De-Carburizing Jet Engine Fuel Nozzle

**Objective**  Heat a jet engine fuel nozzle to 1400°F (760°C) in order to decarburize it.

**Material**  Inconel 604 Jet Engine Fuel Nozzle measuring 15” (381mm) long and 1/4” (6.35mm) in diameter.

**Temperature**  1400°F (760°C)

**Frequency**  165 kHz

**Equipment**  
- Ambrell 3.5kW induction heating system equipped with a remote workhead containing two (2) capacitors totaling 0.66 µF
- An induction heating coil designed and developed specifically for this application.

**Process**  A custom 18 turn oval coil is used to heat the lower 81/2” (216mm) of the fuel nozzle assembly. Power is applied and temperature is reached in 15 seconds. Temperature is maintained for 10-20 minutes while 5 psi of air is blown through the nozzle to dislodge the carbon material.

**Results/Benefits**  Induction heating provides:
- Controllable and uniform application of heat
- Faster cycle times
- Repeatable results
Precision Induction Heating

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