

TEXT AND PHOTOS BY BOB LYNN

SNEAKY SOLDERING

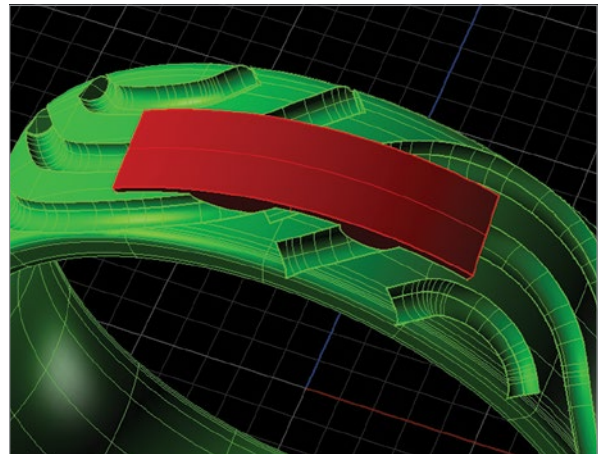
Getting an ultra clean weld in a mixed-metal design

HAVE YOU EVER BEEN HANDED A MIXED-METAL JOB that doesn't have any tolerance for cleanup after soldering? Because of the design, you can't use rivets to hold the yellow and white gold pieces together, and laser welding would require a huge amount of work.

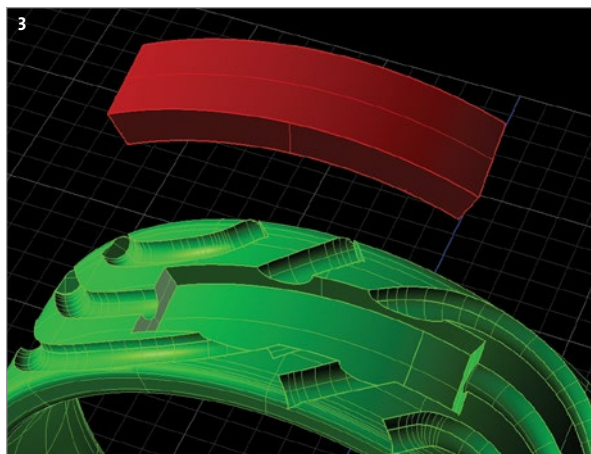


1. In this example, you need to inlay a piece of yellow gold into a white gold band without any solder showing once you are done. Because the grooves in the ring surface are high polish and butt up against the inlay, there is no way to bright cut the junction between the two metals. There's also no way to get a polishing tool on the end of the grooves.

If you ever have to solder a yellow gold inlay to a white gold component, here's a little trick to ensure the solder doesn't show up on the white gold. The example shown here is very basic, but the technique can be applied to any design that requires a clean weld but doesn't have any cleanup tolerance.

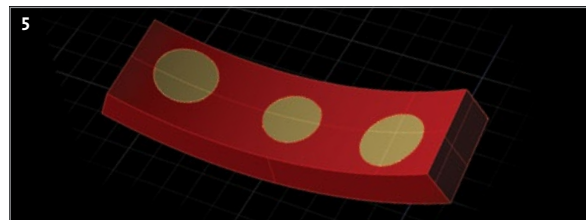
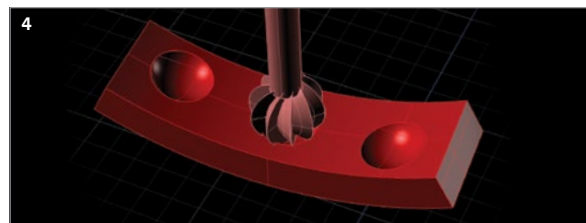


2. This CAD drawing indicates the tight fit. You can't put a piece of solder at the joint between the two metals because the solder will show on the white gold.

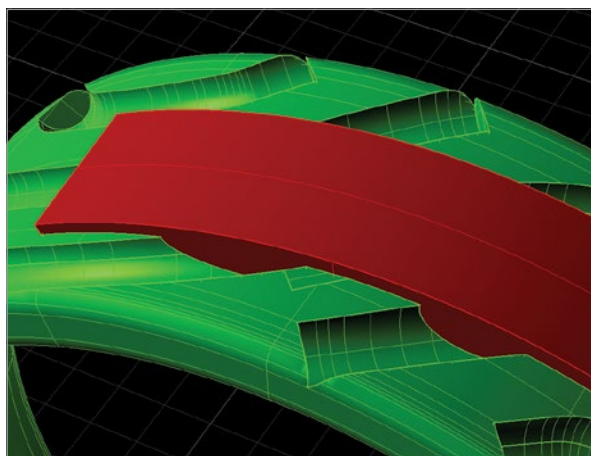


3. You also can't put a piece of solder under the inlay in the socket because, once again, the fit is too tight.

4. To solve the problem, use a ball bur to make several small depressions in the bottom of the inlay.



5. Put small bits of solder into the depressions and flow the solder to fill them in. Once it cools, file the solder flush with the surface. You should chamfer the edges of the bottom surface of the inlay very slightly to make a tiny clearance for the solder to flow.



6. Fit the inlay back in the socket so it sits snugly. Flux and heat the ring to the appropriate temperature to allow the solder to flow, but don't get it so hot that the liquid is drawn out of the joint.



7. Let it cool, then clean and polish. When done correctly, this trick provides a full-strength weld holding the inlay in place with no visible solder.