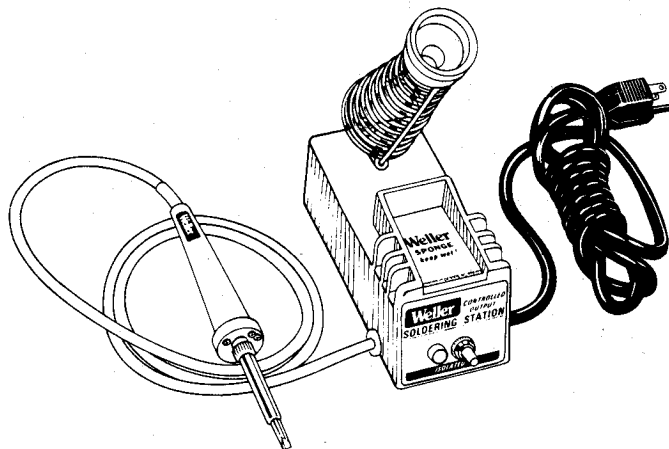


# Weller® Tech Sheet

## WTCPL Series

### PRODUCT DESCRIPTION

A transformer powered soldering station, complete with a low voltage, temperature controlled soldering pencil. The special Weller "closed loop" method of controlling maximum tip temperature is employed, thereby protecting temperature sensitive components while the grounded tip protects voltage and current sensitive components. The soldering pencil also features stainless steel heater construction, a non-burning silicon rubber cord and a large selection of iron plated tips in sizes from 1/32" diameter to 15/64" diameter with a choice of tip temperatures of 600, 700 and 800°F. A 1/16" diameter screwdriver type tip with a 700°F control temperature (PTA7) is normally provided.



**MODEL WTCPL**

The complete Soldering Station also includes a non-heat sinking soldering pencil holder, a sponge receptacle w/sponge and a 3-wire power cord. The stations are U.L. listed. C.S.A. approved models available in Canada.

### MODELS AVAILABLE

#### WTCPL

Soldering Station complete with TCP-1 soldering pencil, PTA7 tip, iron holder and sponge, on/off switch and indicator light, 60W., 120V, 50/60 Hz.

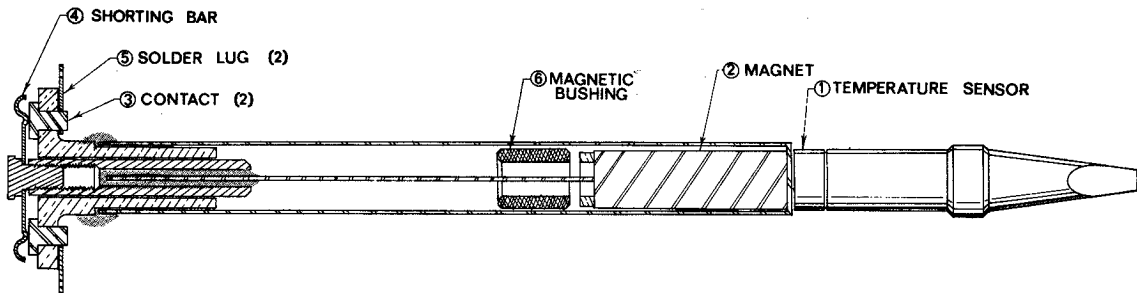
### SPECIFICATIONS

- |             |   |
|-------------|---|
| Electrical: | <ol style="list-style-type: none"> <li>1. Power input - 120 volts, 50/60 Hz, 60 watts</li> <li>2. Power output (to pencil) - 24 volts @ full load</li> <li>3. Soldering pencil wattage - 48 watts</li> <li>4. Tip voltage* to ground .01 volts p-p</li> </ol>   |
| Physical:   | <ol style="list-style-type: none"> <li>1. Pencil weight - 1 3/4 oz. (w/o cord)</li> <li>2. Power unit size - 3"w X 6"d X 7"h (includes iron holder)</li> <li>3. Six (6) foot, 3 wire power cord</li> <li>4. Heat-up time w/PTA7 tip = 55 sec</li> <li>5. Recovery time (from 100°F drop) w/PTA7 tip = 11 sec</li> </ol> |

\*Tip ground connected, voltage measured w/Type 504 oscilloscope, Tektronic (1 meg. 47 pf input)

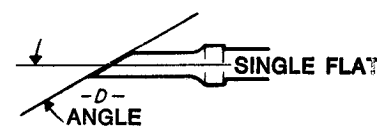
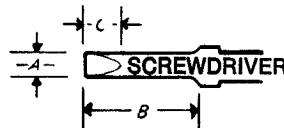
## PRINCIPLE OF OPERATION

When the soldering tip is cold, a ferromagnetic temperature sensor (1) attached to the tip attracts a permanent magnet (2). The magnet movement causes a shorting bar (4) to make contact with a set of isolated electrical contacts (3) thereby supplying power to the heating element through the solder lugs (5). When the tip reaches its idle temperature, the sensor becomes non-magnetic and no longer attracts the magnet. Then a magnetic bushing (6) attracts the magnet causing the shorting bar to break the circuit. In this manner, power to the heating element is turned on and off automatically.



## TIP SIZES AVAILABLE

Weller industrial soldering tips have heavy iron plating with anti-oxidation coating.



	Description	Dimension				Catalog Number		
		A	B	C	D	600°F	700°F	800°F
	Screwdriver	1/16"	5/8"	3/32"	15°	PTA6	PTA7	PTA8
	Single Flat	1/16"	5/8"	3/32"	30°	PTAA6	PTAA7	PTAA8
	Screwdriver	3/32"	5/8"	3/32"	22°	PTB6	PTB7	PTB8
	Single Flat	3/32"	5/8"	3/32"	30°	PTBB6	PTBB7	PTBB8
	Screwdriver	1/8"	5/8"	1/8"	22°	PTC6	PTC7	PTC8
	Single Flat	1/8"	5/8"	1/8"	30°	PTCC6	PTCC7	PTCC8
	Screwdriver	3/16"	3/4"	3/16"	22°	PTD6	PTD7	PTD8
	Single Flat	3/16"	3/4"	3/16"	30°	PTDD6	PTDD7	PTDD8
	Conical	1/32"	5/8"	....	....	PTP6	PTP7	PTP8
	Long Scwdr.	3/64"	1"	7/16"	7°	PTK6	PTK7	PTK8
	Screwdriver	1/32"	5/8"	1/8"	15°	PTH6	PTH7	PTH8
	Long Scwdr.	5/64"	1"	1/2"	7°	PTL6	PTL7	PTL8
	Conical Flat	1/32"	5/8"	1/32"	40°	PTF6	PTF7	PTF8
	Long Scwdr.	1/8"	1"	3/4"	7°	PTM6	PTM7	PTM8
	Narrow Scwdr.	1/16"	5/8"	1/8"	12°	PTR6	PTR7	PTR8
	Long Conical	1/32"	1"	....	....	PTO6	PTO7	PTO8
	Screwdriver	15/64"	3/4"	3/16"	22°	PTE6	PTE7	PTE8

## SELECTION OF WELLER PT SERIES TIPS

1. Select a tip configuration with the maximum working surface, thickest cross section and shortest reach compatible with the size, the accessibility, and the visual restrictions of the solder joint.
2. Select a tip temperature based on the size of the solder joint, the temperature sensitivity of the components, and the production rate required. Please note that tip life is directly related to tip temperature — the lower the tip temperature, the longer the tip life.
3. Performance is determined by both temperature and configuration. Work satisfactorily soldered with a PTO7 (700°F, 1/32" diameter, 1" long conical) might also be soldered quite successfully with a PTP6 (600°F, 1/32" diameter, 5/8" long conical).

**CAUTION: TIPS ARE GROUNDED WHEN IN SOLDERING PENCIL. DO NOT SOLDER IN AN ENERGIZED CIRCUIT.**

## CARE OF WELLER PT SERIES TIPS

1. Keep tip tinned; wipe only before using.
2. Use rosin or activated rosin fluxes. Acid type fluxes will greatly reduce tip life.
3. Remove tip and clean w/ suitable cleaner for flux used. The frequency of cleaning will depend on the type of work and usage. Tips in constant use should be cleaned at least once a week.
4. Don't try to clean tip with abrasive materials and never file tip, to do so will greatly reduce tip life.
5. Don't remove excess solder from heated tip before storing. The excess solder will prevent oxidation of the wettable surface when tip is reheated.
6. Don't use anti-seize compounds on tips, they have been plated for oxidation protection.

## ABOUT WELLER SOLDERING PENCIL TIPS

All Weller PT Series soldering pencil tips have been plated with an exclusive process that deposits three (3) protective coatings. The high conductivity copper tips are iron plated, then nickel plated and finally chrome plated on non-working surfaces. The working surface is then pre-tinned. The chrome and nickel plating of the tip prevents oxidation of the iron plating which can cause freezing of the tip in the pencil. The chrome also prevents solder "creep-up". Weller's "temperature-sensing" tips have a small ferromagnetic sensing element attached to the tip shank. The sensing element is coded with a number to indicate idle temperature in hundreds of degrees F. Thus a simple change of tips is all that is necessary to adapt the tool to an entirely different temperature range.

### TROUBLE SHOOTING GUIDE

Caution: Disconnect power supply before attempting any repair.

#### 1. Pencil Cold

##### Check Power Unit for:

1. Unplugged power cord (switch position, WTCPL only)
2. 120 volts at power supply receptacle
3. Open in primary circuit by measuring the resistance between the power plug prongs. 15/20 ohms is normal

##### Check Pencil for:

1. Temperature sensor (fastened to back end of tip). Pencil will not heat or may overheat if sensor is missing.
2. Heater element resistance — unplug power unit, disassemble handle from pencil by removing three (3) outer perimeter screws, remove wire nuts from heater leads and measure resistance. 12/13 ohms is normal. Replace element if reading is high or low.
3. Switch operation — remove wire nuts from switch leads and connect ohm meter across switch leads. Measure resistance with tip sensor in contact with switch end and with tip removed. Replace switch if readings of zero (0) ohms and infinite ( $\infty$ ) ohms respectively are not obtained.
4. Secondary A. C. voltage — attach A. C. voltmeter to black and white leads coming from power unit to pencil. Plug power unit into 120 V.A.C. and measure secondary voltage. 27 volts is normal. If voltage is zero, check for open in pencil cord by flexing cord. Watch meter for indication of voltage, replace cord if necessary. If cord is okay, unplug power unit and measure secondary circuit resistance (between black and white leads). 1.0/2.0 ohms is normal, if infinite ( $\infty$ ) ohms, check for open connection in power unit.

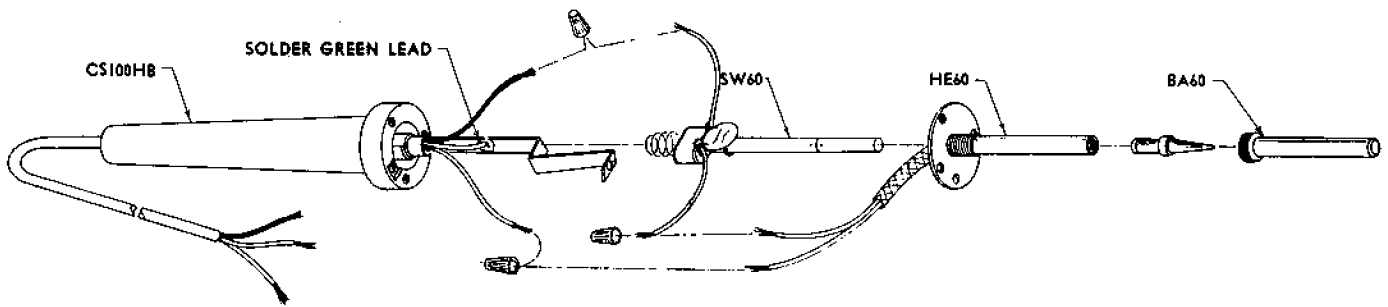
#### 2. Pencil Too Hot

Check pencil as above.

#### 3. Excessive Tip Voltage

##### Check Power Unit and Pencil for:

1. Ground continuity from tip to power cord plug ground prong.
2. Power supply receptacle ground continuity; do not allow the use of "cheater" plugs.



Caution: Capacitor on switch must be opposite ground strap when reassembling

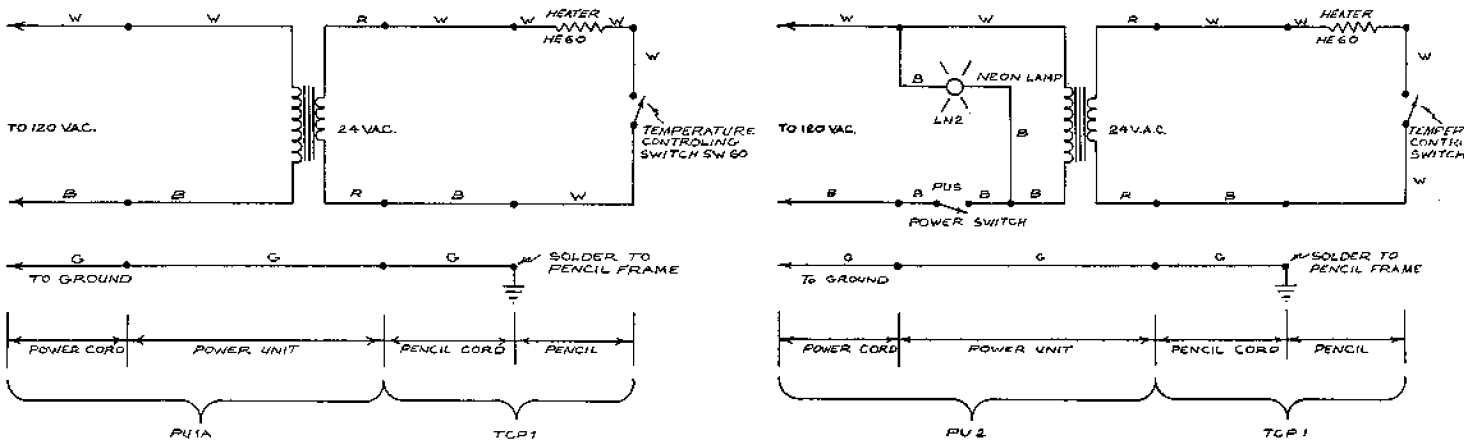
**REPAIR PARTS LIST**

<u>Part No.</u>	<u>Description</u>
HE60	Heater
SW60	Switch Assembly
HA1B	Handle
LN2	Lamp, Neon (WTCPL)
CS100HB	Cord Set w/handle
PUS	Switch, Power Unit (WTCPL)

**REPLACEMENT PARTS LIST**

<u>Part No.</u>	<u>Description</u>
TCP1	Soldering Pencil, includes BA60 and PTA7 tip
BA60	Barrel Nut Assembly
SP60	Sponge (10 per package)
SFA1	Iron Holder w/funnel
SF60	Funnel only (5 per package)
PU1A	Power Unit only, includes sponge and iron holder for WTCP
PU2	Power Unit only, includes sponge and iron holder for WTCPL

**ELECTRICAL SCHEMATICS**





# Weller®

P.O. BOX 728, APEX, NORTH CAROLINA 27502 (919) 362-7511

Form No. S25B

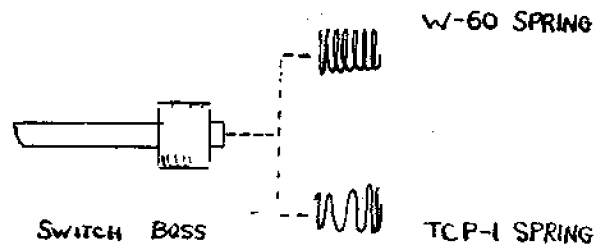
Series 4, #7

Maintenance, Repair and  
Operating Bulletin

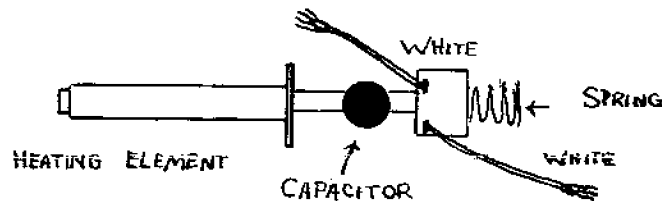
SW-60 Switch

8/30/71

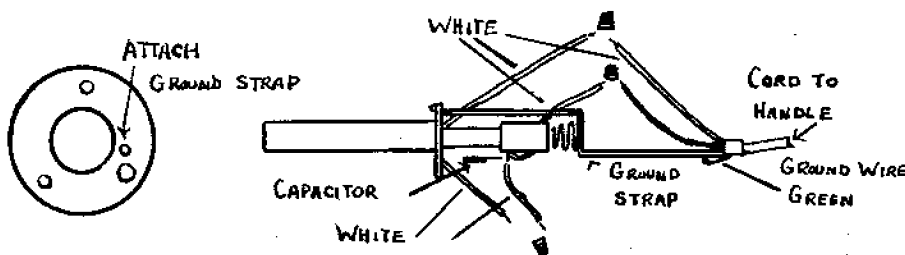
Instructions to install SW-60 switch in Model TCP-1 or W-60:



Install spring on Rear Boss of switch. Straight spring Model W-60  
conical spring Model TCP-1:

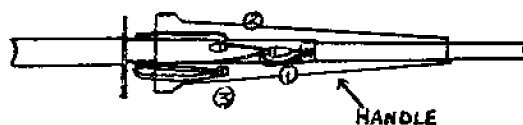


Loosen ground strip. Insert switch into heating element:



Attach ground strip to heating element. Use small screw and hole  
nearest barrel. CAUTION: CAPACITOR MUST BE OPPOSITE GROUND STRIP.

Attach wire nuts as shown:



Insert wire nuts as follows before putting the soldering tool together:

- Wire Nut #1 - Heating Element to white power wire facing toward handle.
- Wire Nut #2 - Switch to black power wire facing toward heating element.
- Wire Nut #3 - Heating Element to switch facing toward handle and next to Wire Nut #2.

For additional information, see Weller Maintenance, Repair and Operations Bulletin Series 4, #1 for Model W-60 and Series 4, #3B for Model W-TCP and W-TCP-L.