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## Case Study 20080222

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### Problem

An automotive parts supplier has parts that are not greased to specifications because their automatic greasing system was not consistent. They have a competitor's "timed dispense" systems.

### Action

The "timed dispense" system must be replaced with a system that uses positive displacement pistons to measure and dispense grease.

### Reaction

Before investing in a new grease dispensing system, engineers want to know why the old system needed frequent adjustment and often dispensed not enough or too much grease.

## What is "timed dispense" and why doesn't it work with grease?

### TIMED DISPENSE BASICS

Grease pressure from a pail pump is regulated and grease is forced through a metering valve (an adjustable air-operated Off-On needle valve) that is operated by an air solenoid valve that is controlled by a timer in the user's PLC.

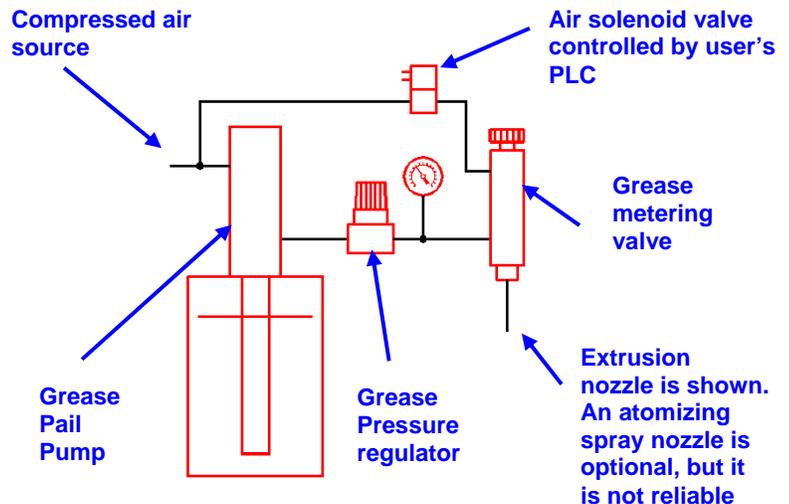
The grease pressure from the pump is usually very high and fluctuates as the pump cycles.

The user's PLC controls how long the metering valve is open.

The adjustment knob on the regulator controls the grease pressure to the metering valve.

The adjustment knob on the metering valve controls its opening size.

Frequent adjustment are often necessary



**The amount of grease dispensed is the result of the interaction of seven factors. All of these factors must be under complete control with no exceptions or the grease amounts will not be consistent.**

- Adjusted grease pressure
- Adjusted metering valve opening size (orifice)
- The time that the metering valve remains open to flow
- Fluctuations in the apparent viscosity of the grease being dispensed
- The thixotropic nature of many greases (flow is more difficult to start than to maintain)
- The static resistance to flow built into the system components and plumbing
- Variation in resistance to flow at the nozzle outlet

**Most of these factors are not under control.** Plus or minus 10 p.s.i. is better than normal for a grease pressure regulator. Extremely minor adjustments to the grease metering valve knob often result in much more or much less flow. Grease viscosity is not consistent at different temperatures and from batch to batch. Grease may be thixotropic, making it more difficult to start flow than to maintain flow. If the nozzle is too close to the part, increased resistance will cause less flow.

**Atomizing spray nozzles cause even more problems because they use adjustable "spray air" as a "propellant" to deliver the grease to the part.** The pressure of this "spray air" opposes the grease delivery pressure. Increased spray air pressure (sometimes necessary to improve the spray pattern) will cause decreased grease volume. Re-adjusting grease flow (via grease pressure change or orifice adjustment at the metering valve) for more grease may also necessitate even more spray air pressure. Because these adjustments affect each other, frequent adjustments will always be necessary.

**G. P. Reeves offers many positive displacement piston dispensers that are extremely reliable.** We also offer systems using US patent 6,053,285 that remove trapped air from grease. We offer our Advance Air Purge Grease Dispensers (AAPGD) for use where grease amounts must match movement. Our spray nozzles work with our dispensers.

**Click here** <http://gpreeves.com/aapgd> for a slide show for the G. P. Reeves Advanced Air Purge Grease Dispensers.