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MODEL MT1500 – MICROTOUCHPLUS SOLDERING STATION

WARNING: **This product, when used for soldering and similar applications, produces chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.**

PLEASE

Before using your new Weller® Microtouch Plus MT1500 unit, read this manual thoroughly. In only a few minutes you will become familiar with your new station and be able to get the soldering performance you're entitled to. Be sure to keep this manual in a handy place near the unit for reference.

SETTING INPUT POWER

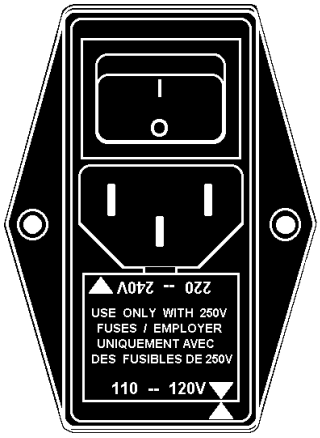
This soldering station can operate on 120 VAC or 230 VAC at 50/60 Hz. The fuse holder located under the power cord receptacle on the back of the station also functions as a voltage selector.

Before plugging the power cord into its receptacle, be sure that the proper voltage has been selected. If not, pull the fuse holder out of the station and line up the arrow next to the desired voltage with the arrow located in the lower right hand corner of the receptacle housing. (See figures at the right). Push the fuseholder back into the socket and press until the holder is flush with the housing.

THE FUSE HOLDER MUST BE POSITIONED FOR THE CORRECT VOLTAGE RATING OR DAMAGE TO THE STATION COULD OCCUR.

IF THE FUSES NEED TO BE REPLACED FOR ANY REASON, DO NOT SUBSTITUTE DIFFERENT RATED FUSES. The two fuses installed are different. The arrows on the fuseholder points toward the fuse used for that voltage. The 120VAC fuse is a 3 amp time delay fuse (Bussmann® MDQ-3) and the 230 VAC fuse is a 1 amp time delay fuse (Bussmann® GDC-1 or S50401).

Insert universal end of line cord into the receptacle located on the back of the power unit, and insert the plug end into a properly grounded AC receptacle.



Configuration for 110 - 120VAC



Configuration for 220 - 240VAC

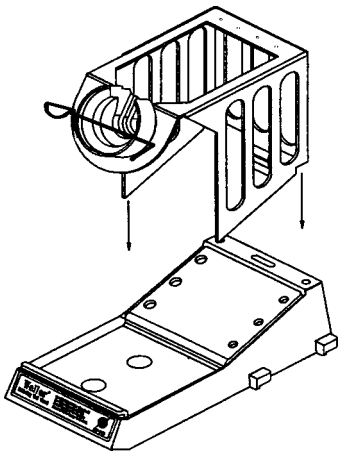
*Station is set up for 60 Hz operation. To use MT200 Series tips at 50 Hz, see Calibration procedure on page 5 to adjust power limiting circuit for 50 Hz operation.

THE MT1500 STATION IS EQUIPPED WITH AN INTERNAL AUTOMATIC RESETTING FUSE. If the handle or tip were to short out, the fuse would heat up and switch off heater power. The display and indicators would still light up but the heater power would stay off until the problem is fixed and the station turned off for a few minutes to allow the fuse to cool. This fuse will also switch off if an MT200 series tip is overworked.

INITIAL SET-UP

Unpack the unit carefully. Assemble tool stand as shown in the figure at the right. Fill reservoir with water and wet sponge. Distilled water is preferred. Install the desired **tip (TIPS NOT INCLUDED WITH STATION, SEE TIP SHEET FOR STYLES AVAILABLE)** into the receptacle end of the handpiece until it is well seated. Insert tool into holder and connect tool plug to receptacle on power unit; rotate plug cover to lock plug into place.

Choose a mode of operation with the mode switch located on the front of the power unit **(see Modes of Operation).** Turn the station on with the power switch located **on the back** of the unit. Pull the temperature control knob located on the front of the unit out to set temperature. The "Set" indicator LED will illuminate to indicate the position of the "Set/Read" switch. Adjust the temperature to the desired level with the control knob. After setting temperature push knob in to view actual tip temperature.



DISPLAY

The three digit LED display gives a continuous reading of the tip temperature (in °F) and indicates the set temperature when the "Set" mode LED over the temperature control knob is lit.

NOTE: There are three decimal points that light up if problems occur. These possible problems include:

1. Tip temperature over 1000°F.
2. Probe handle not plugged into base.
3. Tip not plugged into handle.
4. Broken wire in probe handle or cord.
5. Tip heater open.

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MODES OF OPERATION

TOUCH MODE

The Touch Mode is primarily intended for soldering very small components with microtips and to extend tip plating life with larger tips. In Touch Mode, the tip is heated only when the touch ring located at the front of the handpiece and the metallic portion of the rear of the handpiece are both touched by the operator's hand. When contact is broken, power is turned off to the heater and the tip will cool to ambient temperature. The touch mode will maximize tip plating life by preventing the tip from sitting at high temperatures for extended periods of time. Occasionally, dry hands will cause the Touch Mode to malfunction. In this situation, the use of a moisturizing hand lotion is recommended.

IDLE MODE

The Idle Mode operates similar to the Touch Mode; however, it incorporates a delay before cooling to 400°F. When contact is broken, after approximately a 1 minute delay, the tip will cool to 400°F (204.4°C). Idle Mode operation allows larger tips to heat back to the desired temperature faster. It can also be used in place of the Touch Mode, if desired.

CONTINUOUS MODE

In the Continuous Mode the tip will remain heated to the selected temperature as long as the unit is operating. Continuous Mode is suited for very large surface mount style tips. This mode of operation may reduce tip plating life at high temperatures.

TIP REPLACEMENT

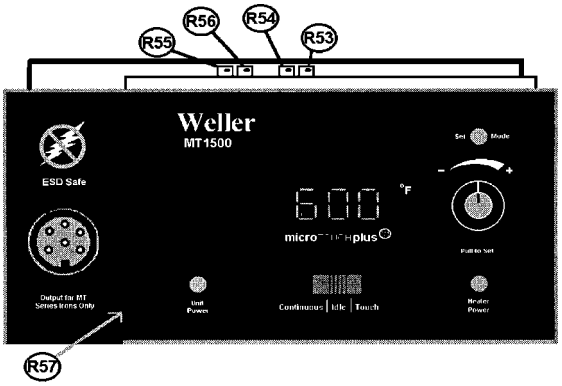
WARNING: To prevent accidental burns, be sure the power is turned off when changing tips and use the tip gripper.

The Weller® Microtouch MT1500 unit is made for use with the new Weller® MT200, MT300, MT600, and MT1200 Series Tips only. These tips are fitted with a special "slip-fit" connector that allows quick tip removal and attachment. Only handle the tips by the grip tube, because manipulating the tips while holding other parts of it may damage the tip and/or cause burns.

To remove a tip, begin by turning the unit off. Wait a few seconds for the tip to cool, then using the tip gripper, grasp the tip grip tube and pull straight off of the handpiece. The iron stand has four holes located on top for convenient tip storage. To attach a tip, begin by making sure that the unit is off. Grasp the tip grip tube, and push the tip straight on to the handpiece.

TIP CALIBRATION

The MT1500 is calibrated at the factory using the MT320 Calibration Tip. To calibrate a specific tip for a certain temperature, then measure the actual tip temperature. Adjust **R57** (see right for location) to raise or lower tip temperature to match display.



STATION CALIBRATION

WARNING: HIGH VOLTAGES ARE LOCATED INSIDE THIS UNIT. SERVICE SHOULD BE PERFORMED BY QUALIFIED TECHNICIANS ONLY.

The following procedure will allow full calibration of the MT1500 station for different series tips.

Tools needed: WA2000 Soldering Iron Analyzer to read tip temperature from the calibration tip, Digital Voltmeter (DVM), Phillips screw driver, small 1/16" wide blade screwdriver to adjust trimmer pots.

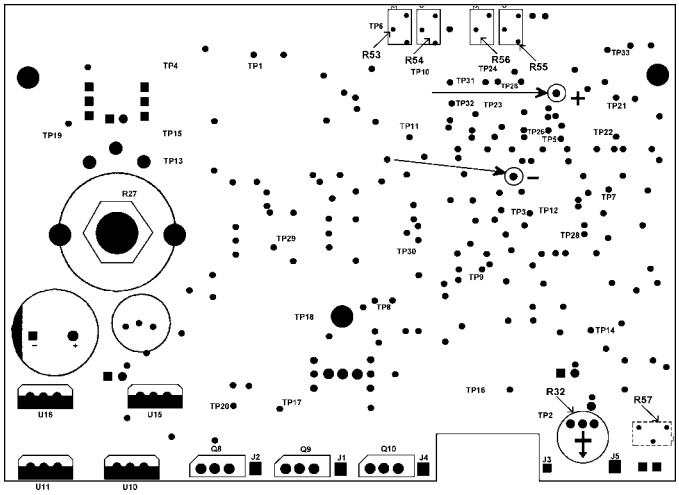
1. Remove power cord from rear receptacle. Remove six (6) screws holding cover on station. Remove cover. Use drawing above to locate adjustment pots. used for the procedure. Plug power cord back in.
2. The temperature measurements are to be done using a calibration tip from the same tip series as the tips you are using. If you use the MT200 Series Microtips use the MT220 calibration tip. For the MT300 Series Minitips use the MT320 calibration tip. For the MT600 Series Macrotips use the MT620 calibration tip.
3. Pull the temperature control knob out for "Set" temperature mode.
4. Set the front panel switch to "Continuous Mode" and turn the temperature control knob completely counter-clockwise, the minimum temperature setting. Turn station on.
5. Adjust trim pot **R57** slowly until tip temperature is steady at **400°F ± 2°** (**204°C ± 1°). R57** is located on the lower left side of the angled front panel and is accessed through a small hole.
6. Turn the temperature control knob completely clockwise and adjust trim pot **R56** slowly until tip temperature is steady at **850°F ± 2° (454°C ± 1°).**
7. Turn the temperature control knob completely counter-clockwise, and then adjust trim pot **R53** until the unit display matches the tip temperature ± 2°.

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8. Turn the temperature control knob completely clockwise, and adjust trim pot **R54** until the unit display matches the tip temperature ± 2°.
9. Repeat steps 7 and 8 until the specified tolerance is met.

CALIBRATING STATION FOR PROPER MT200 SERIES PERFORMANCE

10. **MT200 Series** tip operation is sensitive to the power line frequency. To calibrate station for 50 Hz or 60 Hz operation, replace **MT320** calibration tip with an **MT200 series tip**. Set temperature to **400°F (204°C)**. Set DVM to read **DC volts**. Connect DVM test leads to **+** or **-** test holes marked on the back of the circuit board. (See drawing at right for locations). For operation at **60 Hz**, adjust trim pot. **R55** so that the voltage across the two test points is **7.10 volts DC**. For operation at **50 Hz** set voltage to **6.70 volts DC.**
11. **MT200 series ungrounded tips**. Set DVM to measure **AC volts**. Connect negative lead of DVM to green lead at ring terminal (case ground) and the other lead with an alligator clip to the tip. Set temperature at **850°F (454°C)**. Adjust trim pot. **R32** for minimum voltage (less than 50mVAC).



TRIM POT LOCATIONS AND TEST POINT HOLES ON CIRCUIT BOAD AS VIEWED FROM BACK OF CASE

12. Turn station Off. Unplug power cord. Place cover back on base. Line up front holes with screw threads and install front two (2) screws. Push cover toward back of unit to line up rear two holes. Install remaining four (4) screws. Plug power cord back in.

TIPS

The different tip styles available are shown on a separate page included with this booklet. Four different series of tips are available for the MT1500 Station:

MT200 Series Micro Tips	MT600 Series Macro Tips
MT300 Series Mini Tips	MT1200 Series SMD Tips

CAUTION: **The MT200 series tips are not designed to be bent. If they are bent either by accident or on purpose the tip is damaged and can fail.**

NOTE: The **MT204** Conical and **MT212** Screwdriver tips are non-wetting. They are unplated stainless steel so that solder will not stick to them. This allows them to be used to break solder bridges that may form between closely spaced pads.

CARE AND MAINTENANCE

TIP LIFE

The tips surface plating will last longer if you do not use them at high temperature settings for prolonged periods of time. However, you can extend tip life significantly by making full use of the touch and idle modes. Keep the tip lightly coated with solder at all times. Rosin based fluxes are recommended for optimum cleaning of tip surfaces.

MICRO TOUCH SOLDERING

Since very little heat is stored in the MT200 series tips, the energy needed to heat the solder joint must come from the tip's heating element. Because the tip senses loading almost instantaneously and can respond with maximum power, a lower tip temperature setting can be used without danger of board or component overheating. The correct technique for Micro Touch Soldering with your MT1500 is:

1. Tin the micro-tip with solder.
2. Touch the tip lightly to the pad, create solder bridge with a small amount of additional solder.
3. Wait for solder to flow and wet components, add additional solder as necessary.
4. Remove tip and allow solder to solidify on connection.

This procedure should provide a quality solder joint with no overheating. Use very little pressure when soldering. Excess pressure will not improve the result but will damage the tip by bending it.

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SPECIFICATIONS

1. Power input: 120 VAC ± 10%, (230 VAC ± 10%), 50/60Hz., 130 Watts.
2. Power unit output voltage: Isolated 6 VAC, 12 VAC and 24 VAC (depending on tip selected).
3. Line cord: Detachable, 3 wire, U.L. recognized or CE approved.
4. Station size: 6-5/8"W x 8-1/8"D x 3-7/8"H (16.8 cm W x 20.6 cm D x 9.8 cm H).
5. Weight: 8.2 lb. (3.72 Kg) with power cord.
6. Iron handle: 1 oz.(28.4 g) without cord.
7. Iron cord: 4 ft. (1.22 m) long.
8. Black ESD silicone rubber jacket.
9. Tip temperature control range: 400°F to 850°F (204°C to 454°C).
10. Control setting resolution: 1°F (1°C).
11. Stability: ± 10°F (±6°C).
12. Absolute accuracy: Average tip temperature is calibratable to ±9°F (± 5°C) at idle with no load (at 25°C ambient temperature). **Factory calibration is made using the MT320 Mini Tip**. (Other Calibration Tips available include the MT220 Micro Tip and MT620 Macro Tip).
13. Ambient temperature range: 60°F to 110°F (16°C to 44°C).
14. MT1500 units meet the requirements of : DOD-STD-2000, MIL-STD-2000, MIL-S-45743, W-S-6536, W-S-570, DOD-STD-1686.

TIP GROUNDING

Most of the MT200 series tips are not grounded. The **MT203 Mil-spec** tip has a special lead grounding the tip through the probe handle. **All** of the **MT300, MT600, and MT1200** series tips are grounded through the probe handle to the MT1500 station case.

REPLACEMENT PARTS

PART NO.	DESCRIPTION
MT1501	Replacement Handle
TC205	Sponge

ACCESSORIES

PART NO.	DESCRIPTION
MT001	Leather Tip Gripper Pad
MT002	SMD Sponge Tool
MT220	Calibration Tip, Conical .030D
MT320	Calibration Tip, Screwdriver .047W
MT620	Calibration Tip, Screwdriver .070W
WA2000	Soldering Iron Analyzer

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