

#72090 - PERMANENT WELDING WITH HOT AIR

A. Prepare the material to be welded by cleaning dust, dirt and loose particles from the area. To remove oily substance use Methyl Ethyl Ketone (MEK).

Bevel the edge of the area to a 60 degree angle.

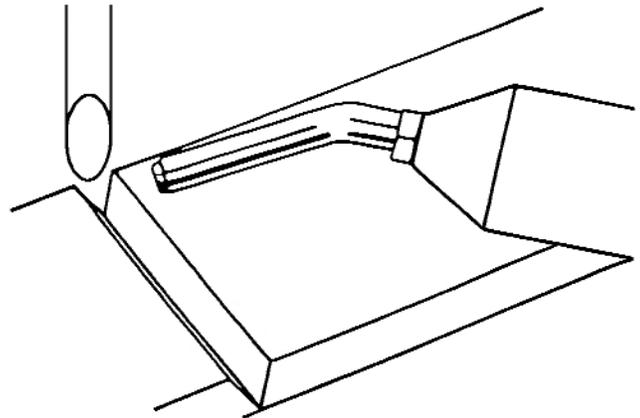


B. Read the directions included with your heat gun.

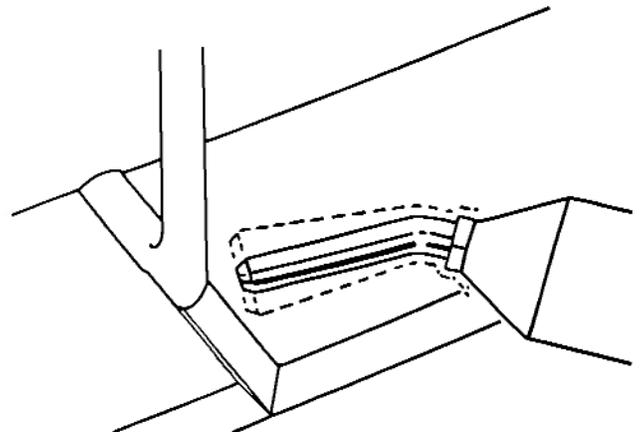
C. Be sure that your welding rod or strip is of the same type of plastic as the materials you will be bonding together. The rod should come from the same manufacture as your plastic boat.

D. Set the welding temperature to approximately 600 degrees (#11 on the HL 1802 E) and 3 PSI (orange stripe with two dots on the HL 1802 E) for Hobie kayaks.

E. Install the small round tip on the plastic hot air welder. Do not over-tighten the tip, it should be snug only. Caution: if the gun is on, it will be very hot. **YOU MUST USE A PLASTIC HOT AIR WELDER!!!** Do not use a heat gun, hairdryer, shrink wrap gun or the like, they will damage your boat.



F. Cut the end of the rod at a 60 degree angle. Place the cut end of the rod just above the weld starting point. Apply heat to the rod end and the base material seam at the same time until both are tacky. Press the tacky end of the rod down into the tacky starting point of the base materials. Only the surface of the rod and base materials will be tacky, but will bond properly. The rod will continue to hold its basic shape, for the most part, throughout the welding work. The rod should remain somewhat still through the entire process. If the rod is limp (like overcooked spaghetti) it will not bond properly. You need to be applying downward pressure the entire time to ensure that the two materials are fused together.



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G. Continue the weld, holding the rod at a 90 degree angle directly above the weld seam, pressing firmly and evenly, down into the weld joint as you apply heat in the direction of the weld seam with a short fanning motion (see illustration). As the rod and base material become tacky, if you are welding at the proper temperature, a bend will form where the rod joins the base materials and small beads will form on either side of the completed weld.

H. When finished **DO NOT TURN GUN OFF!!!** You must set it to the cooling cycle (blue stripe with one dot on the HL 1802 E). Let gun cool for 10 to 20 minutes before turning off and unplugging.

I. When you have finished and the weld has cooled, grab the end of the rod with a pair of pliers and pull. If the rod comes off you have done it wrong (start over). At the end of the weld cut the rod with a knife or pliers at a 30 degree angle. You can now clean, sand and polish the new surface. Cut the end of the new rod at a 60 degree angle to continue.

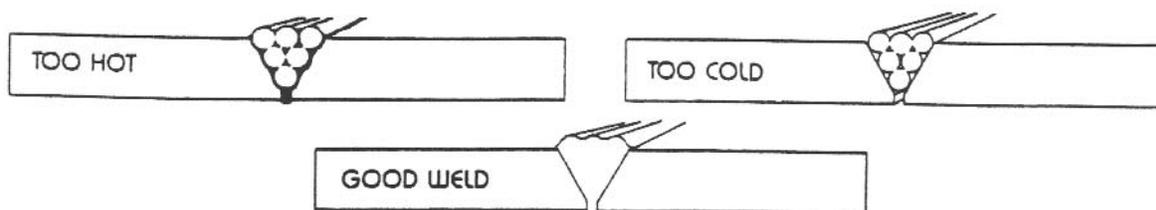
There should be no charring, discoloration, or warping if proper heat is applied. There should be no stretching of the welding rod. This will weaken the rod bond and can be avoided by taking care to press directly down on the rod rather than pushing the rod along the direction of the weld seam.

A few hours of practice welding will give the "feel" for maintaining the right even pressure on the rod straight down into the area.

WELD QUALITY ANALYSIS

A. Check the quality of your weld. You can tell much about the quality of the weld by its appearance. The Weld Quality Analysis Chart below shows what a good, permanent weld looks like. A good weld will not pull apart when hot.

Weld Quality Analysis Chart



Weld too hot: Scorched area around irregular bead.

Weld too cold: Poor bonding.

Stretched weld: Will break at thin stretched points.

Good weld: Has a fine bead on both sides of the weld.