HAKKO

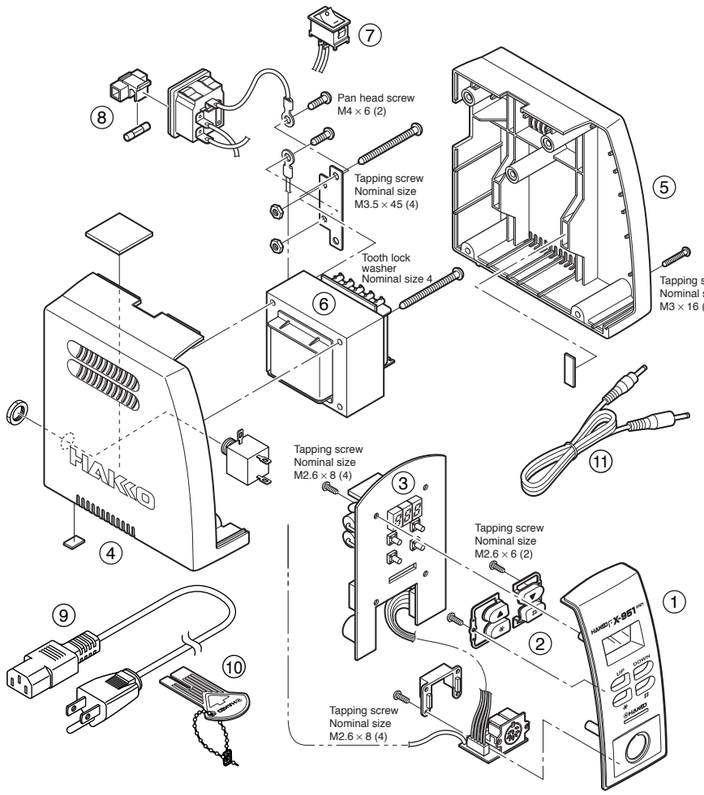
HAKKO FX-951

SOLDERING STATION

High-output, temperature controlled soldering station

Maintenance & Checking

1. PARTS LIST



● **HAKKO FX-951 Station**

Item No.	Part No.	Part Name	Specifications
①	B2973	Front panel	
②	B2982	Button set	4 each
③	B3256	P.W.B./ temperature control	
④	B3255	Case/Left	With rubber foot and cushion
⑤	B2978	Case/Right	With rubber foot and cushion
⑥	B2979	Transformer	100V
	B2983	Transformer	110V
	B2836	Transformer	120V
	B2984	Transformer	220V
	B2985	Transformer	230V
	B3067	Transformer	240V
⑦	B2852	Power switch	
⑧	B2403	Fuse/250V-2A	100-110V
	B3011	Fuse/250V-2A	120V
	B2987	Fuse/250V-1A	220-240V
⑨	B2419	Power cord, 3 wired cord & American plug	
	B2421	Power cord, 3 wired cord but no plug	
	B2422	Power cord, 3 wired cord & BS plug	India
	B2424	Power cord, 3 wired cord & European plug	220V KTL 230V CE
	B2425	Power cord, 3 wired cord & BS plug	230V CE
	B2436	Power cord, 3 wired cord & Chinese plug	China
	B2426	Power cord, 3 wired cord & Australian plug	
⑩	B2972	Control card	
⑪	B3253	Connecting cable	

HAKKO

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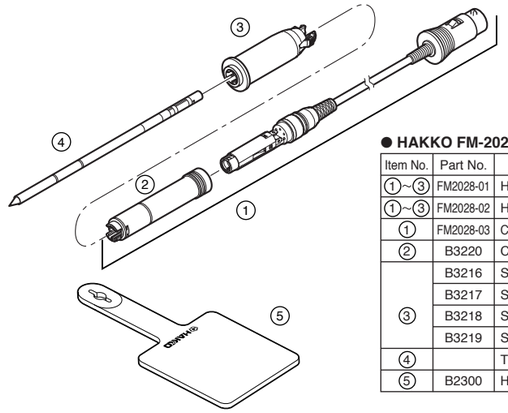
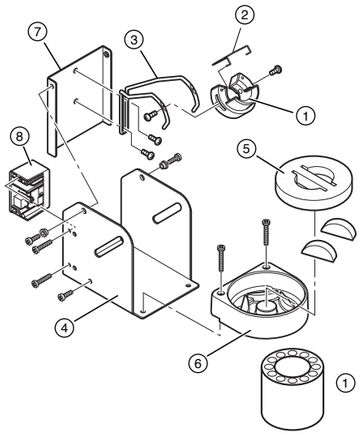


● **HAKKO FM-2028**

Item No.	Part No.	Part Name	Specifications
①~③	FM2028-01	HAKKO FM-2028	3 is yellow
①~③	FM2028-02	HAKKO FM-2028	3 is blue
①	FM2028-03	Connector assembly	
②	B3220	Connector cover	
③	B3216	Sleeve assembly	Yellow
	B3217	Sleeve assembly	Orange
	B3218	Sleeve assembly	Orange
	B3219	Sleeve assembly	Green
④		Tip	See back page.
⑤	B2300	Heat resistant pad	



● **Iron Holder**

Item No.	Part No.	Part Name	Specifications
①~③	FH200-02	Iron holder	With cleaning sponge

● **Iron Holder Parts**

Item No.	Part No.	Part Name	Specifications
①	B3001	Iron receptacle	Screws attached
②	B2791	Tip fixing spring	
③	B3248	Holder for iron receptacle	
④	B3251	Iron holder base	Rubber feet attached
⑤	A1536	Cleaning sponge	
⑥	B3249	Cleaner base	Rubber feet attached
⑦	B3250	Stay	
⑧	B3252	Switch case assembly	

● **Optional Parts**

Item No.	Part No.	Part Name	Specifications
①	B2756	Tip tray	

2. MAINTENACE/CHECKING PROCEDURE

Performing proper and periodical maintenance extends the products life and contributes to use it always in a good condition. Efficient soldering depends upon the temperature, the quality and quantity of the solder and flux. Apply the following service procedure as dictated by the conditions of the usage.

⚠ WARNING

Since the soldering iron can reach a very high temperature, please work carefully. Except the case especially indicated, always turn the power switch OFF and disconnect the power plug before performing any maintenance procedure.

● **Tip maintenance**

1. Tip temperature

High temperatures shorten tip life and may cause thermal shock to components. Always use the lowest possible temperature when soldering. The excellent thermal recovery characteristics of the HAKKO FX-951 ensure effective soldering at low temperatures.

2. Cleaning

Always clean the soldering tip before use, to remove any residual solder or flux adhering to it. Use a clean and moist cleaning sponge No. A1536(Provided with the HAKKO FX-951) or the HAKKO 599B tip cleaner. Contaminants on the tip have many deleterious effects, including reduced heat conductivity, which contribute to poor soldering performance.

3. After use

Always clean the tip and coat it with fresh solder after use. This guards against oxidation.

4. When the unit is not being used and the auto power shutoff is not active.

Never allow the unit to idle at a high temperature for extended periods. This will allow the tip to become oxidized. Turn the power switch OFF. If it is to be out of service for several hours, it is advisable to pull the power plug as well.

5. Inspecting and cleaning the tip

This procedure, if followed daily, will materially add to tip life.

1. Set the temperature to 250°C. (482°F.)
2. When the temperature stabilizes, clean the tip (see 2, above) and check the condition of the tip. If the tip is badly worn or deformed, replace it.
3. If the solder plated part of the tip is covered with black oxide, apply fresh solder, containing flux, and clean the tip again. Repeat until all the oxide is removed, then coat the tip with fresh solder.
4. Turn the power OFF and remove the tip, using the heat resistant pad. Set the tip aside to cool.
5. Remaining oxides, such as the yellow discoloration on the tip shaft, can be removed with isopropyl alcohol.

⚠ CAUTION

NEVER file the tip to remove oxides!

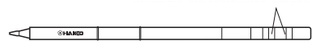
● **Checking Procedure**

⚠ WARNING

Unless otherwise directed, carry out these procedures with the power switch OFF and the power UNPLUGGED.

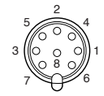
● **Check for a broken heater or sensor**

1. Check for a broken heater or sensor



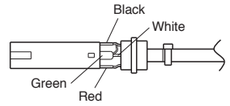
Verify the electrical integrity of the heater and sensor. Measure the resistance of the heater and sensor while at room temperature (15 to 25°C.; 59 to 77°F.). It should be 8Ω ±10%. If the resistance exceeds these limits, replace the tip.

● **Check the grounding line**



1. Unplug the connection cord from the station.
2. Measure the resistance value between Pin 2 and the tip.
3. If the value exceeds 2Ω (at room temperature), perform the tip maintenance described on section 2, maintenance for the tip. If the value still does not decrease, check the connection cord for breakage.

● **Checking the connection cord for breakage**

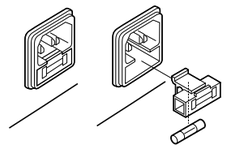


1. Remove the soldering tip and the sleeve assembly.
2. Turn the front piece of the HAKKO FM-2028 counterclockwise and remove the cover.
3. Measure the resistance values between the connector and the lead wires at the socket as follows:

   Pin 1 – Red Pin 2 – Green
   Pin 3 – Black Pin 5 – White

   If any value exceeds 0Ω or is ∞, replace the HAKKO FM-2028.

● **Replacing the fuse**



1. Unplug the power cord from the power receptacle.
2. Remove the fuse holder.
3. Replace the fuse.
4. Put the fuse holder back in place.

3. TROUBLE SHOOTING GUIDE

⚠ WARNING

Before checking the inside of the HAKKO FX-951 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 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.

● **The tip does not heat up.**
・The sensor error [S-E] is displayed.

CHECK : Is the tip inserted properly?
ACTION : Insert the tip completely.
CHECK : Is the connection cord and/or the heater/sensor broken?
ACTION : See the appropriate section of this manual regarding how to check the connection cord and/or the heater/sensor for breakage.

● **Solder does not wet the tip.**

CHECK : Is the tip temperature too high?
ACTION : Set the appropriate temperature.
CHECK : Is the tip contaminated with oxide?
ACTION : Remove the oxide (see “Tip maintenance” on section 2).

● **The tip temperature is too high.**

CHECK : Is the connection cord broken?
ACTION : See “Checking the connection cord for breakage” on section 2.
CHECK : Is the entered offset value correct?
ACTION : Enter the correct value.

● **The tip temperature is too low.**

CHECK : Is the tip contaminated with oxide?
ACTION : Remove the oxide (see “Tip maintenance” on section 2).
CHECK : Is the entered offset value correct?
ACTION : Enter the correct value.

● **The soldering iron error [C-E] is displayed.**

CHECK : Is incorrect soldering iron connected?
ACTION : Connect the HAKKO FM-2028 soldering iron.

● **The low-temperature alarm tolerance error [H-E] occurs frequently.**

CHECK : Is the tip too small for the items to be soldered?
ACTION : Use a tip with a larger thermal capacity.
CHECK : Is the setting value for the low-temperature alarm tolerance too low?
ACTION : Increase the setting value.

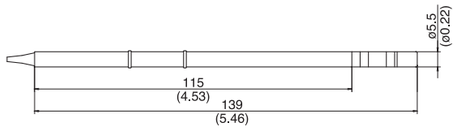
● **Heater terminal short circuit error [HSE] is displayed.**

CHECK : Is the tip for HAKKO FM-2028 soldering iron?
ACTION : Connect the HAKKO FM-2028 soldering iron.

● **Though the soldering iron is placed on the iron holder, the sleep function is not activated.**

CHECK : Check that the connecting cable is inserted firmly into the jack.
ACTION : Turn off the power switch and insert the connecting cable again.

4. TIP STYLES

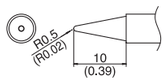


Unit: mm (in.)

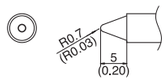
SHAPE B

T12-B SHAPE-B

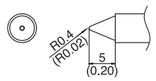
T12-B2 SHAPE-0.5B



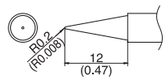
T12-B3 SHAPE-0.7B



T12-B4 SHAPE-0.4B

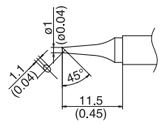


T12-BL SHAPE-BL

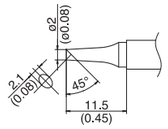


SHAPE BC

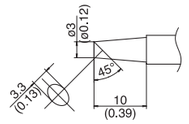
T12-BC1 SHAPE-1BC
T12-BCF1*



T12-BC2 SHAPE-2BC
T12-BCF2*

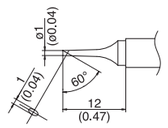


T12-BC3 SHAPE-3BC
T12-BCF3*

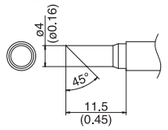


SHAPE C

T12-C1 SHAPE-1C

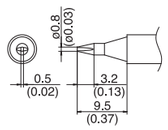


T12-C4 SHAPE-4C
T12-CF4*

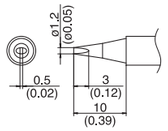


SHAPE D

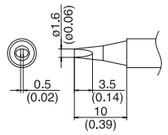
T12-D08 SHAPE-0.8D



T12-D12 SHAPE-1.2D



T12-D16 SHAPE-1.6D



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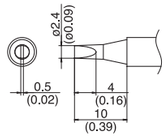
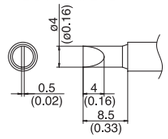


T12-D4 SHAPE-4D



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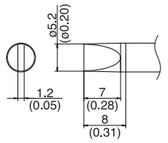

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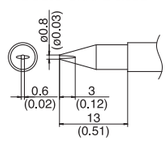

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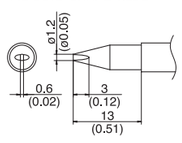
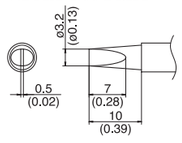


T12-DL32 SHAPE-3.2DL



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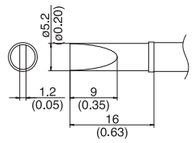
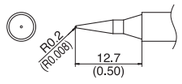


SHAPE I

T12-I SHAPE-I

T12-IL SHAPE-IL



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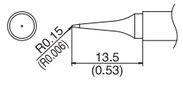
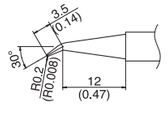


SHAPE J

T12-J02 SHAPE-0.2J



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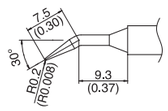

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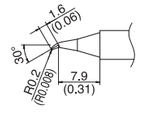
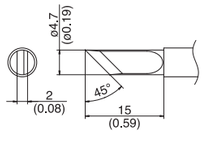
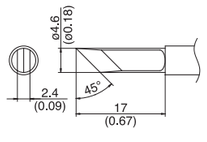


SHAPE K

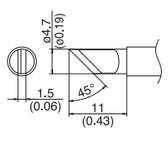
T12-K SHAPE-K



T12-KF SHAPE-KF



T12-KL SHAPE-KL



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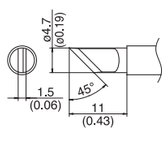

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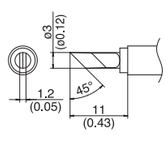
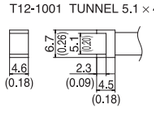
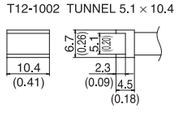


TUNNEL

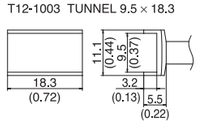
T12-1001 TUNNEL 5.1 × 4.6



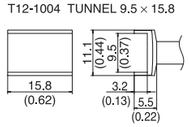
T12-1002 TUNNEL 5.1 × 10.4



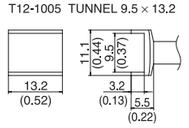
T12-1003 TUNNEL 9.5 × 18.3



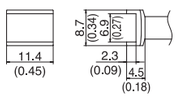
T12-1004 TUNNEL 9.5 × 15.8



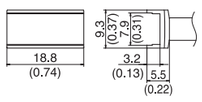
T12-1005 TUNNEL 9.5 × 13.2



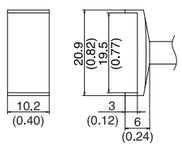
T12-1006 TUNNEL 6.9 × 11.4



T12-1007 TUNNEL 7.9 × 18.8



T12-1008 TUNNEL 19.5 × 10.2



T12-1009 TUNNEL 13.4 × 20.5

T12-1010 TUNNEL 19.5 × 12

QUAD

T12-1201 QUAD 13.6 × 8.5

T12-1202 QUAD 10.3 × 10.3

T12-1203 QUAD 12.8 × 12.8

T12-1204 QUAD 17.9 × 17.9

T12-1205 QUAD 23.4 × 17.3

T12-1206 QUAD 22.5 × 16.5

T12-1207 QUAD 15.5× 15.5

T12-1208 QUAD 15.8 × 15.8

T12-1209 QUAD 8.4 × 8.4

SPATULA

T12-1401 SPATULA 10.4

T12-1402 SPATULA 15.7

T12-1403 SPATULA 21.2

T12-1404 SPATULA 25

T12-1405 SPATULA 32

T12-1406 SPATULA 40

SPECIAL APPLICATIONS TYPE

T12-B2Z SHAPE-0.5B (Z)

T12-BC1Z SHAPE-1BC (Z)
T12-BCF1Z*

T12-BC2Z SHAPE-2BC (Z)
T12-BCF2Z*

T12-BC3Z SHAPE-3BC (Z)
T12-BCF3Z*

T12-BZ SHAPE-B (Z)

T12-C4Z SHAPE-4C (Z)
T12-CF4Z*

T12-D12Z SHAPE-1.2D (Z)

T12-D16Z SHAPE-1.6D (Z)

T12-D24Z SHAPE-2.4D (Z)

T12-D4Z SHAPE-4D (Z)

T12-KFZ SHAPE-KF (Z)

T12-KRZ SHAPE-KR (Z)

HEAVY DUTY TYPE

T12-WB2 SHAPE-0.5WB

T12-WD08 SHAPE-0.8WD

T12-WD12 SHAPE-1.2WD

T12-WD16 SHAPE-1.6WD

T12-WD52 SHAPE-5.2WD

T12-WI SHAPE-WI

*Tinned on the soldering surface only.