

Micro-Mark®

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#85522 RESISTANCE SOLDERING UNIT (RSU) INSTRUCTIONS FOR USE



WARNING!



Read all safety precautions and instructions. Failure to comply with the safety precautions and instructions may result in electrical shock, fire and/or severe injuries. Keep these safety precautions and instructions for future use.

ATTENTION: Use caution while the tip is hot! Failure to do so may cause burns and SEVERE INJURY. After operating, allow sufficient time for the tip to cool.

General Safety Warnings

- Keep work area clean and well lit.
- Do not operate the Resistance Soldering Unit in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.
- Keep children and bystanders away while operating.
- Never modify the power cord plug in any way or use any adapter plugs.
- Avoid bodily contact with grounded surfaces, such as pipes, radiators, ranges and refrigerators.
- Do not expose power tools to rain or other wet conditions.
- Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the Resistance Soldering Unit. Keep cord away from heat, oil, sharp edges and moving parts.
- If operating the Resistance Soldering Unit outdoors or in a damp location, use a power line equipped with Ground Fault Interrupter (GFI) protection.
- The operating tip and hand piece barrel of the Resistance Soldering Unit get very hot. Keep fingers, hands, body, and clothing away from the heated components of this tool.
- Maintain labels and nameplates on the Resistance Soldering Unit. These carry important safety information.
- Do not allow any liquids or metal to fall into or on any part of this tool. Doing so can cause short circuiting and/or electric shock.
- Avoid short circuits. Do not allow the metal parts of the hand piece barrel to contact any part of the item being soldered – only the carbon electrode must contact the item being soldered.
- Do not operate the Resistance Soldering Unit on a flammable surface. Use and lay this tool down on a fireproof work surface only. Allow sufficient time to cool completely before storing.
- Always keep a multiple class ABC fire extinguisher nearby.
- Use the Resistance Soldering Unit only in a well-ventilated area.
- Do not leave the Resistance Soldering Unit unattended when it is plugged into an electrical outlet. Unplug the tool from its electrical socket before leaving it unattended.
- Disconnect the power cord from the electrical outlet before making any adjustments, changing accessories, or storing the Resistance Soldering Unit.
- This product is not a toy. Keep it out of reach of children.

WARNING!

Operation of the Resistance Soldering Unit may expose you to chemicals, such as lead, lead vapors, and soldering flux, which are known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, et seq.)

Electrical Requirements: 120V, 60Hz, less than 1 amp
Maximum Duty Cycle: 25% – Power should not be on more than 25% of the total time.

Maximum ON Time: 15 Seconds

Intended Use: Soldering of brass, bronze, tin, lead, copper, steel and other solderable materials.

Resistance Soldering – How It Works

To understand how the Resistance Soldering Unit (RSU) works, you must first understand the difference between electrical current and voltage:

Current is the volume of electricity flowing through a part (measured in amps).

Voltage is the electrical pressure pushing the current through the part (measured in volts).

If enough current passes through a piece of material (even at low voltage), the piece will get hot. If the current is sufficient, the material will get hot enough to melt solder. Take away the current and the soldered parts will cool. At the place where two parts to be soldered together touch each other, heat will develop faster than at other locations. Thus, already-assembled parts won't fall apart before the new joint is soldered.

The RSU supplies sufficient electrical current to melt solder when used on smaller sized materials, as is typical for

assembling scale models. Even though the output current is high, the voltage is quite low, so the danger of electrical shock is virtually eliminated.

Since the parts to be joined are heating internally, there is no need to depend on the slow transfer of heat from the tip of a soldering iron or gun; therefore, an RSU heats parts quickly...so quickly that adjacent parts won't fall off. Shut off the power, and parts cool below soldering temperature rather quickly, as well (but, be careful...they're still too hot to touch, including the carbon tip of the hand piece!)

The RSU needs two connections to the material for current to flow: One is provided with a power clip; the other is provided through a hand piece with a carbon tip (we use a carbon tip so that solder won't stick to it). The power unit has two power taps for the clip: one for low power for delicate parts; one for high power for heavy parts.

The power is turned on and off using the included foot switch.

Getting Started

The hand piece has a collet for securing a carbon tip. Loosen the knurled nut on the collet just enough to allow you to insert the carbon tip. Insert it as far as it will go and tighten the knurled nut to secure it in place. The carbon tip can be easily shaped with a file or sandpaper. Most people form a chisel-shape.

Next, connect the ring terminal at the end of the wire from the hand piece under the wing nut labeled "Hand Piece."

Connect the ring terminal of the power clip under either the "High" (for large parts) or "Low" (for small parts) wing nut. Tighten the wing nuts securely.

Making Solder Joints

Plug the power unit into the "piggyback" connector on the footswitch cord. Then plug the footswitch cord into a grounded outlet. Electrical power will be applied only when you depress the footswitch.

All soldering requires the metal pieces to be clean. Good solder joints start with shiny metal pieces that are free of oxidation. Application of soldering flux inhibits oxidation as the metal heats up. After cleaning and fluxing, position the

two parts to be soldered in their final configuration.

Connect the power clip to one part. Touch the carbon tip of the hand piece to the other part near the joint. Depress the footswitch, allow a few seconds for the parts to heat, then apply solder to the joint. Remove pressure from the foot switch as soon as the solder flows into the joint. Continue to hold the carbon tip against the joint until the solder cools sufficiently to harden.

Maintenance and Cleaning

Before performing any inspection, maintenance, or cleaning of the Resistance Soldering Unit, make sure that the power cord is unplugged from the wall socket.

Repairs should be carried out by only a qualified service technician.

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