Inspection and Maintenance for Station-type Soldering Irons

HAKKO CORPORATION

Over long periods of use, the performance of electric soldering irons changes. To keep your soldering iron in good condition, perform regular maintenance using the following as a reference.

I. Routine inspection

Regular inspection is required to maintain good solder adhesion. At the minimum, check the leak voltage, ground resistance, tip temperature, and appearance of the soldering iron on a daily or weekly basis and keep a record of procedures performed.

1. Leak voltage

Over long periods of use, the leak voltage changes due to heating element deterioration and other causes. Measure the leak voltage using the HAKKO FG-101 or by using a digital multimeter to measure between the tip and the grounded pin of the power cord. According to the MIL standard in the US, the leak voltage should be 2mv or less.

2. Tip to ground resistance

The tip to ground resistance also changes over long periods of use. Due to oxidation film and flux adhered to the tip enclosure, the ground resistance increases. When the resistance is over 5ohm, remove the oxidation film from the tip enclosure and other contact parts using sandpaper or steel wool. Measure the resistance using the HAKKO FG-101 or by using a digital multimeter to measure between the tip and the grounded pin of the power cord.

3. Tip temperature

The tip temperature also changes over long periods of use. Possible causes are deterioration of the tip and the tip enclosure. When the soldering iron is kept on for long periods of time, internal oxidation occurs whether soldering work is done or not. Eventually, the tip no longer conducts heat well and the tip temperature becomes low. When the tip temperature is lower than the standard value, replace the tip and the tip enclosure.
Use the HAKKO FG-100/FG-101 to measure the tip temperature.
(See ER103 regarding the Procedures for Measuring the Soldering Iron Tip Temperature Using the HAKKO FG-101/FG-100/191/192.)

4. Other

Perform any other required maintenance procedures on a regular basis and keep a record of those procedures.

II. Maintenance

1. Tip maintenance

- After use, wipe old solder off the tip with the sponge and coat the tip with fresh solder.
- Be sure to moisten the sponge with water before using. If the sponge is used dry, it will stick to the tip and the tip will be rendered unusable.
- Depending on the type of solder and flux used, oxides may build up on the tip and turn the tip black. If this occurs, remove the oxides with steel wool or fine sandpaper. Then, heat the soldering iron to 250 ^{o}C and apply new solder.
- Use the soldering iron at the lowest possible tip temperature. Use at high temperatures shortens the life of the tip.

2. Heating element

The heating element also deteriorates with long periods of use. If the surface of the heating element develops a black layer of oxidation, the heating element is not well insulated and needs to be replaced.

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