1. °C or °F temperature display selection

2. Setting a solder type
Once a solder type close to the applicable one as shown in the right side, the temperature control will be performed for that solder type.

The HAKKO FX-301 has the following four parameters:

1) °C or °F temperature display selection
2) Setting a solder type
3) Setting the solder pot type
4) Setting the timer

Once you enter the parameter setting mode, the setting sequence will start in the following order. After all the parameters have been set, the displayed temperature setting starts blinking and the temperature of the solder pot starts rising.

1. Turn the power switch OFF.
2. Press and hold down the **UP** and **DOWN** buttons simultaneously, and then turn the power switch ON.
3. When you enter the parameter setting mode, `1 C` is displayed.
4. Press the **UP** or **DOWN** button to select `1 C` for °C or `1 F` for °F.
   After checking the displayed selection, press the **✳** button.
   After establishing the temperature unit to use, enter the solder type selection mode.

Press the **UP** or **DOWN** button to select the number corresponding to your solder type as follows:

`2 1` Sn-Pb (Tin an lead)

`2 2` Sn-Ag-Cu (Tin, silver, and copper)

`2 3` Sn-Cu (Tin and copper)

`2 4` Sn (Tin)

After checking the displayed selection, press the **✳** button.

NOTE:
The solder types are listed for only rough classification. Select the closest one to your solder type.

6. PARAMETER SETTINGS

3. Setting the solder pot type
In the HAKKO FX-301 package, the size of the solder pot is 50×50 square. The 75×75 square solder pot is available to order for the requirement of your work.

Press the UP or DOWN to select the number corresponding to your solder pot size as shown above. After checking the displayed selection, press the ● button.

Set the size of the solder pot that you will use.

`3 1` 50×50 Square: Setting range of temperatures 200 - 450°C/400 - 840°F

`3 2` 75×75 Square: Setting range of temperatures 200 - 380°C /400 - 720°F

4. Setting the timer
It will be able to check the present addition time by pressing the ● button.

`4 0` for OFF or disabled
`4 1` for a value between 10 and 9990 hours
Select the displayed `4 1` and then press the ● button. You will proceed to enter the time to set. Enter a desired time value.
Time can be set in units of 10 hours in a range between `00 1` and `999` (10 and 9,990 hours). After entering the time value, press the ● button.

NOTE:
After the set time has passed, `t 0` will be displayed, the alarm will start sounding, and then the heater for the solder pot will be turned OFF. To reset the alarm and others, turn OFF the power switch and then immediately turn it ON again. The timer will be reset to the above time setting.After the set time has passed, the heater for the solder pot will be turned OFF.

● How to change and reset

Changing the time ...... Enter the value between 001~999.

Resetting the time ...... In case of resetting the time (in the middle of setting the time.), please change to the different value once, and enter the desired value.

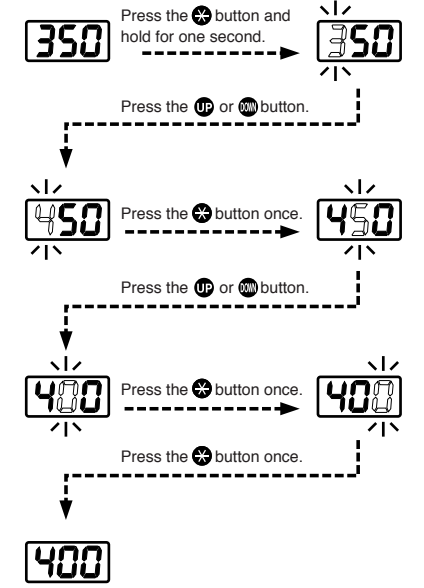# 7. CHANGING THE TEMPERATURE SETTING

● Changing the temperature setting

The HAKKO FX-301 is preset at 350°C at the factory.

Example: 350°C to 400°C

1. Check that the displayed value is 350°C.
Press the ● button for one second or more. The hundreds digit will start blinking, indicating the unit is in the temperature setting mode.

2. Entering the hundreds digit
Press the UP or DOWN button to set the desired figure. When the desired figure is displayed, press the ● button to enter. The tens digit will begin to blink.

3. Entering the tens digit
Press the UP or DOWN button to set the desired figure. When the desired figure is displayed, press the ● button to enter. The unit's digit will begin to blink.

4. Entering the unit's digit
Press the UP or DOWN button to set the desired figure. When the desired figure is displayed, press the ● button to enter. Now the setting has been completed.

After the setting has been completed, the displayed temperature starts blinking and the temperature in the solder pot starts rising. The current temperature will be displayed in a short time.

Press the ● button and hold for one second. `350` → `350`
Press the UP or DOWN button.
`450` Press the ● button once. `450`
Press the UP or DOWN button.
`400` Press the ● button once. `400`
Press the ● button once.
`400`

NOTE:
For the 50×50 square pot, the setting range of temperatures is between 200 - 450°C/400 - 840°F.
For the 75×75 square pot, the setting range of temperatures is between 200 - 380°C/400 - 720°F.

8. IN CASE THE DISPLAY AND THE ACTUAL TEMPERATURE IS DEFFERENT
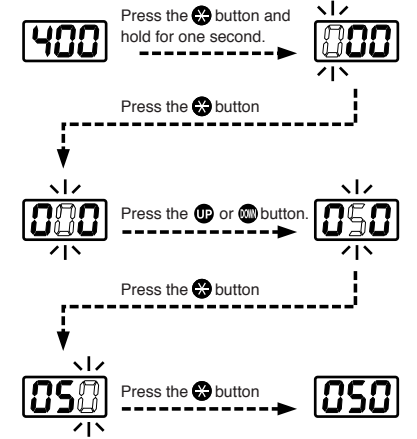
● Entering offset value

The offset value was set to 0°C at factory.

Range of values:
°C... -70 to +70°C
°F ... -158 to +158°F

Example:
When the set temperature is 400°C and the actual solder temperature in the solder pot is 350°C; The difference between the two is +50°C . Therefore, enter 050 instead of the current offset value.

Once you can check the display and the measured temperature, all the settings are finished.

When the temperature of solder reaches the set value, the buzzer sounds. About 5 to 10 minutes later, measure the temperature of solder. If the measured value is different from the displayed temperature, match them with each other by entering an offset.
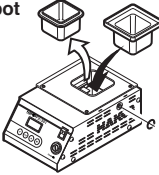
`400` Press the ● button and hold for one second. → `000`
Press the ● button
`000` Press the UP or DOWN button. `050`
Press the ● button
`050` Press the ● button → `050`

NOTE:
When measure the temperature of the solder, be sure to measure at the same position.

9. MAINTENANCE

⚠ WARNING
Unless otherwise directed, carry out these procedures after turning the power switch OFF, unplugging the power plug and waiting for both the unit and the solder to sufficiently cool down.
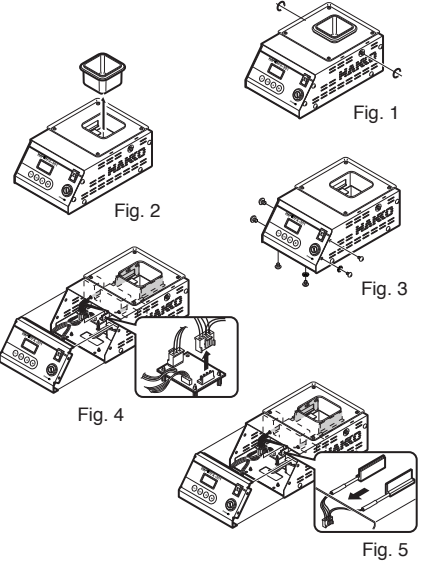
Changing the solder pot

1. Using the hexagon wrench (provided with the HAKKO FX-301) to loosen the screws on both sides of the unit.

NOTE:
Removal is unnecessary.

2. Pull out the solder pot.

3. Insert a new solder pot and then tighten the screws on both sides.

⚠ CAUTION
After changing the solder pot, measure the temperature again. If the measured value is different from the displayed temperature, enter an offset.

⚠ CAUTION
Check that the solder pot has been locked now. Otherwise, the temperature may not increase properly.

⚠ WARNING
When the power is ON, the temperature of the melted solder in the solder pot is approximately 450°C/842°F. Before changing the solder pot, be sure to unplug the power cord and let the solder and the unit cool to room temperature.

Replacing the heating element

Fig. 1
Fig. 2
Fig. 3
Fig. 4
Fig. 5

1. Loosen the screws on both sides of the unit. (Fig. 1)

NOTE:
Removal is unnecessary.

2. Pull out the solder pot. (Fig. 2)

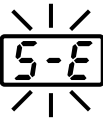3. Remove the setscrews (6 pieces) on the unit. (Fig. 3)

4. Slide the front panel frontward, remove the connector (Fig. 4) on the connector circuit board, and then pull out the unit of the heating element (Fig. 5).

5. Insert a new heater unit and then install it by reversing the above steps.

After finishing the maintenance, measure the temperature of solder. If the measured value is different from the display temperature, enter an offset.

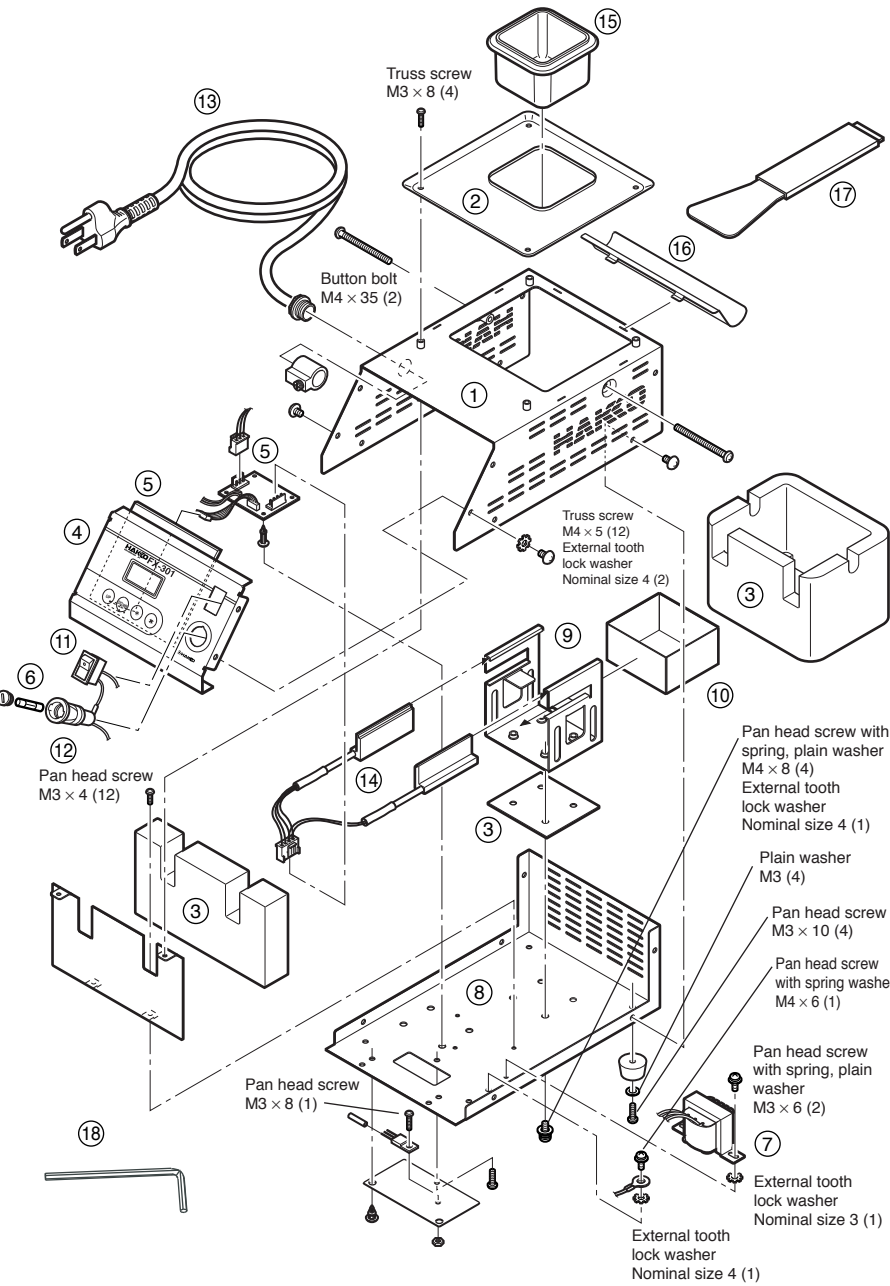# 10. ERROR MESSAGES

● Sensor Error

`5-E`

There is the possibility that a failure has occurred in the sensor circuit. The power is shut down with the buzzer sounding continuously.

11. TROUBLE SHOOTING GUIDE

⚠ WARNING
· **Before checking the inside of the FX-301 or replacing parts, be sure to disconnect the power plug.**

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

CHECK : Is the power cord and/or the connection plug disconnected?
ACTION : Connect it.
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.

12. PARTS LIST

Truss screw M3 × 8 (4)
Button bolt M4 × 35 (2)
Truss screw M4 × 5 (12) External tooth lock washer Nominal size 4 (2)
Pan head screw M3 × 4 (12)
Pan head screw with spring, plain washer M4 × 8 (4) External tooth lock washer Nominal size 4 (1)
Plain washer M3 (4)
Pan head screw M3 × 10 (4)
Pan head screw with spring washer M4 × 6 (1)
Pan head screw with spring, plain washer M3 × 6 (2)
External tooth lock washer Nominal size 3 (1)
Pan head screw M3 × 8 (1)
External tooth lock washer Nominal size 4 (1)

● FX-301 Soldering pot

Item No.	Part No.	Part Name	Specifications
①	B2917	Cover	
②	B2918	Overflow tray	
③	B2916	Heat insulator	
④	B2920	Front panel	With membrane sheet
⑤	B2921	P.W.B.	For temperature control, connector
⑥	B2705	Fuse/125V-5A	100 - 110V
	B2468	Fuse/125V-5A	120V
	B2922	Fuse/250V-5A	220 - 240V
	B3045	Fuse/250V-5A	220 - 240V KTL, CE
⑦	B2924	Transformer	100 - 120V
	B2925	Transformer	220 - 240V
⑧	B2926	Chassis	With rubber feet
⑨	B2927	Solder pot support	
⑩	B2928	Solder pot tray	
⑪	B1084	Power switch	
⑫	B1134	Fuse holder	
⑬	B1795	Power cord, 3 wired cord & American plug	100 - 220V
	B1796	Power cord, 3 wired cord but no plug	230V
	B2913	Power cord, 3 wired cord & BS plug	230V India
	B2914	Power cord, 3 wired cord & Chinese plug	220V China
	B1797	Power cord, 3 wired cord & European plug	220V KTL, CE
	B1798	Power cord, 3 wired cord & Australian plug	240V
	B3046	Power cord, 3 wired cord & BS plug	230V UK

● Replacement parts

Item No.	Part No.	Part Name	Specifications
⑭	A1515	Heating element	100 - 120V
	A1516	Heating element	220 - 240V
⑮	A1517	Solder pot	$50 \times 50 \times 42$(mm)/1.97 × 1.97 × 1.65(in.)
⑯	B2919	J-shaped waste collector	
⑰	B2932	Spatula	
⑱	B1417	Hexagon wrench	2.5mm

● Optional parts

Part No.	Part Name	Specifications
A1518	Solder pot	$75 \times 75 \times 55$(mm)/2.95 × 2.95 × 2.17(in.)