

## Bonding Rubber Gaskets to a Steel Intake Manifold



### Research Objective

To bond rubber gaskets to a steel gas tank assembly within 6 seconds at 350°F. without foaming.

### Parts & Materials Description

Flat and round rubber gaskets, steel gas tank assembly

### Temperature Required

350°F

### Induction Heating Equipment

IA EB-2 Bonding System with dual 1kW power supplies, remote heat station and two specially-designed induction coils.

### Operating Frequency

179 kHz for the flat gasket; 237 kHz for the round gasket

### Heating Procedure

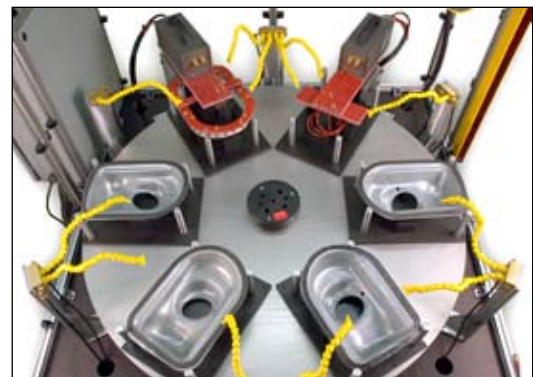
Two two-turn pancake coils were specially contoured to the shape of the steel assembly to produce uniform heat in the gasket areas. The steel assembly was initially heated without gaskets to establish a heating pattern and time-to-temperature. After a satisfactory heating pattern was obtained, the gaskets were positioned over the joint areas. RF power was applied for 6 seconds to reach the bonding temperature of 350°F.

### Conclusion

Consistent and repeatable results were achieved with the EB-2 Bonding System operating at 350°F with a heat cycle of 6 seconds. By locally heating the steel directly under the gaskets with induction, the gaskets were consistently bonded to the steel without foaming.



*EB-2 Bonding System*



*EB-2 six-position turntable*