



### Super Alloy 1 Instructions:

1. Pre-clean the parent metal or metals to be joined. Use emorycloth, wirebrush, bead-blasting, etc. On cracked or broken pieces it is advisable to "v" out cracks and both sides of broken metal to provide strength.
2. Apply the non-corrosive, liquid flux to the repair area. An easy method of application is to dip the end of the rod into the flux. The flux will cling to the rod and is easily spread with the rod.
3. Use a soft flame, heat gun, or soldering iron to heat the parent metal adjacent to the actual repair. A direct flame on the repair area is likely to overheat the solder and flux. Soldering irons lose the ability to heat well on parts thicker than 1/8"
4. Hold the torch tip four to six inches away from the parent metal. If it is necessary to apply the flame directly on the rod and flux pull the torch tip back even further from the work surface and keep the torch moving.
5. The flux will begin to bubble and turn light brown. Besides preparing the parent metal for the solder, these changes indicate the proper working temperature. If the flux turns black, clean-up the area with warm water and a wire brush and start over.
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 and stop applying the heat. If additional layers are needed, continue dragging the rod over the area while applying heat if the rod doesn't melt.
7. Sometimes it is advisable on larger pieces to heat the tip of the rod with the flame after heating the parent metal to help the solder flow easier and quicker onto the repair area. Do not heat the rod to the melting point.
8. Observe the deposit. The solder should bond smoothly, DO NOT OVERHEAT! The rod will melt if overheated, but it will just lay there and fail to bond properly.
9. If you have stopped the soldering process too soon and want to flow the deposit out more, add more flux and reheat. The flux will help in the bonding process whether adding more rod or just flowing out the previous deposit. If you have stopped the welding process too soon and want to flow the deposit out some more, add more flux by repeating steps 1 and 2. The flux will help the bonding process whether you are adding more rod or just flowing out the previous deposit.

10. Remove excess flux with warm water and a wire brush.

### Tips:

#### FOR BEST RESULTS

- Apply flux before, during, and at the end of the soldering process. When adding flux at the end, make sure the parent metal is still hot to help flow, seal and bond the Alloy 1.
- We recommend preparing, sanding or grinding your part immediately before applying Super Alloy 1, for best results. Oxidation occurs very quickly and can impede bonding.
- Super Alloy 1 melts at 350 degrees, a temperature low enough to melt the rod with an ordinary lighter or match. Do not use high heat. A little bit of heat is fine and more is not better.
- **Try not to heat the rod directly if possible** Sometimes you will need to add heat to the rod for a couple seconds at a time. Broadly heat around the rod to improve flow, or heat from the backside when possible.
- Every time you add the rod, add the flux to ensure proper flow.
- Let the part cool down on its own. Pouring water on the part weakens the solder joint and may damage the solder fillet if still in the liquid state.
- After the metal has cooled, use a clean wire brush and warm water to remove the flux.

#### PITTING

- **Working with pits on pot metal:** First clean the pot metal, then drill the pits. Be sure to remove ALL oxidation from every pit, or the material will not bond properly.
- White metal does not change color as an indicator of temperature, so use the Super Alloy 1 flux as your temperature guide. When it turns root beer brown, or caramel color, you're ready to apply the alloy. If the flux turns black, you've overheated it. Simply remove the flux with warm water and a wire brush, then reapply
- Super Alloy 1 can be used with propane, butane, MAPP gas, acetylene, oxyacetylene
- Always remember to turn the oxygen down with oxyacetylene

#### CHROME PLATING

- Be sure to have your plater use a slow copper charge before applying the nickel and chrome in the normal fashion.
- The \*best\* option for removing most chrome is to ask your plater to dip and strip your part. Most platers will provide this for no fee or a nominal fee, because they want your return business.

#### CRACKS

- Always remember to clean the inside of the crack not just on top but deep in the crevices.

### Troubleshooting:

- **Super Alloy 1 will not work on aluminum boats.** It is a solder and is not strong enough for this application. Super Alloy 1 is not suitable for diamond plate aluminum or cast aluminum. Please use Super Alloy 5 and an oxyacetylene torch for these applications.
- Oxidation tends to be the biggest factor in pot metal repair failure. Because parts begin to oxidize immediately upon exposing the bare metal, we recommend preparing your part immediately before applying Super Alloy 1, for best results.
- White metal does not change color as an indicator of temperature, so use the Super Alloy 1 flux as your temperature guide. When it turns root beer brown, or caramel color, you're ready to apply the alloy. If the flux turns black, you've overheated it. Simply remove the flux with warm water and a wire brush, then reapply. If the alloy is not bonding to the base metal as needed, it could be the metal is not clean enough or you are overheating the Alloy 1. Super Alloy 1 may lift from the parent metal when overheated
- If the Alloy 1 is not flowing or bonding to the pot metal, it may not be pot metal. Pot metal and cast aluminum are mistaken for each other quite frequently. Make sure your project is not cast aluminum as the Super Alloy 1 does not work on cast aluminum. **Super Alloy 5 works fantastic on cast aluminum with an oxyacetylene or mapp-oxygen torch.**
- If used on stainless steel, rough up the stainless with sanding disk or something similar before soldering.
- **Working with pits on pot metal:** First clean the pot metal, then drill the pits. Be sure to remove ALL oxidation from every pit, or the material will not bond properly.
- The best way to build up your pot metal is to turn down your heat or pull your flame away so the rod doesn't flow thin.

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