



# Hakko FX-888D Teardown

A straightforward tear-down of a famous soldering station used by hobbyists and professionals.

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 **TOOLS:**

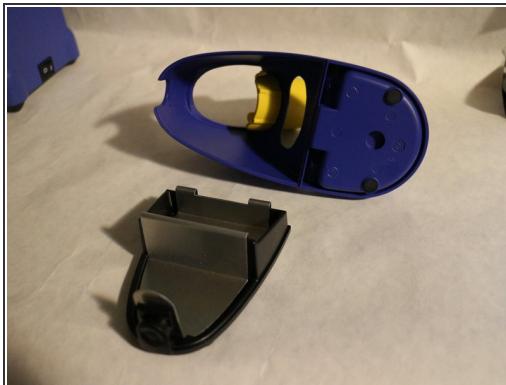
- **Phillips #1 Screwdriver (1)**
- **Phillips #2 Screwdriver (1)**

## Step 1 — Unboxing



- Simple, carton box made mostly of recycled material.

## Step 2 — Soldering Iron Holder



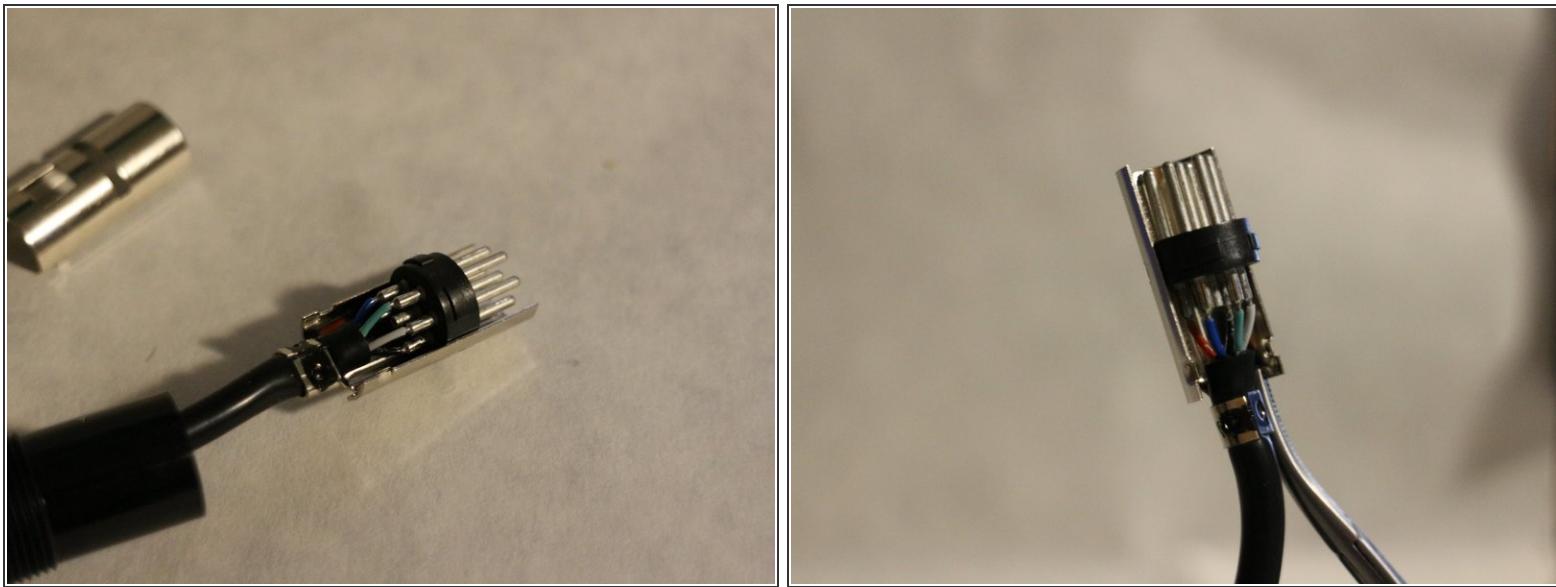
- Holder itself is rather heavy, very stable, made out of coloured thick metal. Big button on the back will release the insert, that holds cleaning sponge.
- Also, detailed shot of the holding part itself, there are five silicone features that allow to precisely clean the soldering tip. Silicone can withstand high temperatures.

## Step 3 — Handle disassembly - part 1



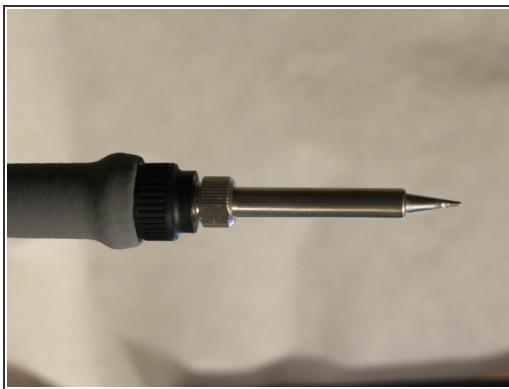
- Handle itself, ending with aviation 5-tip connector. There is no screwing mechanism and the connector will wobble inside it's socket.
- It can be easily disassembled, allowing to look inside and see how are the cables connected.

## Step 4 — Handle disassembly - part 2



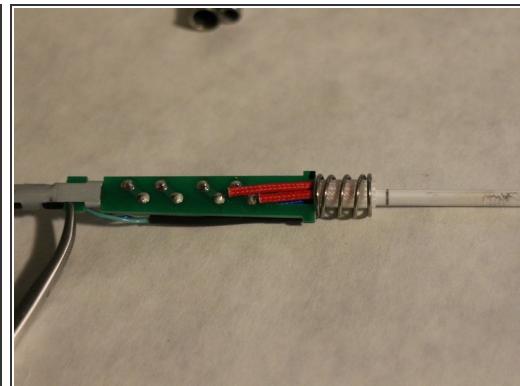
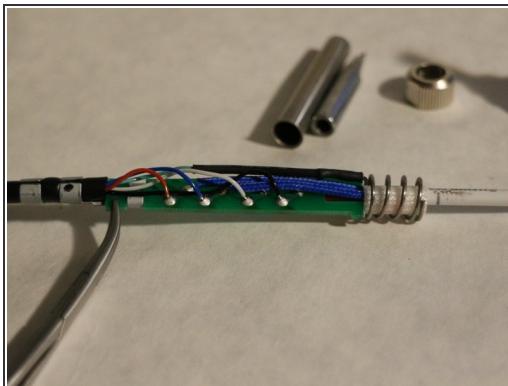
- Inside the connector are 5 distinct coloured cables.
- Counterclockwise, with green on the bottom: Black, grey, green(ground), blue, red.

## Step 5 — Handle disassembly - part 3



- Unscrewing and removing the tip holder, tip itself will easily slide down and reveal the ceramic heating element underneath it.

## Step 6 — Handle disassembly - part 4



- Unscrewing the second part, PCB that holds the ceraming heating elements can be carefully pulled out. It connect the 26V power, temperature sensor and also Ground, which connect to the outer tip via metal spring, grounding the tip and making it ESD safe.
- Ground cable also has heatshrink, to avoid even potential touching with other, live cables.

## Step 7 — Station disassembly - part 1



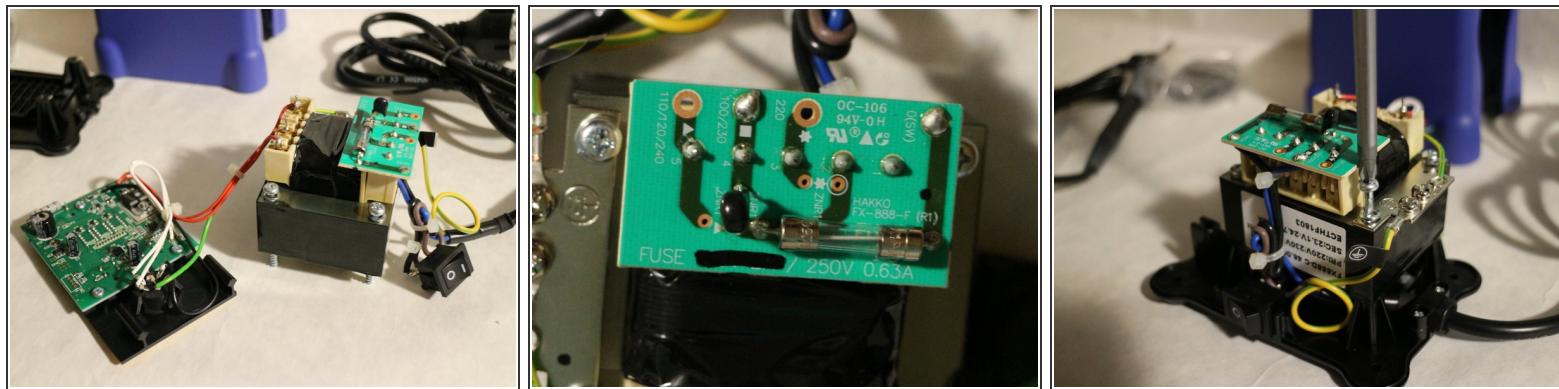
- Station is rather heavy, most of its weight is due to multi-voltage transformer hiding inside. Outer plastic shell is made from hardened, high-quality PC+ABS mixture.
- Bottom feet are covered with four rubber discs.

## Step 8 — Station disassembly - part 2



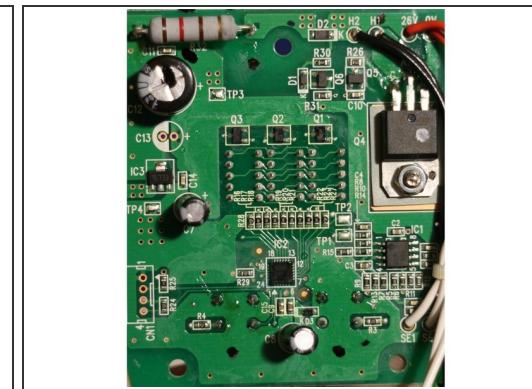
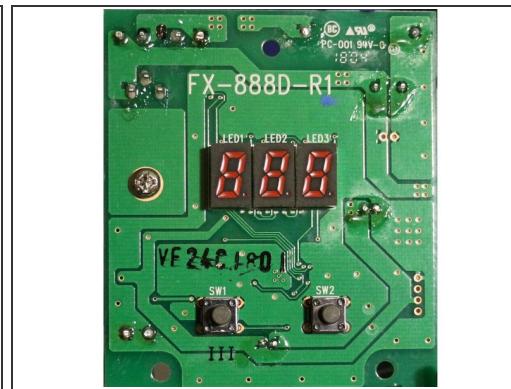
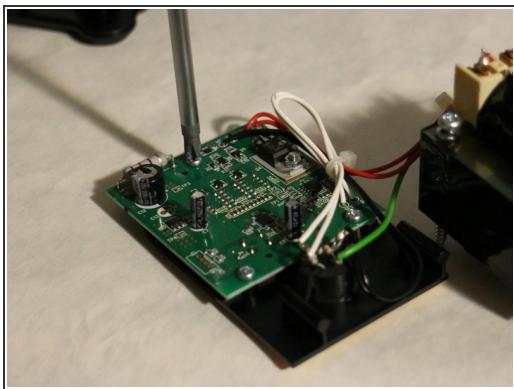
- Once the feet are removed, four PH1 screws will be revealed, easily screwed out.
- After removing the screws, the top blue plastic shell can be lifted up to reveal the insides.
- Most of the inside is filled with three components: Transformer, switch and main PCB.

## Step 9 — Station disassembly - part 3



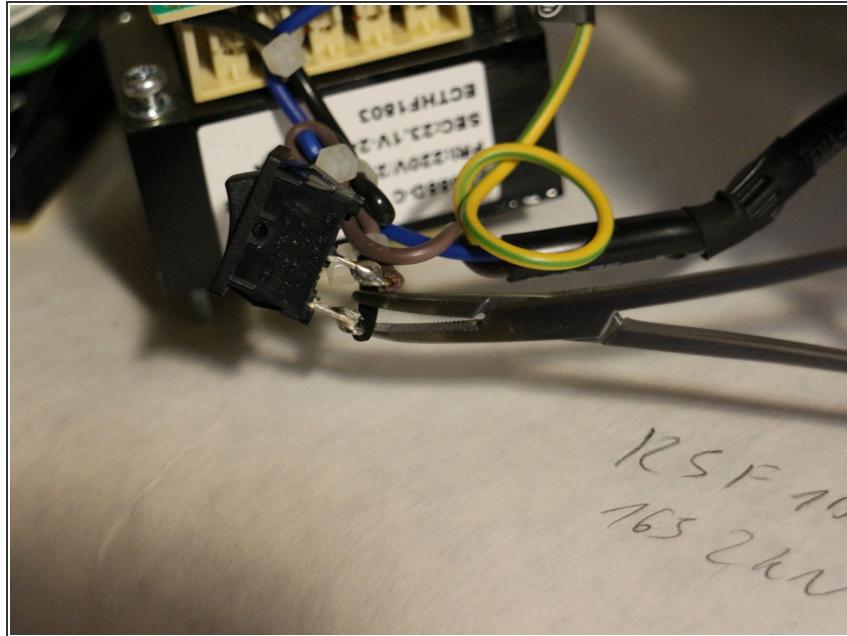
- Transformer has a small PCB attached to it, dedicated to fuse mechanism.
- From the looks of it, transformer is designed for several voltages, including USA voltage, UK voltage and Japan voltage. it's therefore possible to modify it to fit different voltage.

## Step 10 — Station disassembly - part 4



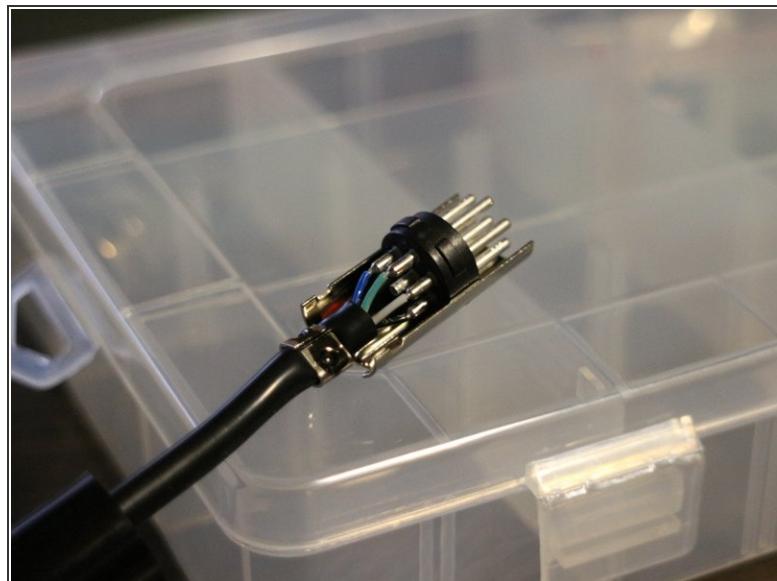
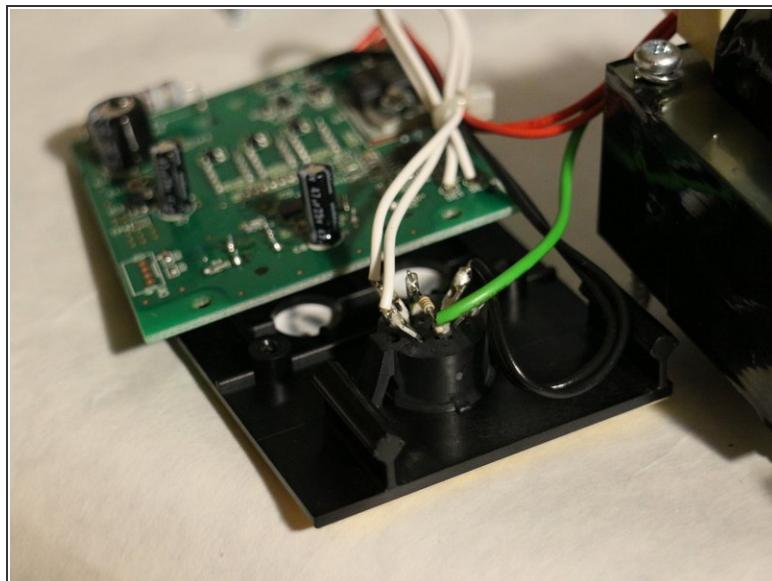
- Main PCB is held down by 3 PH2 screws, we'll remove those.
- Front of the PCB has a 3-digit display and two switchy buttons. It's powered with 26V AC voltage, meaning the PCB has to convert it to DC voltages useable by ICs and display.
- PCB itself is not exactly clean, yet no corrosion is visible. Most of the dirt is uncleansed soldering flux from the factory.
- The other side has most of the components, there are three prominent ICs and a large MOSFET.
  - IC1: 358,633
  - IC2: RSF100FCA, 1652KN400, Japan ( MCU 16-bit RL78 CISC 4KB Flash 24-Pin HWQFN EP, made by Renesas Electronics )
  - IC3: 9C733
  - Mosfet: GTAO6-600c GK00D VU, CHN, 742

## Step 11 — Switch



- Main switch that turns the station on and off, switches the mains voltage going to the transformer. Live wire (brown one) is the one being switched.

## Step 12 — Connector



- Interesting feature on the connector is, that ground is connected to two different pins, other pin is bridged with a small resistor. Strangely enough, only one pin is connected on the other male connector, leading to a strange redundancy.
- Color coding on the cable goes as follow:
  - Cable 1: Red
  - Pin 2: Blue
  - Pin 3: Green (ground)
  - Pin 4: White
  - Pin 5: Black
  - Pin 6: Not connected