

## Soldering Tips

### 6 Golden Rules.

Rule 1. The metal. Always make sure the area which you wish to solder is clean, dry and free from grease. If necessary clean the area with a solvent (MEK, Mek Pak, Plasticweld or generic equivalents). The area must be bright ready to take the solder. Abrade the metal so there is no oxidation present. Use a scratch brush, emery cloth, fine wire wool or an abrading rubber (e.g. Gariflex block) to bring the metal up bright and shiny.

Rule 2. The soldering iron tip should be clean, free from scrag and tinned with a layer of solder. If not then use Tip Tinner and Cleaner to re-tin the tip.

Rule 3. Use the correct melting point solder for the job. All solders, except 70°, will adhere to non-ferrous and some ferrous metals.

- 70° solder for whitemetal. (This solder is not really a solder but a metal called Cerabend, which is used by plumbers when they are bending copper pipe to prevent the pipe collapsing or cracking. It is easily melted in hot water.) Use with a low temperature iron (preferable) or a standard iron with a dimmer switch or light bulb in circuit.

A point to remember, 70° does not successfully adhere to non-ferrous metals but will readily adhere to all solders, so when attaching whitemetal parts to say a loco frame, tin the metal with 145° first then use the 70° to make the joint.

- 145° used to solder smaller detail. This solder normally contains an amount of cadmium so try not breathe in any fumes and use in a well ventilated space.
- 188° or 243° used for main joints. Solders of higher melting points can be used when a stronger joint is required, for example larger scale loco chassis.

Multicore solders are best used for electrical work where a flux would be difficult to remove. It also often leaves a hard shell over the joint which is difficult to remove for painting etc.

Silver solders required a blow lamp or torch and are quite another process.

Rule 4. Use the right flux for the metal. Most non-ferrous metals can be soldered with either dilute phosphoric acid of various strengths or a cream flux like Powerflow. After finishing the job the work should be washed with a solution of warm water and 10% spirit (meth's, surgical spirit) or a small amount of bi-carbonate of soda in water to give you an alkaline solution. This will neutralise the acid in the flux and stop it working.

Rule 5. Use a hot iron. However, turn the iron off when not using it, by which I mean if you are not going to solder in the next few minutes turn the iron off. If you don't then you will cook the bit and eventually coat the tip with scrag and have to do a complete re-tin. The iron will return to temperature in a minute or so when you turn it on again.

Rule 6. Get in and out quickly. With a hot iron get into the job, get the solder flowing and then get out. If you leave the iron on the job too long you may un-solder joints near it by the heat radiating along the metal or cause the solder you are using to spread too far.

Practice first on pieces of scrap before starting on a model, and then, when your confidence has increased, start on a simple etched wagon kit, DON'T go and spend a fortune on a loco kit; become experienced first.

A few words of advice; when the job is just not going right, stop, turn off the iron, make a cup tea/coffee and do something else for a while, because if you don't then you will, at some stage, throw the job at the wall. I know I've done just that! Oh and if you drop the hot iron DON'T try to catch it before it hits the floor, it hurts like hell when you catch the wrong end. A good idea is to have a covering over the floor below your work station if it's on carpet. Household authorities seem to object to burn marks on the living room carpet.

Soldering has its dangers. The iron tips are very hot, in the hundreds of degrees centigrade, and will give quite serious burns. Treat the iron with respect and always look at the iron before you pick it up, don't just put your hand out to where you think it is; that way leads to accidents. Solder contains heavy metals which you should avoid ingesting, so don't eat or drink while working and always wash your hands thoroughly before consuming food. Avoid inhaling the fumes especially from 145° solder. Keep the hot iron, solder stock and fluxes away from young children's inquisitive fingers.

Observe these simple rules, well guide lines really, and you will start to solder successfully.

Happy soldering.

### Soldering Iron

Regarding the size of and make of soldering iron you might need. The size (wattage) depends on the size of the model you are building. O gauge and larger scales have components of sometimes quite a large/heavy size and it is recommended that you use at least a 60 or 80 watt iron to do the main joints with a minimum of a 40 watt for smaller details.

For the smaller gauges (S gauge, 4mm, 3mm and 2mm) then a 60watt for main joints, a 40 watt for smaller components and a 25 watt for detail.

For all whitemetal work then I would recommend that you splash out and get a proper temperature controlled iron or workstation that gives a temperature of 80° + but not more than 100°. You can use an ordinary iron with a bulb or dimmer switch in circuit (series) but it's a bit hit and miss regarding resultant temperature.

I recommend that you buy a recognised brand of iron (Antex, Weller, Maplins, etc.) and not an anonymous cheapo one from a 'Poimd Shop' type outlet. My personal choice of irons are Antex mainly because of the variety of bits available and the ease of changing them.

Temperature controlled irons/workstations can be bought from Antex, Maplins and other suppliers and work well. However the range of bits is normally quite restricted.