



Braze a mount lead to a ferrule in a PAR light bulb assembly for automobiles

Objective Braze a nickel plated steel mount lead to nickel steel ferrule in a PAR* light bulb assembly

Material PAR light bulb, mount leads 0.075" (1.9mm) to 0.09" (2.28mm) in dia., ferrules are 1.25" (31.75mm) apart center to center, braze powder & flux

Temperature 1150 °F (621 °C)

Frequency 357 kHz

Equipment

- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.2 μ F capacitors for a total of 0.5 μ F
- An induction heating coil designed and developed specifically for this application.

Process A split helical coil heats 2-3 ferrules at a time. The ferrules are filled with flux and the mount leads are placed inside the ferrules. Heat is applied for 3 seconds to allow the flux to flow followed by 2 seconds of dwell time to allow indexing of the part. Heat is applied for 3 more seconds to allow the braze to flow and capture the mount leads.

Results/Benefits Induction heating provides:

- Decreased production time
- Decreased energy costs
- Uniform & exact heat placement
- Even distribution of heating

* PAR stands for Parabolic Aluminized Reflectors (Outdoor flood/spotlight bulb)



Underside of light bulb
with leads in the ferrules



Close up of coil placement