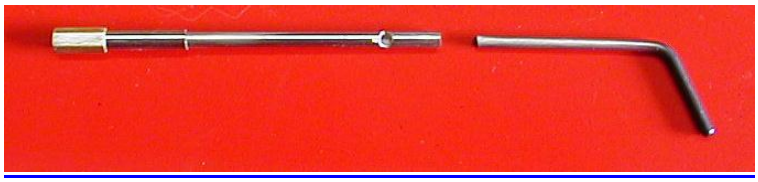
SILVER SOLDERING IRF WIPERS TO IRF SS SHAFTS

By Harley Michaelis – March 15, 2012

Here's how, courtesy of friend Winston Okerlund. I watched as he demonstrated, took notes and then did it. It's simple and it works. The 6" IRF assembled SS shafts are 2" to 4" longer than needed for most installations, leaving scrap for soldering practice. Extra 6" long pieces are available, too. For practice, make wipers out of a common smooth nail that fits. Put it in a vise and hammer in a bend. With Dremel and cutting disk, shaft scrap can be cut and notched as shown. Rough up the surface around the notch.



A silver solder that melts at low temperature is essential. Higher heat will oxidize wipers and SS tubes inside and out to prevent solder flow.

Stay Brite Kit #11000 contains liquid flux and 430 degree solder. I found it at a welding supply. IRF offers it at $18.50. Otherwise, you will pay more plus S & H to mail order.

Tower's Hobby Heat Pro Torch II with pedestal and flame lock works well. A culinary torch used to brown pie topping, etc. is fine. Shaft impurities from manufacturing will impair solder flow. Squirt in acetone, work a round toothpick inside. Blow it out and rough up the area by the notch. Flux is caustic. Protect skin.

For practice with a nail wiper, apply flux to it, run into the shaft, and liberally add flux through the notch and where the wiper exits. Work wiper back and forth. Let flux work a while. Wipe. Apply fresh flux. Don't wipe.

Keep fingers off where solder is to flow. Clamp the nail wiper in a C clamp so the long end is angled up. Put on more flux. Place torch on its pedestal to free hands. Adjust flame to ¾" to 1". Lock flame. Overheating will oxidize the work. Solder will ball up and not flow. Gently apply heat by moving the flame along the long end to gradually raise temperature so the solder will melt when touched to it. Keep solder out of the flame as it will just form drops and fall off the coil. When flux bubbles, glazes over and turns brownish, touch solder at the high end and let gravity help move it down. If the solder balls up on the work and loses its shine, you're using too much heat. Wipe the nail off, thinly tinned and smooth, with a thick, damp cloth.

With the nail wiper inserted, lay the practice work on a ceramic tile, brick, concrete block, etc. Start applying heat along the protruding end of the wiper, not on the hypo shaft. As enough heat gradually transfers to the shaft, the flux will bubble at the exit and the notch. Touch solder at the notch. When the heat is just right, the solder flows in both ways and makes a little fillet at the exit.

Doing it for real, size the hex ended shafts to length, notch and smooth burrs. Wet sand the wiper long ends to bright steel finish. The hex end is silver soldered with resistance soldering equipment. Flux residue will harm the plastic couplers so shafts are factory soaked for 24 hours in a neutralizing solution. WARNING! Flux residue from attaching wipers must be neutralized! Mix several teaspoonful's of baking soda in pint or so of water. With syringe, from the open hex end thoroughly flush out the shaft. Fill shaft again and in a glass or jar, let work soak overnight to neutralize all residue inside and out. Rinse, blow out and wipe dry.