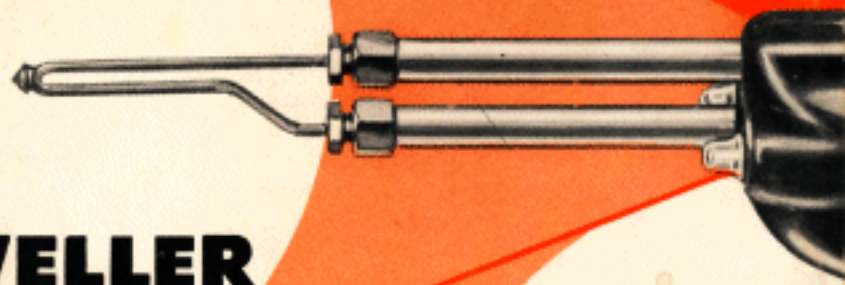
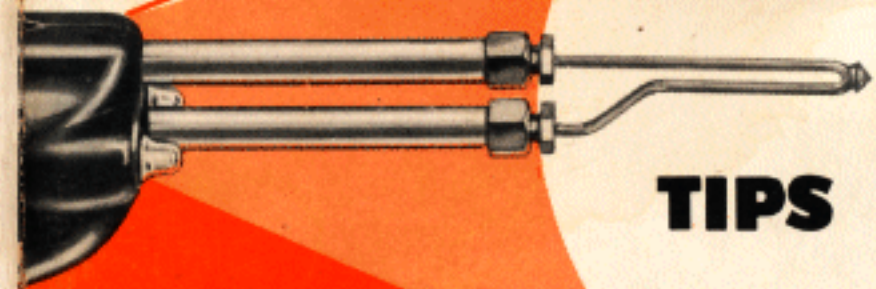


WELLER SOLDERING TIPS



Your Guide to Easier Soldering

WELLER ELECTRIC CORP.
Easton, Pennsylvania

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SOLDERING TIPS

YOUR GUIDE TO EASY SOLDERING

There's no mystery about soldering; it's as easy as you make it. Follow a few simple rules, and metal joins metal like magic. This little book gives you the rules in pictures—with as few words as possible. All you need do is follow through, step by step, and you'll solder sound joints.

RULE 1

DON'T *choose your soldering tools, solder and flux haphazardly.*

DO *select the right equipment and materials for the kind of soldering you're going to do.*

All solders are not the same. The 3 grades most generally used are 40-60, 50-50, and 60-40—the first figure in each grade referring to the percentage of tin, and the second figure to the percentage of lead. The 40-60 and 50-50 are good general-purpose solders. The 60-40 is best for high speed continuous soldering, and because it flows freely at lower temperatures, is best for the amateur solderer.

All fluxes are not the same. To find the right flux for the particular job you are doing, refer to the simplified table below and on next page. It shows at a glance just what flux you should use for a specific kind of work.

Base Material or Applied Finish	Rosin Flux	Aniline-phosphate Flux	Zinc-chloride Flux
Hot tin dip	Yes	Yes	Yes
Hot solder dip	Yes	Yes	Yes
Electro tin 0.0005"	Yes	Yes	Yes
Electro tin 0.0002"	1	Yes	Yes
Silver plate	2	Yes	Yes
Cadmium plate	3	3	Yes
Nickel plate	No	Fair	Yes
Galvanized steel	No	No	6
Copper	4	Yes	Yes
Brass	4	Yes	Yes
Phosphor-bronze	4	Yes	Yes
Beryllium-copper	No	Fair	Yes
Aluminum-bronze	No	No	5
Silicon-bronze	No	Yes	Yes
Zinc and zinc plate	No	No	6
Monel	No	Fair	Yes
Nichrome	No	No	Yes
Steel	No	No	Yes
Stainless steel	No	No	7

Numerical references above are given on following page

1. Parts finished with 0.0002 in. electro-tin plate should be soldered within a short time. Otherwise, difficulty may be encountered. This thin coating can be preserved if treated in hot palm oil or its equivalent.

2. Electro-silver-plated parts are readily soldered with rosin if the plated parts are soldered within a reasonable length of time after plating. Parts carried in stock over long periods may corrode or tarnish sufficiently to prevent rosin flux from being effective.

3. Cadmium plate over brass, bronze, or copper solders well with rosin, aniline or zinc-chloride fluxes. Cadmium plate over steel is not readily soldered with rosin flux. However, if the steel is given a pre-plate of copper before cadmium plating, then rosin is a very effective flux.

4. Copper, brass, and phosphor-bronze can be soldered with rosin flux if they are mechanically or chemically cleaned prior to soldering. If these alloys have tarnished slightly, rosin flux will not produce good soldering. Chemically cleaned copper, brass, and phosphor-bronze can be protected and preserved with a "water-dip" lacquer coating, which does not impair subsequent soldering.

5. Aluminum-bronze is not readily soldered unless it has been specially cleaned. Kolene cleaning salts are effective.

6. A zinc-chloride flux containing free hydrochloric acid should be used on zinc, zinc-plated parts, or galvanized steel.

7. Stainless steel can be soldered with zinc-chloride if it is chemically cleaned, but there are proprietary stainless-steel fluxes, formulated for stainless steel, which are more active than common zinc-chloride.

From an article appearing in SERVICE Magazine.

RULE 2

DON'T ***try to solder metals which have not been cleaned.***

DO ***remove grease, paint, dirt, rust or heavy oxides with wire-brush, sandpaper or chemical cleaner.***

Fluxes are used to remove oxide films that are always present—also to prevent additional oxidation during heating. BUT flux is not a substitute for thorough cleaning. Be safe; clean the metal before soldering, and if you clean with acid be sure to rinse thoroughly afterward.

RULE 3

DON'T ***add flux to the tip of the iron either before or during heating.***

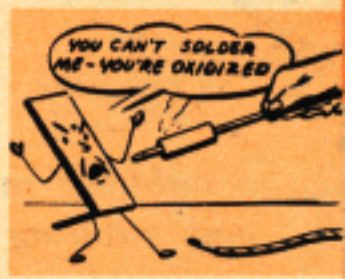
DO *apply flux only to the part being soldered. Be especially careful to keep it away from threads of any screw-type iron.*

Flux is often made a part of the solder—in grooves or as a core. Or it may be in the form of paste, liquid or powder for separate application. Paste or liquid fluxes are applied to the metal with a brush or paddle. "Core" solders are best for the average user.

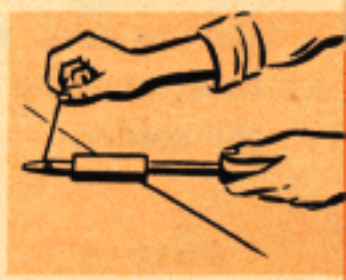
Note: There are two commonly used fluxes—Acid and Rosin. Acid flux is the faster acting, but to prevent corrosion, must be washed away after soldering. Rosin flux is slower but milder in its action, and can be used with safety in soldering electrical connections or other work where it is impossible to wash away the residue. Acid flux is preferred where the parts can be cleaned after soldering. BUT be sure to keep it away from insulated wire and similar materials.

RULE 4

DON'T *try to solder with a bare tip.*



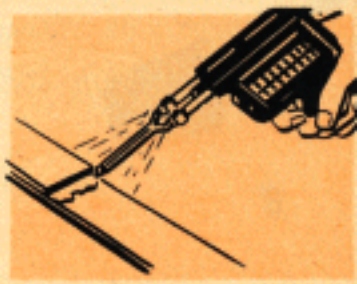
DO *tin the tip at the instant it is hot enough to melt solder. If too hot, tip will not tin—also overheating will oxidize tip and make retinning and redressing necessary.*

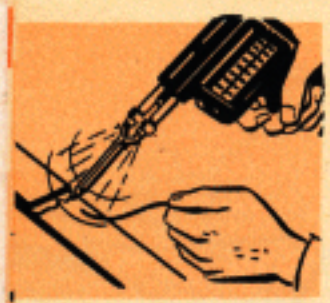


Weller Soldering Guns save retinning time. The tip heats only when gun is in use, so there's no danger of its overheating and oxidizing while idle.

RULE 5

DON'T *try to solder joints unless they have been pretinned.*





DO ***pre-tin by spreading solder over joints and surfaces with the hot tip. Work the solder into the surface with a rubbing motion. Repeated heating and rubbing is necessary to pre-tin correctly.***

The Weller Soldering Gun makes pre-tinning easy. It delivers an even flow of heat, and the tip is ideal for spreading the solder.

RULE 6

DON'T ***try to solder by applying heat to the solder itself.***

DO ***apply heat to the surface or joint until it becomes hot enough to melt the solder. The solder should flow onto the metal and into the joint.***

The Weller Gun gives you faster soldering. Five-second heating saves waiting time, and dual heat provides additional capacity for heavier soldering jobs.

RULE 7

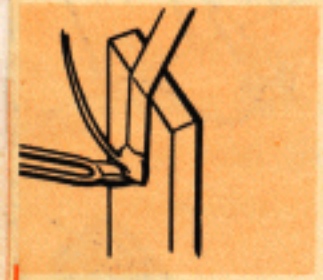
DON'T ***try to solder by pressure with a dry tip.***

DO ***have a heavy film of solder between the working face of the tip and the joint to be soldered. This conducts heat from the tip to the work.***

Soldering with a Weller Gun is simplicity itself. Even heat of just the right temperature flows solder into joints like magic. The Wellertip is easily re-tinned. And the comfortable pistol grip makes the gun easy to hold.

RULE 8

DON'T ***try to solder a vertical surface by applying solder with the tip of the iron.***



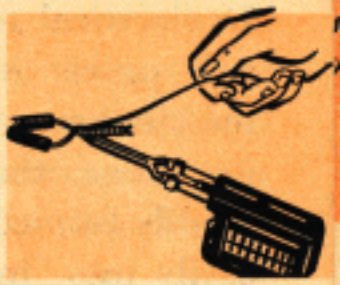
DO ***apply solder to the trough formed by the tip and the surface to be soldered — then press tip against the surface.***

Easily formed to meet job needs, the gun's Wellertip simplifies vertical soldering. Bend it to exactly the shape that suits you. It's ideal for getting into corners and around difficult angles.

RULE 9

DON'T ***try to solder wire joints and similar work by holding the soldering tool above the work.***

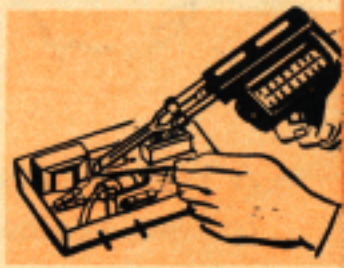
DO ***hold the tip under the wire joint and solder above it, so that tip supports solder until it becomes hot enough to flow into joint.***



Here again the Weller Soldering Gun simplifies your work. The built-in transformer produces even current almost instantly, and the versatile Wellertip transmits heat just where and when you want it.

RULE 10

DON'T ***delay in soldering electrical connections, or you may burn insulation or contacts.***



DO ***complete the soldering as quickly as possible.***

In electrical soldering, your Weller Gun will prove especially valuable. Unlike the cumbersome tips on ordinary soldering irons, the Wellertip is adaptable, readily formed to suit conditions. It goes easily into "inaccessible" spots to speed and simplify soldering. The long-reach facilitates soldering in deep chassis wiring. And Solderlite – pre-focused spotlight–lets you see into dark corners.

RULE 11

DON'T *use too much solder; it's wasteful and unnecessary.*

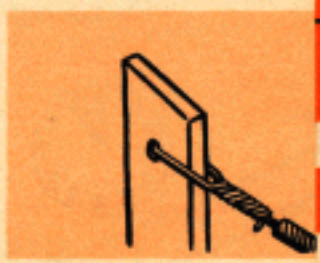
DO *use just enough to do the job. Surplus may be removed with tip of gun or with file.*

A Weller Soldering Gun is your best protection against wasting solder. Because it melts and flows solder evenly, and because it carries the right uniform heat to the exact spot desired, your soldered joint is smooth, even and strong. And if necessary, the Wellertip makes it easy to remove excess solder.

RULE 12

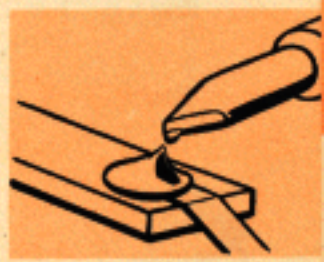
DON'T *let the solder do all the work if it is possible to support the joint by mechanical means.*

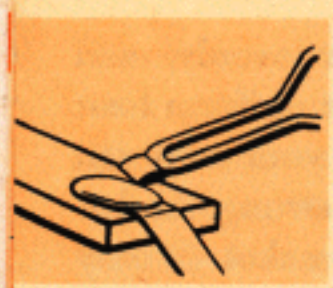
DO *loop a few turns of the wire around terminal before soldering. The joint will be stronger, longer-lasting.*



RULE 13

DON'T *lift the tip from the soldered surface. Solder will follow it.*



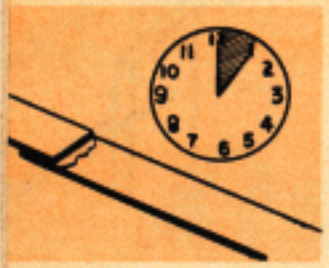


DO *slide the tip from your work. This gives an even soldered surface.*

RULE 14

DON'T *move work after soldering until solder has hardened completely.*

DO *give your solder time to "freeze." The slightest movement before solder has hardened will damage your work. Freezing time, of course, will vary depending upon tin content of solder.*



RULE 15

DON'T *allow acid flux to remain on work after soldering is completed.*

DO *remove at once to avoid corrosion.*

Remember that Rosin flux will not cause corrosion and need not be removed unless flaking will be harmful. Acid flux must be removed at once.

TAKE CARE OF YOUR SOLDERING TOOL

RULE 1

DON'T *use your soldering iron as a hammer or can opener.*

DO *remember that it's built to do a special job with precision. The better care you take of it, the better it will serve you.*

RULE 2

DON'T *pull or hang your soldering tool by its cord.*

DO *keep cord away from sharp tools or hot tips.*

There's much less danger of burning the cord with a Weller Soldering Gun. When you release the trigger the heat is OFF.

RULE 3

DON'T *let your soldering tool rust out.*

DO *keep your soldering tip tinned at all times. Flow solder and flux over its surface occasionally, and rub tip with steel wool now and then while soldering to keep tip bright.*

Wellertips are easy to keep tinned and bright; and they can be replaced easily and inexpensively if pitted or damaged.

RULE 4

DON'T *allow your iron to remain idle so that it overheats.*

DO ***disconnect iron when not in use so that flux won't burn out and blacken copper. Oxidation insulates the tip and the iron will not solder efficiently.***

With a Weller Soldering Gun there's no need to worry about disconnecting the plug. Simply release the trigger and the heat goes OFF! That's why genuine Wellertips last so long.

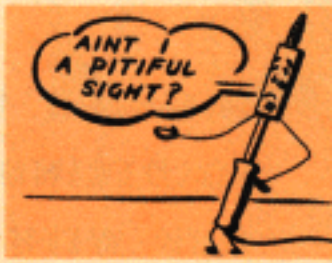
RULE 5

DON'T ***permit oxidation to remain if iron becomes overheated—and*** **DON'T** ***use a file on it unless tip is pitted.***

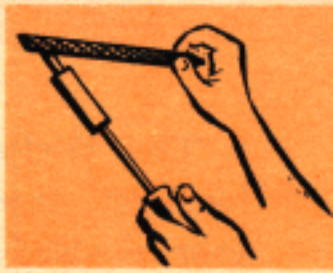
DO ***clean the working surface with steel wool or light sandpaper. Then retin with solder, on all sides of the working surface.***

DON'T ***let the tip remain pitted. Pitting reduces soldering effectiveness.***

RULE 6



DO ***carefully file away the pitted surface with a fine file, removing no more copper than is actually necessary. Then retin.***



With a Weller Gun, of course, this is unnecessary should pitting ever occur. Wellertips can be quickly replaced at low cost.

RULE 7

DO ***use genuine WELLERTIPS for speed and safety. For Models WS-100 and WD-135 use No. 7135 tip, and for Models WS-200 and WD-250 use No. 7250 tip—both have chisel-shaped heads for greater soldering surface and better heat transfer, plus vertical braced construction.***

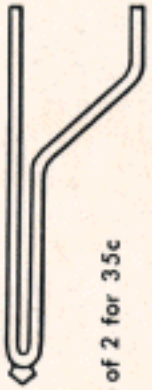
SPEEDS AND SIMPLIFIES SOLDERING . . .

THE NEW WELLER SOLDERING GUN WITH SOLDERLITE

The Weller Soldering Gun is the handiest, most efficient soldering tool ever devised—better from grip to tip. Each Weller Gun is a complete, self-contained unit with the transformer built-in—not separate. And since the gun heats only when the trigger is pulled, there's no need to unplug when not in use.

Time savers include 5-second heating to save you time and power costs—Solderlite to spotlight your work—Wellertip and long reach to slide easily between wiring and into difficult, deep corners. For "hard-to-reach" jobs and regular soldering, too, you'll find the Weller Soldering Gun a handful of real soldering convenience.

FOUR EFFICIENT WELLER MODELS

Model	Watts	Cycles	Volts	Net Price	WELLERTIPS
WS-100	Single Heat 100	60	120	$ 8.95	No. 7135  Package of 2 for 25c
WD-135	Dual Heat 100/135	60	120	10.95	
WS-200	Single Heat 200	60	115	9.95	No. 7250  Package of 2 for 35c
WD-250	Dual Heat 200/250	60	120	11.95	

U. S. Pat. No. 2405866, other patents pending.
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WELLER ELECTRIC CORP., Easton, Pennsylvania, U.S.A.