

NCR³ Automotive Parts Cleaning Project: Technical Report

*Replacement of solvent tank with agitating ultrasonics parts washer at D&W Diesel**

Old Process

Fuel injector pumps were pre-cleaned in a vibratory degreaser or high-pressure spray washer prior to disassembly. After teardown, parts were placed in baskets and **cleaned again in a high-pressure spray washer for one or two 15-minute cycles**, depending on the degree of contamination. **Pump parts were then cleaned by hand for 15 minutes in a solvent washer followed by a final manual cleaning operation** where surface rust was removed with a wire brush.

New Process

Fuel injector pumps are pre-cleaned as before prior to disassembly. After teardown, pumps are cleaned again in the high-pressure spray washer, **but only for one 15-minute cycle (even for the dirtiest pumps)**. Pump parts receive a final cleaning in the agitating ultrasonics parts washer, **completely eliminating the need for manual cleaning in a solvent washer**. In most cases, **manual cleaning with a wire brush is also eliminated**, as the ultrasonic cleaning operation also removes light layers of surface rust.

Savings (fuel injector pumps only)

- No more rework in secondary cleaning process
- No more costs incurred with solvent tank – this manual cleaning process has been completely eliminated
- Significant labor savings due to elimination or reduction of manual cleaning operations
- Reduced energy costs due to replacement of high-pressure spray washer with less energy-intensive ultrasonic cleaning process
- Higher product quality due to superior cleaning results

The Bottom Line

The installed cost of the equipment is \$21,300. Annual savings in labor, chemicals, waste disposal, water, and energy total \$10,016. **Therefore, the system will pay for itself in approximately two years.** Because many other parts are cleaned in this system, actual savings are even higher.

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