Big Al's soldering for beginners

by Alan Gibson

Talking to fellow enthusiasts about my models, I find that there is still a large percentage of modellers that is apprehensive about soldering. I shall attempt to allay all these fears during the course of this article.

My first exposure to soldering was as a penniless apprentice, circa 1952. I was presented with a. soldering iron consisting of an 8oz ingot of naked copper mounted on the end of a two feet long poker ! This monster was heated on a special gas burner which was more akin to a miniature furnace. Solder was in sticks, about half an inch square by a foot long. Flux was a large can of the Baker product.

I was supposed to solder some overlapping pieces of mild steel together. I seem to recall failing dismally.

Ten years later I found myself with a layout and hundreds of electrical connections to be soldered. I bought a miniature 12 volt iron to run off the model railway controller. These little irons were cheap and cheerful and quite popular at the time.

Multicore solder, with its resin flux cores, was available then. It is intended for electrical connections and is probably still the best for the job although I understand that 145 degree cored solder is now available. When the Jidenco etched kits appeared on the market I laboriously assembled one using my trusty 12 volt iron and Multicore solder ... this turned me off etched kits and solder for life ...or so I thought.

Another few years go by and one of my fellow workers nags me into assembling 5 O-gauge etched GWR toplight coaches. To be honest, this seemed an ideal way of cracking the soldering at someone else's expense.

By this time technology had improved. A wide range of electric soldering irons were on the market, along with E.A.M.E.S forty flux (?). At least that sounds like the name. This was presumably the first phosphoric acid flux on the market and was ideal for use with brass, nickel silver and whitemetal. We were still stuck with good old Multicore !

I settled on the Weller range of soldering irons and my present selection covers 15-75 watts. I still prefer these irons, spare bits are readily available from local ironmongers and the major DIY stores. The bits supplied, are tin coated. In my position as a heretic I happily file these tips to whatever shape suits the job in hand.

I never had much success tinning these tips. You are supposed to be able to pick up a blob of solder on the iron and transfer it to the workpiece. I invariably failed in this endeavour and found that the best way was to cut the solder into tiny pieces, say 1mm cube, and transfer these to the workpiece with tweezers, slosh plenty of flux on the joint and then apply the hot iron. This will work where all else fails.

To this day I use the above system when soldering white metal. I keep an iron specifically for white metal and its temperature is controlled by an SRB plug-in controller. Magic ! This is my one departure from the Weller product, I use an Antex so that it is obviously special.

To continue the mainstream story. 145 degree uncored solder appeared, along with a range of phosphoric acid fluxes. This combination of flux and solder is excellent. The solder is remarkably fluid and, operating at a lower temperature, it is easier to hold things with fingers.
To get flux to workpiece I use a piece of 0.9mm diameter brass wire. Dipped in the flux it will pick up an adequate quantity. Brushes rot away in no time.
The latest revolutionary item to hit the soldering market is “Multicore tip tinner/cleaner”. This does exactly what it says on the tin, just like a certain wood stain. Dip the hot iron in the jollop for a few seconds and it comes out clean and tinned. Wipe the tip on a damp sponge and the iron will pick up solder and transfer it to the job, exactly as the pundits tell us to do.
I suspect this will not work at white metal solder temperatures, but the method I have previously described should give every satisfaction.
One thing I have not mentioned, cleanliness at the joint faces. This is important, the area to be soldered should be free from grease and corrosion. The slight corrosion or dulling on brass and white metal can be removed with a fibreglass propelling pencil. This is another item which has helped to simplify soldering.
You should by now be persuaded to try to make a soldered joint, so lets consider the sequence of events:

1. **Equipment.**
    - I usually stand the bottle of flux on a piece of approximately A5 size paper. This gives me somewhere to park the ‘flux-dipping’ wire. I also cut up the little pieces of solder onto this piece of paper.
    - Soldering iron of adequate size. You usually need the next size up from what you first thought of.
    - Tip tinner/cleaner and damp sponge.
    - Fibreglass propelling pencil.
2. Check the fit of the components and clean the mating areas.
3. Arrange the parts in their assembled position along with some means of holding them.
4. Use the flux-dipping wire to transfer sufficient flux to the joint area.
5. Hot iron into tip tinner/cleaner, wipe on sponge.
6. Pick up a small amount of solder on the iron and transfer to the workpiece. Let the iron dwell until the flux boils off and the solder flows into the joint.
7. With-draw the iron, workpiece cools, joint made. Success ! I still occasionally find it better to place chippings of solder in position using tweezers, followed by flux and the hot iron. I keep repeating the words ‘hot iron’, this is because if the iron is not up to full heat you will get a poor joint.

Soldering brass to white metal is also straightforward clean the brass, add flux and spread 145 degree solder over the joint area. The prepared white metal component is then soldered in place using 70 degree solder and the reduced temperature iron.
After any soldering the model should be washed in warm water but watch the white metal ... you might melt it.
I hope you have enjoyed the tale of my long years of struggling to achieve success. With current materials and tools it is easy, so have a go .

This article first appeared in the Spring 1999 issue of the DOGA Journal.