

CIRCUIT-TEST ELECTRONICS

INSTRUCTION MANUAL

SDX-6400

**TEMPERATURE CONTROLLED
SOLDERING / DESOLDERING STATION**

NOTES:

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INTRODUCTION

SDX-6400 Temperature controlled Soldering / Desoldering station is designed for the electronic production industry in service, repair and production-line soldering and desoldering operations. Both soldering and desoldering irons can be used at the same time or either iron can be powered off when not required, gives the flexibility and also be energy efficient.

Temperature Lock allows the temperature setting to be locked by password. The tip temperature is electronically maintained within $\pm 6^{\circ}\text{F}$ ($\pm 3^{\circ}\text{C}$) of its operating temperature.

Energy saving feature automatically drops the temperature of soldering iron to 302°F (150°C) and desoldering iron to 572°F (300°C) after 20 minutes of inactivity. After 40 minutes of inactivity the unit powers off and goes to sleep mode.

The power unit is isolated from AC line by a high efficiency 32VAC transformer for user safety and to prevent unwanted high voltage leakage that may damage current sensitive components. Zero-voltage switching circuit protects the voltage and current sensitive components from damage by transient voltage spikes. If there is heater or sensor circuit failure "H--E" or "S--E" error is displayed.

The vacuum pump is quiet running, electronically controlled and provides up to 50cm/Hg (20in/Hg) of suction power. It is self-contained, oil-free, maintenance free and eliminates the need of additional shop air. Delayed suction feature prevents solder clog at the tip.

SAFETY INFORMATION

Please read this instruction manual prior to operating your new soldering station.

WARNING: KEEP OUT OF THE REACH OF CHILDREN. DO NOT INHALE SOLDER FUMES. KEEP TIPS AND HEATING ELEMENT AWAY FROM THE BODY, CLOTHES AND FLAMMABLE MATERIAL WHEN IN OPERATION.

WARNING: THIS PRODUCT, WHEN USED FOR SOLDERING/DESOLDERING AND SIMILAR APPLICATION, PRODUCES CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

CAUTION:

- Always place the soldering and desoldering irons in their respective holder when not being used.
- Do not touch the tip or heating element while the unit is on or cooling. Please allow sufficient time for it to cool before changing tips or servicing the unit.
- Do not work on live circuits. Before working on any mains powered equipment, make sure that it is turned off, and the mains is unplugged.
- Do not use if damaged. If the power cable becomes damaged or the station becomes faulty, discontinue use immediately. To comply with the safety standards, power cable must be replaced by authorized technicians. Use only original replacement parts.

IMPORTANT INFORMATION

WORKING TEMPERATURE

The most common solder alloy used in the electronic industry is leaded solder like 63/37 or 60/40 and for ROHS compliancy, Lead Free Solder is required. The tip working temperature of the solder is detailed below and can vary from manufacturer to manufacturer.

Listed below are a few common reference temperatures:

SOLDERING

Melting point (63/37 Leaded Solder)	362°F (183°C)
Melting point (60/40 Leaded Solder)	419°F (215°C)
Melting point (Lead Free Solder)	423-430°F (217-221°C)

DESOLDERING

Desoldering operation for smaller joint:	608-680°F (320-360°C)
Desoldering operation for larger joint:	698-752°F (370-400°C)

Note: Using a temperature above 770°F (410°C) is not recommended for normal soldering functions, but can be used for short periods of time when high temperatures are required. Please note that the lead free solder alloys require a higher soldering temperature which shortens tip life.

When the iron's working temperature is set within the parameters suitable for the type of solder being used, a good joint is assured. Very low temperature will slow the rate of solder flow while a high temperature setting might burn the flux in the solder and emit a heavy, white smoke resulting in a dry joint or permanent damage to the printed circuit board and may also shorten the tip life.

COMMON CAUSES OF TIP UNWETTING

1. Tip temperature higher than 770°F (410°C) when used with lead solder.
2. The tip working surfaces are not tinned while the iron idling.
3. Lack of flux in soldering, wicking, repairing, and touch-up operations.
4. Wiping the tip on a high sulfur content, dirty or dry sponges and rags.
5. Touching with organic substances such as plastic, resin, silicone, grease and other chemicals.
6. Impurities in solder and/or low tin content.

NOTES ON DESOLDERING

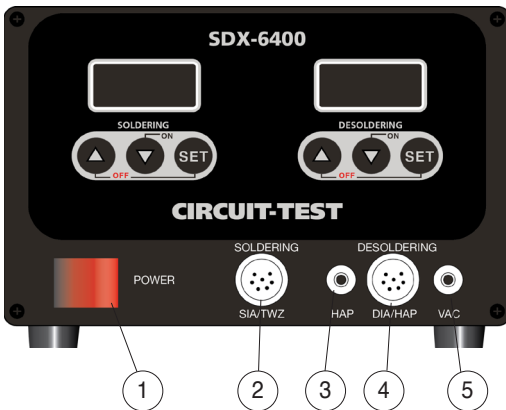
1. Activate the vacuum only after the solder has completely melted. Melting is accomplished by moving the hot tip around the lead leaving visible melted solder on the component side of the PCB.
2. Release the vacuum switch only after the solder on the tip has been removed; otherwise the tip may get clogged.
3. Add solder to the joints of the component and allow the solder to melt completely for improved desoldering.

4. Remove the solder collector and clean it after no more than 200 applications. However, daily cleaning is strongly recommended.
5. Replace the cotton pad in the solder collector and the inline filter when they begin to turn yellow.
6. If there is insufficient vacuum, use the spring wire included to clean the tip and also check the inline filters.
7. Make sure that all filters are in place during operation or the vacuum pump may get damaged.
8. Follow the steps outlined in this manual if a new tip is to be installed.

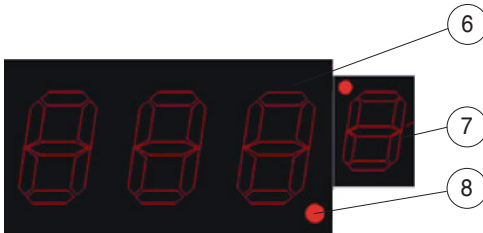
SPECIFICATIONS

Model	SDX-6400
Input	120VAC, 60Hz
Output	32VAC / 100W
Fuse	T 3.15A
Temperature Range	Soldering: 302 - 896 °F (150 - 480 °C) Desoldering: 572 - 842 °F (300 - 450 °C)
Temperature Correction Range	+178 ~-178 °F / +99 ~-99 °C
Default Temperature Setting	Soldering: 302 °F (150 °C)
	Desoldering: 572 °F (300 °C)
Dimensions (W x H x D)	7.4 x 5 x 11.2" (188 x 130 x 285mm)
Weight	14 Lbs. (6.5kg)

FRONT PANEL DESCRIPTION



- 1 Power Switch
- 2 Soldering iron socket
- 3 HAP – Hot air fitting
- 4 DIA/HAP – Desoldering iron socket
- 5 VAC – Desoldering vacuum tube fitting



- 6 Temperature reading
- 7 Celsius or Fahrenheit display
- 8 Heat indicator

"100" means password protected mode. Press "▲" or "▼" key to change password set value. Press "SET" key to store and return to parameter selection mode.

4. Temperature Correction Setting F-2:

When the display flashes "F-2", press "SET" once and the unit enters the temperature correction mode and displays the preset correction value. Press "▲" or "▼" key to change the temperature correction value.

Temperature correction value: Fahrenheit (+178 ~ -178°F)

Press "▲" or "▼" key to change the temperature correction value.

Temperature correction value: Celsius (+99 ~ -99°C)

Press "▲" or "▼" key to change the temperature correction value.

Press "SET" key to store and exit to parameter settings.

Example: The current set temperature is 300 °C however the actual temperature is 290°C. So it needs to correct by +10 °C. If the current correction value is 00 or -00; then change it to 10. If the current correction value is -20, then change it to -10. If the current correction value is 20, then change it to 30.

5. Sleep Mode Set F-3:

When the display flashes "F-3" press "SET" key once and the unit enters sleep mode setting. The LED will display the pre-set value. "100" means sleep mode status and "000" means the unit is not set in sleep mode. Press "▲" or "▼" key to change the set value. Press "SET" key once to finish the sleep mode setting.

Note: Factory default setting is without sleep mode.

6. Wake-up Methods:

- a) If the unit is set with sleep mode function, after 20mins of inactivity, the system will go into sleep mode and temperature of the soldering iron will drop to 302°F (150°C), display flashes "302" and temperature of the desoldering iron will drop to 392°F (200°C), display flashes "392". Pick up the soldering iron or pick up the desoldering iron and press the suction button or turn off the main power and restart.
- b) If the unit is in the sleep mode for over 40mins, it will automatically enter power off mode. The heater power will turn off and display flashes "— — —". Press "▼" key to activate or turn off the main power switch and restart.

7. Fahrenheit or Celsius selection F-4:

When display flashes "F-4", press "SET" key, the unit will display the current selection. Press "▲" or "▼" key to change. (°C: Celsius, °F: Fahrenheit)

MAINTENANCE

GENERAL CLEANING

The outer cover of the irons and station may be cleaned with a damp cloth using small amounts of liquid detergent. Never submerge the unit in liquid or allow any liquid to enter the case of the station. Never use any solvent to clean the case.

TIP MAINTENANCE

Tips can be changed or replaced simply by unscrewing the knurled nut barrel assembly. The station must be switched off and allowed to cool before this operation as damage may result if the system is left on without the tip in place!

After removing the tip, blow out any oxide dust that may have formed in the tip retaining area of the barrel. Be careful to avoid getting this dust in your eyes. Replace the tip and screw on the knurled nut barrel assembly using only firm hand pressure to tighten. Pliers should only be used to tighten the nut to avoid burning your fingers, but care should be taken not to over-tighten as this could damage the element.

CARE OF TIPS

CAUTION: THE SOLDER/DESOLDER IRON CAN REACH VERY HIGH TEMPERATURES. BE SURE TO TURN THE UNIT OFF PRIOR TO CARRYING OUT ANY MAINTENANCE OR TROUBLE SHOOTING STEPS LISTED BELOW!

Remove the tip and clean after moderate to heavy use or at least daily if on the production line. Remove any loose build up in the tip retaining assembly to prevent tip freezing. The solder tips supplied are iron clad copper and if used properly, they should maintain optimum life.

1. Always tin the tip before returning it to the holder, turning off the station, or storing it for long periods of time. Brush the tip through the brass tip cleaner prior to use.
2. Keeping the iron set continuously at high temperatures (more than 750°F or 400°C) will shorten tip life.
3. Do not use excessive pressures on the tip or rub the joint with the tip while soldering/desoldering; it does not improve the heat transfer and may damage the tip.
4. Apply solder to the joint, not the tip when soldering. The flux is naturally caustic and thus will eat away the tip.
5. Never clean the tip with a file or abrasive materials.
6. Do not use fluxes which contain chloride or acid. Use only rosin or resin activated fluxes.
7. If an oxide film forms on the tip, it can be removed by careful buffing with a 600-800 grit emery cloth, isopropyl alcohol or equivalent and then wrapping rosin core solder around the newly exposed surfaces. Coat the tinned areas with rosin core solder after the resin core has melted.

IMPORTANT: Remove and clean the tip daily. If a new tip is installed, remove any loose build-up in the barrel assembly, otherwise the tip may fuse the heating element or retaining barrel.

NEW TIPS

Applying the following steps will lead to optimum life:

1. Set temperature to min. then turn the main power switch to the "ON" position.
2. Coat the tinned surfaces with rosin-core solder after reaching 482 °F (250 °C).
3. Set to desired temperature after allowing the unit to idle at 482 °F for 3 minutes.
4. The iron will be ready for use once it reaches the preset temperature.

DESOLDERING IRON

TIP AND HEATER

Desoldering iron tip passage must be regularly cleaned with the spring wire to prevent the tip passage from getting clogged with solder and maintain a longer lasting tip. Please follow the steps as described in "Cleaning Clogged Tip" (pages 12-13).

When removing/replacing the desoldering tip, care should be taken so not to break the heater. Remove the tip gently with pliers without using excessive force.

CAUTION: THE COTTON FILAMENT AND THE CHARCOAL FILTER CAN NOT BE WASHED WITH WATER. Washing will destroy the filters and water droplets will be sucked into the pump causing damage to the pump and the desoldering iron.

COTTON FILAMENT REPLACEMENT (76-1411030):

The cotton filament should be replaced every 3-4 days if using daily.

CHARCOAL FILTER REPLACEMENT (78-151500):

Charcoal filter should be replaced in 2-3 weeks if using daily.

GLASS SOLDER COLLECTOR TUBE (75-160110):

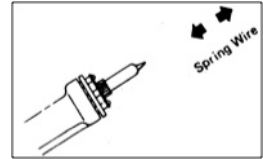
NOTE: The solder collector tube is glass and must be handled with extreme caution so not to break it. The glass collector tube should be replaced every 3 to 5 months of regular usage.

CLEANING CLOGGED TIP

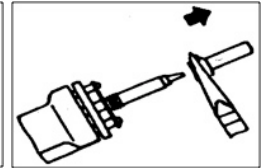
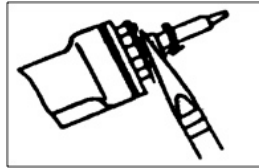
CAUTION: This procedure is performed while the unit is at high temperature. Be careful to avoid burning yourself during this operation. Only qualified technician should perform this task at his own risk.

While the iron is off and still cool insert the spring wire, if there is a blockage the spring wire will fail to fully insert.

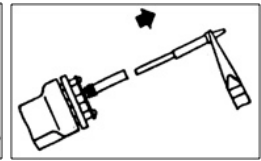
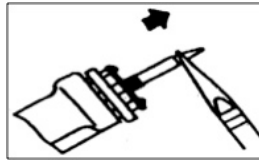
1. Adjust the heat to a higher temperature to allow the clogged solder to melt. Clean the tip by sliding the spring wire up and down until the tip's passage is clear



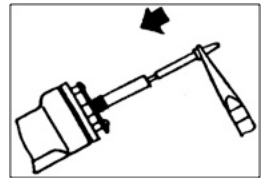
2. Unscrew the barrel nut assembly as shown



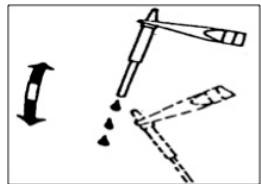
3. Remove the tip with a pair of pliers



4. Insert the tip back in to the barrel for around 5 seconds to melt the solder



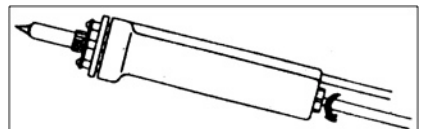
5. Remove the tip again and shake out any melted solder in the tip.
The tip should now be unclogged. Replace the tip and screw back the retaining barrel nut assembly without over tightening.



CLEANING SOLDER COLLECTOR

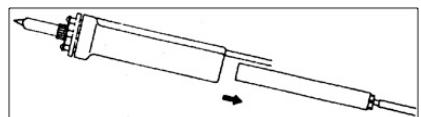
CAUTION: The desoldering switch must be "OFF" and the iron must be cool before starting this procedure.

1. Holding the iron, press and turn the red knob at the bottom end of the iron.

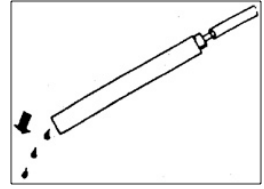


2. Slide out the solder collector.

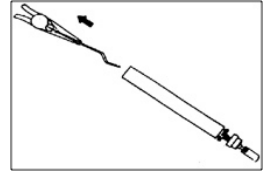
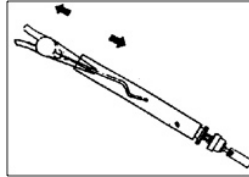
CAUTION: The solder collector is glass and may be hot!



- Point the collector down while shaking slightly the solder waste will fall out. This task must be carried out on regular basis for proper operation of the station.



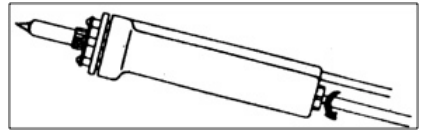
- Remove cooling strip with nose pliers or tweezers. Clean the cooling strip and glass collector with the wire brush.



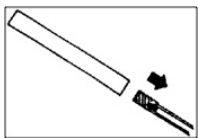
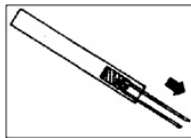
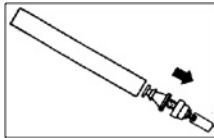
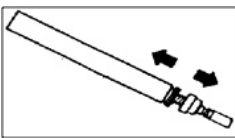
REPLACING FILTERS

SOLDER COLLECTOR FILTERS

- Be sure the desoldering iron is cooled down
- Holding the iron press and turn the red knob at the bottom end of the iron and remove the solder collector

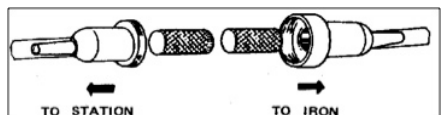
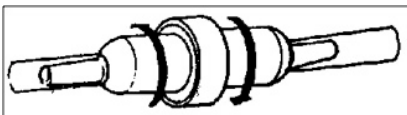


- Disassemble the solder collector as shown and remove the old cotton filter and replace



IN LINE FILTERS

- Unscrew in-line filter, pull apart as shown and replace the in-line filters



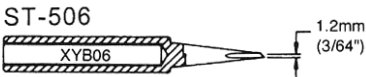
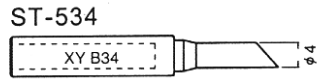
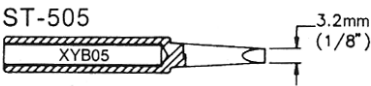
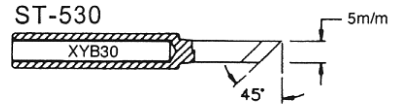
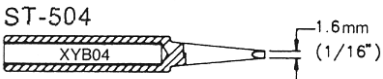
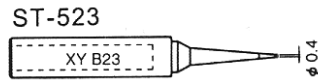
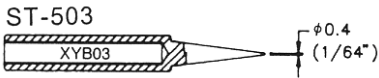
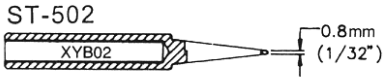
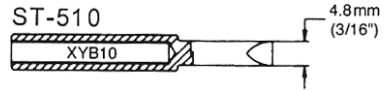
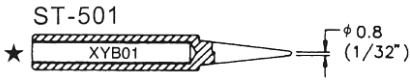
METHODS TO CHECK FOR LOSS OF SUCTION

CAUTION: THE DESOLDERING SWITCH MUST BE “OFF” AND ALLOW THE IRON TO COOL BEFORE ATTEMPTING THE FOLLOWING PROCEDURES.

The following procedures can be used to check whether loss of suction is due to the tip, solder collector, tube or in-line filter.

1. Disconnect vacuum tube from the front panel, place a finger over the hole of the fitting, press vacuum switch and check if there is a strong vacuum.
2. Disconnect the inline filter from the iron assembly and press vacuum switch. Replace the in-line filter if there is little vacuum pressure or the filters are discolored.
3. Remove solder collector from desoldering iron, place finger over the hole of the collector, press vacuum switch. If there is little suction; clean or replace the collector tube.
4. Press vacuum switch, clean the tip tube with spring wire if there is no suction. Follow the steps indicated in section "Cleaning Clogged Tip" (pages 12-13)

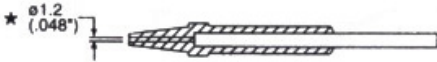
INTERCHANGEABLE TIPS FOR SOLDERING IRON



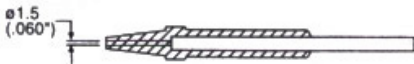
INTERCHANGEABLE TIPS FOR DESOLDERING IRON



STX-610 Conical 1.0mm



STX-612 Conical 1.2mm



STX-615 Conical 1.5mm

* Denotes standard tip

CIRCUIT-TEST
ELECTRONICS

A Division of R.P. Electronic Components Ltd.

BURNABY, BC CANADA