

# **EXHIBIT 3**

**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION**

In re: NAVISTAR DIESEL ENGINE  
PRODUCTS LIABILITY  
LITIGATION

Case No. 11-cv-2496  
MDL No. 2223

This Document Relates to: All Cases

**Declaration of Paul M. Taylor, Ph.D., P.E. Regarding Potential Counts of Class Vehicles  
and Individual Part Repair Costs**

1. I am a Principal Engineer employed by Exponent, an engineering and scientific consulting firm, and am located in Menlo Park, California. I hold the opinions expressed in this report to a reasonable degree of engineering certainty.
2. In 1978, I earned a Bachelor of Science degree in mechanical engineering from Rensselaer Polytechnic Institute in Troy, New York. In 1979, I earned a Master of Science degree in mechanical engineering from Stanford University. In 1986, I earned my Ph.D. in mechanical engineering from the Design Division of Stanford University's Mechanical Engineering Department. In 1986, I joined Exponent (then known as Failure Analysis Associates, Inc.), where I am currently employed. I am a registered Professional Engineer in the State of California, license number 31069. My experience at Exponent has included design and failure root-cause analyses of hundreds of products, including vehicles, components and systems used on vehicles, and analyses of databases on the real-world performance of products, including warranty databases. Specific to the issues in this matter, but previous to this litigation, I have inspected and evaluated Ford's 6.0L

Power Stroke diesel engines (“Power Stroke engines”) for issues related to engine performance.

3. I was asked by counsel of record for Ford Motor Company to:
  - a. Estimate the number of Subject Vehicles<sup>1</sup> that had a Qualifying Repair to a Target Component.<sup>2</sup>
  - b. Estimate the numbers of Subject Vehicles that had a Qualifying Repair and had two (2), three (3), four (4), or five (5) or more engine repairs that potentially required payment of a \$100 deductible under Ford’s New Vehicle Limited Warranty.
  - c. Estimate characteristic or average repair costs (including parts and labor) for Target Components.

**Estimates of the numbers of Subject Vehicles with Qualifying Repairs**

4. I was asked to estimate the numbers of Subject Vehicles having Qualifying Repairs. To perform this calculation, I used Ford’s Analytical Warranty System (AWS) database. This database contains records of all repairs where Ford has paid some or all of the repair cost, and thus would include all Qualifying Repairs to the Subject Vehicles.
5. The AWS repair records for all Ford vehicles equipped with a 6.0 liter PowerStroke diesel engine were obtained from Ford. This data included claims with repair dates through October 29, 2012.<sup>3</sup> Next, repairs to Subject Vehicles associated with one or more of the Target Components were identified and flagged by searching the lists of parts and

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<sup>1</sup> The Subject Vehicles are model year 2003-2007 non-ambulance Ford trucks and vans equipped with the 6.0 liter PowerStroke engine owned or leased in the United States.

<sup>2</sup> A Qualifying Repair is a repair to one or more of the Target Components during the 5-year/100,000 mile 6.0 liter PowerStroke engine warranty period. The Target Components are: Oil cooler, Exhaust Gas Recirculating (EGR) cooler, EGR Valve, Fuel Injector, and Turbocharger.

<sup>3</sup> Since the analysis included vehicles with up to 5-years in service, it includes the full warranty period for all vehicles sold on or before October 29, 2007. Thus, virtually all 2006 and earlier model year vehicles, and the vast majority of model year 2007 vehicles, would have experienced their full warranty period by this time.

labor operation codes associated with each repair. In addition, a keyword search was performed on the technician comment fields, and any additional repair records so identified were flagged. Each flagged repair was checked to determine whether the repair was made within the 5-year/100,000 mile PowerStroke engine warranty, and those repairs were included in these calculations.

6. Since some vehicles had more than one Qualifying Repair (*e.g.*, a Subject Vehicle could have more than one Target Component repaired under warranty), a list of unique vehicles<sup>4</sup> was created (“Qualifying Vehicles”), identifying those Subject Vehicles having at least one Qualifying Repair. Once this list was created, the number of Qualifying Vehicles was counted. In addition, counts of Qualifying Vehicles by the repaired Target Component were tallied. The results of these analyses are shown in **Table 1**.

**Table 1. Subject Vehicles with Qualifying Repairs**

<b>Target Components</b>	<b>Number of Subject Vehicles Having a Qualifying Repair to This Component</b>
EGR Cooler and/or Oil Cooler	243,825
Fuel Injector	312,860
EGR Valve	412,401
Turbocharger	307,602
Any Target Component*	656,076

\* Some vehicles had more than one Qualifying Repair, so the number of vehicles having Any Target Component repair is less than the sum for each component repaired.

<sup>4</sup> Vehicles can be uniquely identified using the Vehicle Identification Number (VIN), a 17 character code assigned to every vehicle. The VIN includes information such as the make, model, model year, engine, plant and a serial number.

**Estimates of the numbers of Qualifying Vehicles that had two (2), three (3), four (4), or five (5) or more engine repairs that potentially required payment of a \$100 deductible under Ford's New Vehicle Limited Warranty.**

7. The 5-year/100,000 mile 6.0L PowerStroke Diesel Engine Coverage under Ford's New Vehicle Limited Warranty states: "After the end of the Bumper to Bumper Coverage period (three years or 36,000 miles, whichever occurs first), you must pay a \$100 deductible for each repair visit."<sup>5</sup> Ford dealers have the discretion to waive payment of the deductible. Ford's AWS data does not indicate whether a deductible was actually paid by the customer.
8. The AWS data can be queried to identify the number of vehicles that had engine repairs that should have required a deductible payment under the terms of the New Vehicle Limited Warranty, whether or not the deductible was actually paid. Specifically, the AWS data were searched for any engine repair to a Qualifying Vehicle that was performed after the expiration of the 3-year/36,000 mile bumper-to-bumper warranty but before the expiration of the 5-year/100,000 mile 6.0 liter PowerStroke engine warranty. The numbers of such engine repairs were tallied for each vehicle, with the results shown in Table 2.

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<sup>5</sup> 2006 model year Warranty Guide, page 7, under the heading 6.0L PowerStroke® Diesel Engine Coverage.

**Table 2. Qualifying Vehicles with two or more engine repairs subject to \$100 deductible payments**

<b>Number of engine repairs between 3-yr/36,000 mile and 5-yr/100,000 mile warranty periods</b>	<b>Number of Vehicles subject to \$100 deductible payments</b>
2	102,947
3	65,778
4	38,602
5 or more	49,579
Total	256,906

**Characteristic or average Target Component repair costs**

9. The Target Component repair costs (encompassing cost of replacement parts and cost of labor to perform the repair/replacement of the Target Component) were calculated using AWS data for the EGR valve, EGR and oil coolers, and turbocharger. For fuel injectors, a different strategy was used since every engine has eight fuel injectors -- conceivably anywhere from one to eight injectors could be replaced during any repair. The methods for calculating repair costs are described in the following paragraphs.
10. For the EGR valve, EGR and oil coolers, and turbocharger, the AWS data was analyzed by Target Component replaced. For each Target Component (and for the combination of EGR cooler and oil cooler), the material costs and total costs were identified. Since some repairs included replacement of parts not necessary or unrelated to the repair of the Target Component under study, repairs were further categorized by materials cost. To eliminate the inclusion of unrelated costs, only repairs having materials costs within a

range consistent with the value of the Target Components and necessary materials<sup>6</sup> were included. Using those repairs, an average total repair cost was calculated. Many repairs included replacement of both the oil cooler and EGR cooler during the same visit.

Replacing both the oil cooler and EGR cooler together as one repair was less expensive than if each component were replaced at separate service visits. Consequently, costs were calculated for the replacement of the EGR cooler alone, the oil cooler alone, and the EGR cooler and oil cooler together.

11. For fuel injectors, the cost varies according to how many fuel injectors are being replaced. There is a labor cost associated with taking apart the engine to expose the fuel injectors, a far smaller labor cost for removing and installing each individual injector, and the parts cost for each injector replaced. To address these variable costs in a reasonable manner, the costs for replacing the first injector includes labor for exposing and later reassembling the engine, the cost of one injector, and the labor to replace one exposed injector. The costs for each subsequent injector replaced during the same repair include just the part costs plus the labor costs to replace the exposed injector. Parts costs and labor costs were calculated using an estimate from a Ford dealer for replacing fuel injectors on a Power Stroke engine and verified by comparison with AWS data.

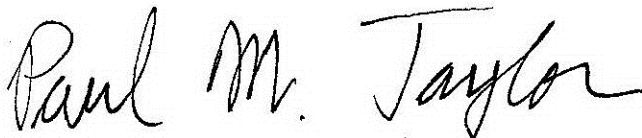
12. The estimated average warranty costs for Target Component replacements are shown in Table 3.

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<sup>6</sup> Some additional materials costs are appropriate for repairs and were included in our cost estimates, such as coolant or gaskets that are typically provided as part of a repair of/replacement to Target Components.

**Table 3. Average or characteristic warranty repair costs for Target Components**

Target Component	Average or Characteristic Cost of Repair/Replacement (including both parts and labor)
EGR Cooler	\$950
Oil Cooler	\$1,050
EGR Cooler and Oil Cooler Together	\$1,650
Turbocharger	\$1,490
EGR Valve	\$375
First Fuel Injector	\$750
Each Additional Fuel Injector	\$250



Paul Taylor

April 9, 2013  
Date