

# TEN MILLION DOLLARS

Could have been saved by using a  
G. P. Reeves AAPGD dispenser

Potential problems with the windshield wiper motors on about 235,000 pickups, vans, and sport utility vehicles from the 2006 model year have caused a Ford Motor Co. recall. The National Highway Traffic Safety Administration has said in a posting on its Web site that “the windshield wiper motor may have been made without grease being applied to the shaft gear”. Dealers will inspect the wiper motors and grease the motor gears if necessary.



See [http://consumeraffairs.com/recalls04/2005/ford\\_wipers.html](http://consumeraffairs.com/recalls04/2005/ford_wipers.html)

**At an estimated \$50.00 per vehicle, this recall will cost Ford more than Ten Million Dollars**

Today's zero-defect products require a grease dispenser to be accurate, repeatable, and capable of confirming that grease REALLY reached the part. The G. P. Reeves AAPGD (Advanced Air Purge Grease Dispenser) uses reliable hardware tightly integrated with an advanced PLC program to reject grease that contains air and provide the same measured dose of grease each and every machine cycle. The AAPGD grease dispensers are engineered for production.

When an AAPGD is needed:

- When accurate, repeatable grease volumes are important
- When the dispense rate must match the speed of another motion
- When air in the grease could cause a part defect
- When it is critical that parts are not shipped without grease
- When you want to save Ten Million Dollars

## HOW IT WORKS

**Airless** – The AAPGD uses G. P. Reeves patented (US patent number 6,053,285) process to detect when air is in the grease it is about to dispense, so it can reject that shot of grease if it has air and “re-load” with another shot. No grease goes to the part until it has passed this test. Only airless grease is dispensed to user's parts.

**Position and Rate Control** - With an analog sensor, the controls know the position of the displacement rod at all times, and the rate at which it is moving. An analog pressure regulator allows the controls to place just the right amount of air pressure on the cylinder piston to force the grease to move at the specified dispense rate. Thus it is possible to track the rate of movement of an object, or rotation of an object, and distribute the specified volume of grease evenly.

**Positive Displacement** - The AAPGD uses a dispensing technique called “positive displacement”. An air cylinder forces a displacement rod into a chamber filled with grease and thus pushes out a volume of grease equal to the volume of the rod. The operator can enter the desired amount of grease on an operator interface screen in engineering units (Cubic Inches or Cubic Centimeters), and the control program converts that to rod travel distance. The control program monitors the cylinder (and rod) travel, and stops when the right amount of grease has been forced out or “dispensed”. Changes in temperature or grease viscosity do not affect the output volume.

**Confirmation** – The use of airless grease and positive displacement already provide a high degree of confidence that grease was dispensed, but even those techniques do not confirm that grease did get to the part, only that grease left the dispenser. There could be broken hose or tubing between the dispenser and the nozzle. The system may have been taken apart for maintenance and air could have been introduced. Grease flow can be confirmed by a pressure transducer AT the nozzle to read the grease pressure at that point. The controls can read and store these pressure readings at regular intervals during dispense. A normal dispense will have pressure rising at first, leveling off while the grease flows at a steady rate, and dropping when the cycle is complete. A broken hose, a clogged nozzle, or air bubbles will cause large deviations from the normal readings, and are easily detected by the control program.

**ROI** – Applying AAPGD technology on a machine or process will initially cost more than other methods of dispensing, especially more than those methods that were intended for greasing bearings, not for production. The return on this extra investment comes from reduced scrap, and from not having parts rejected by a customer because no one noticed that they were not greased. The cost of just one such event, with labor to sort and re-work parts, will justify using AAPGD technology plant wide!

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References: CAT-AAPGD1003, CAT-DISPENSE PATENT, CAT-CP&CPK explanation, CAT-Production Greasing, CAT-PRESSURE\_FLOW\_CONFIRMATION&EPS1001, and CAT-HOW TO SELECT DISPENSING SYSTEM