

## Brazing Provides Leak-Free Fluid Transfer Systems for Ford

### The problem: Eliminating leaks in the fuel sender

Fuel pump systems transport gasoline to the engine in a vehicle. Ford Motor Company wanted to ensure their fluid transfer systems were leak free to improve safety in their vehicles and reduce warranty issues.

Ford relies on brazing in several phases of vehicle manufacture. In the assembly of its fuel pump systems, brazing helps provide a leak free route for gasoline to be transported to the engine. Specifically, brazing is used to construct the fuel sender, a part that mounts directly onto a vehicle's gas tank. With a fuel pump attached to it, the fuel sender pulls gas out of the tank and sends it through tubes to the fuel injection system.

### The solution: A flux-free brazing process improvement

To manufacture the fuel sender, two stainless steel arched tubes are brazed through a round stainless flange. The tubes fit neatly between the two existing holes in the flange. An operator manually snaps a C-shaped arc of filler metal, (in this application, they used Lucas-Milhaupt's CDA-521), into the gap between each tube and the flange. The parts are then placed on a belt and sent through an oxygen-free, controlled-atmosphere furnace.

### The result: Stain-free, leak free fuel senders

The absence of oxygen eliminates the need for flux or cleaning, and the brazed parts emerge shiny and clean. Lucas Milhaupt engineers recommended this process to eliminate the risk of flux stain or corrosion from flux.

The rapid metal joining process Lucas Milhaupt technical experts recommended resulted in leak free fuel senders.

At Ford, quality is of the utmost importance. That's why the automaker relies on brazing to construct its fuel senders. The operation itself is simple and cost-efficient, and the brazed parts are leak-free and attractive to the eye.

Brazing Provides Leak-Free Passage For Vehicle Fuel.

1. Teams of Ford employees place the stainless tubes in place in the flange.
2. Filler metal arcs are manually positioned to fill the gap between each tube and the flange hole.
3. Assembled parts are placed on a conveyor for brazing.
4. Finished fuel senders are leak tested.

