

Soldering a pair of magnetic steel pins

Objective To solder a pair of magnetic steel pins/posts to create an automotive component

Material

- Coil and steel pin assembly (5/16"/7.9 mm pin/post O.D.)
- Solder rosin core

Temperature 470 °F (243 °C)

Frequency 214 kHz

Equipment

- Ambrell EASYHEAT 1 kW, 150 to 400 kHz induction heating system equipped with a remote workhead containing one 1.33 uf capacitor for a total of 1.33 uf
- A single-position two-turn pancake induction heating coil designed and developed specifically for this application

Process Any remaining insulation on the wire was removed with sand paper. A foot peddle was part of the induction heating system setup to facilitate manual feeding of the solder. The part was placed in the coil and the power was turned on. After seven seconds the solder began to flow and the solder was fed to the joint. Power was pulsed for one additional second to allow the solder to continue to be fed. The overall process took less than ten seconds.

Results/Benefits

- Speed: Heating took less than 10 seconds, and while this is a new process for the client, other heating methods would be slower
- Precise, repeatable heating: Induction is a highly repeatable process so the customer can expect the same result every time with only the portion of the part requiring heating being heated
- Safety: There is no open flame with induction, which makes it a safer method of heating than torch heating



The assembly inside the coil prior to heating.