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General Soldering Guidelines

Before Breaking the oxide coating by agitation and fluxing is one key to successful soldering, especially for Aluminum, Stainless Steel and Nickel plated parts. It is important to follow these steps in a timely uninterrupted 1-2-3… sequence. Otherwise, the strong oxide coating can reform and hinder the solder bond. So, make sure you have all your tools and supplies staged and ready to go before you begin.

Pre-Tinning For some difficult to solder and large surface area joints, it may be extremely helpful to pre-tin the joint area on each part with the solder before setting up to join the parts. Simply follow the steps below to coat the joint area of each part with an even coat of solder. Then, after the parts have cooled, follow the steps again to join the parts. The 1-2-3 rule applies here as well. Don't pre-tin one day and solder the next. A fresh oxide-free surface is important to soldering success. Pre-tinning your parts with the right solder can greatly improve joints on difficult to solder metals & large surface area parts.

Step 1 Pre-clean the parent metal or metals to be joined. Use emery cloth, a wire brush, sandblasting, etc. Prepare Aluminum and Stainless Steel surfaces with a stainless steel wire brush. Breaking the oxide coating by agitation and fluxing is one key to successful soldering, especially for Aluminum, Stainless Steel and Nickel plated parts. It is important to follow these steps in a timely uninterrupted 1-2-3… sequence. Otherwise, the strong oxide coating can reform and hinder your solder bond.

Step 2 Apply the appropriate Kapp non-corrosive liquid flux to draw the solder into the joint/repair area. The flux also serves to remove oxide layers which prohibit strong bonding. The recommended flux is listed on each soldering alloy information page. You may easily use the rod to spread the flux.

Step 3 Use a soft flame, heat gun or soldering iron to heat the parent metal adjacent to the repair area. A direct flame on the repair area is likely to overheat the solder and flux. When using a soldering iron, heat the joint area on both parts, not the rod.

DO NOT DIRECTLY HEAT THE SOLDERING ROD!

Step 4 Hold the torch tip 4 to 6 inches away from the parent metal. If it is necessary to apply the flame directly to the rod or flux, pull the torch tip back even farther from the work surface and keep it moving.

Step 5 The flux will begin to bubble and turn light brown. Besides preparing the parent metal for the solder, these changes indicate the proper flux working temperature. If the flux turns black, it will contaminate your joint and prevent a strong bond. In that case, let the area cool, clean it & start over.

Step 6 When the flux turns brown, it is time to apply the rod. Drag the rod over the area to be soldered, until it begins to flow.

ONCE THE ROD FLOWS, STOP APPLYING THE HEAT!

If additional layers are needed, continue to drag the rod over the area.

Step 7 Sometimes it is necessary to heat the tip of the rod with the flame to help the solder flow more easily onto the repair area. DO NOT HEAT THE ROD TO THE MELTING POINT! You are just trying to soften the rod to begin the flow more easily.

Step 8 Observe the solder deposit. The solder should bond smoothly.

DO NOT OVERHEAT!

The solder rod will melt if overheated, but will not bond properly.

If you applied the heat to the solder rod instead of the parts, the solder will melt and flow, but it will just sit on your part and can be easily brushed off. The joint follows the heat. Heat your parts and the solder will follow the heat and create a strong joint.

Step 9 If you stopped soldering and want to apply more solder or flow out the deposit more, let it cool a little, add more flux and reheat. The flux will help the bonding process, whether adding more solder or just flowing out the previous deposit.

Step 10 Remove the excess flux with warm water and a wire brush or clean rag. Flux is corrosive, and residue should be thoroughly removed – even for “no-clean” fluxes.