

## Soldering a LED assembly to an aluminum spotlight housing

**Objective** Heat an aluminum spotlight housing to solder an LED assembly to the inside base

**Material** LED housing with copper plug, aluminum spotlight housing 5" (127mm) dia at top, 1.25" (31.75mm) dia at base, temperature sensing paint

**Temperature** 500 °F (260 °C)

**Frequency** 245 kHz

**Equipment**

- Ambrell 3.5 kW induction heating system, equipped with a remote workhead containing one 1.0µF capacitor.
- An induction heating coil designed and developed specifically for this application.

**Process** A multi turn pancake coil is used to heat the bottom of the aluminum spotlight housing. The LED housing was not available so this application is done with temperature sensing paint to determine the feasibility. The temperature sensing paint is applied where the LED housing sits in the center of the spotlight housing. The base of the housing reaches 500 °F (260 °C) in 30 seconds.

**Results/Benefits** Induction heating provides:

- Hands-free heating that involves no operator skill for manufacturing
- Faster production times, more energy efficient
- Consistent, repeatable results
- Even distribution of heating



Aluminum spotlight housing placed on the coil for heating

