



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

OCT 7 2011

1200 New Jersey Avenue SE.
Washington, DC 20590

Mr. Chris Sandvig
Product Compliance Officer
Volkswagen of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

NVS-213hkb
EA11-003

Dear Mr. Sandvig:

This letter requests additional information to assist the Office of Defects Investigation (ODI) in our investigation of high-pressure fuel pump failures in certain model year (MY) 2009 through 2012 Volkswagen and Audi vehicles equipped with TDI Clean Diesel engines.

To date, ODI has received a total of 114 complaints related to high pressure fuel pump failure in the subject vehicles. A copy of each of the reports is enclosed for your information. Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** all MY 2009 through MY 2012 Volkswagen Jetta, Golf and Touareg and Audi A3 and Q7 vehicles equipped with TDI Clean Diesel engines and manufactured for sale or lease in the United States, including “states” as defined in 49 U.S.C. 30102(a)(10).
- **Subject component:** High-pressure fuel pump (“HPFP”) assemblies manufactured for use as original equipment or service parts in any or all of the subject vehicles.
- **Misfuelling:** Fuel from a non-diesel filling station pump nozzle (e.g., gasoline) dispensed into the vehicle fuel tank by the customer, service station employee or dealer personnel (e.g., pre-delivery or service related). For purposes of this information request letter “misfuelling” incidents will include only incidents acknowledged by the owner/operator of the vehicle, or, if pre-delivery, by any other person.
- **Fuel quality concern:** Fuel with documented or suspected quality issue that could affect the durability of fuel injection equipment, including the subject component (e.g., gasoline contamination, water contamination, aged biodiesel, etc.). Unless otherwise indicated, for purposes of this information request letter “fuel quality” concerns will include incidents related to poor quality fuel dispensed from filling station diesel pump and all incidents where misfuelling is suspected but not acknowledged by the owner/operator.

- **VW:** Volkswagen Group, Volkswagen of America, Inc., Audi of America, Inc. and all other subsidiaries, all of their past and present officers and employees, whether assigned to their principal offices or any of their field or other locations, including all of their divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of VW (including all business units and persons previously referred to), who are or, in or after January 1, 2005, were involved in any way with any of the following related to the alleged defect in the subject vehicles:
 - a. Design, engineering, analysis, modification or production (e.g. quality control);
 - b. Testing, assessment or evaluation;
 - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
 - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
- **Alleged defect:** Any one or more of the following symptoms or conditions, excluding acknowledged misfuel incidents unless specifically requested:
 1. HPFP failure;
 2. Metallic debris/contamination in the fuel system;
 3. Repairs involving fuel system replacement;
 4. General allegations of fuel pump failure (i.e., the specific fuel pump is not identified); or
 5. All other allegations of fuel system failures or malfunctions resulting in engine stall.
- **Document:** "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts,

administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by VW, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by VW or not. If a document is not in the English language (e.g., it is in German), provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as VW has previously provided a document to ODI, VW may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After VW's response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State, by model and model year, the number of subject vehicles VW has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by VW, state the following:
 - a. Vehicle identification number (VIN);
 - b. Make;
 - c. Model;
 - d. Model Year;

- e. Date of manufacture;
- f. Date warranty coverage commenced;
- g. The VW dealer code for the selling dealer; and
- h. State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

2. State the number of VW dealers in the United States by make (VW/Audi) and provide a table in Microsoft Access 2000, or a compatible format, entitled "DEALER DATA," with the following information for all such dealers: See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.
 - a. Dealer code;
 - b. Dealer name;
 - c. Dealer address;
 - d. VW zone; and
 - e. VW make (VW and/or Audi).
3. State, by model and model year the number of each of the following received by VW or of which VW is otherwise aware, which relate to, or may relate to, instances of the alleged defect in the subject vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
 - d. Property damage claims;
 - e. Third-party arbitration proceedings where VW is or was a party to the arbitration; and
 - f. Lawsuits, both pending and closed, in which VW is or was a defendant or codefendant.

For subparts "a" through "d" state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and VW's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

4. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 3, state the following information:
 - a. VW file number or other identifier used;
 - b. The category of the item, as identified in Request No. 3 (i.e., consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
 - d. Vehicle's VIN;
 - e. Vehicle's model and model year;
 - f. Vehicle's mileage at time the alleged defect was observed or occurred (incident);
 - g. Incident date;
 - h. Report or claim date;
 - i. Whether failure or malfunction of the subject component is alleged;
 - j. Whether fuel quality concerns are cited as an actual or potential issue;
 - k. Whether an engine stall is alleged;
 - l. Whether a crash is alleged;
 - m. Whether property damage is alleged;
 - n. Number of alleged injuries, if any; and
 - o. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "REQUEST NUMBER THREE DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

5. Produce copies of all documents related to each item within the scope of Request No. 3. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method VW used for organizing the documents.
6. State, by subject vehicle model year, model, and engine the number of each of the following, received by VW, or of which VW is otherwise aware, which relate to, or may relate to, acknowledged incidents of misfuelling in the subject vehicles:
 - a. Consumer reports, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports; and
 - d. Property damage claims.

For subparts "a" through "d" state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

7. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 6, state the following information:

- a. VW file number or other identifier used;
- b. The category of the item, as identified in Request No. 6 (i.e., consumer complaint, field report, etc.);
- c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
- d. Vehicle's VIN;
- e. Vehicle's model and model year;
- f. Vehicle's mileage at time of incident;
- g. Misfuelling incident date;
- h. Report or claim date;
- i. Whether failure or malfunction of the subject component is alleged;
- j. Whether an engine stall is alleged;
- k. Whether a crash is alleged;
- l. Whether property damage is alleged;
- m. Number of alleged injuries, if any; and
- n. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "MISFUELLING DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

8. Produce copies of all documents related to each item within the scope of Request No. 6. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method VW used for organizing the documents.
9. State, by model, engine and model year the number of the following categories of claims, collectively, that have been paid in whole or in part by VW to date which relate to repair or replacement of the subject component in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. VW claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number;
- h. Problem code;
- i. Replacement part number(s) and description(s);
- j. Concern stated by customer;
- k. Cause and correction of concern;
- l. Comment, if any, by dealer/technician relating to claim and/or repair;
- m. Whether there is a claim for towing expenses associated with the repair (i.e., filed within 5 days before or after the claim repair date); and

- n. VW's assessment of whether the incident involved an engine stall while driving using the following three categories: (1) stall while driving = "yes;" (2) stall while driving = no; and (3) stall while driving = "unknown."

Provide this information in Microsoft Access 2007, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

10. Describe in detail the search criteria used by VW to identify the claims identified in response to Request No. 9, including the labor operations, problem codes, part numbers and any other pertinent parameters used and describe how the assessment regarding whether the repair condition resulted in an engine stall incident was made (e.g., analysis of problem codes or customer concern/technician comment text fields). Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to repair or replacement of the subject component and a separate list that are applicable to assessing whether the repair condition resulted in an engine stall while driving incident. State, by make and model year, the terms of the new vehicle warranty coverage offered by VW on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that VW offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.
11. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that VW has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that VW is planning to issue within the next 120 days.
12. Provide the following information regarding analyses that have been conducted by or for VW on subject components that have been returned from the field ("warranty return analysis"):
 - a. State the number of subject components that have been returned from the field for analysis;
 - b. Describe VW's process for selecting and/or accepting subject components to submit for warranty return analysis, including how the criteria for selecting which parts to return has changed over time and plans for continuing the process;
 - c. Describe how the return part selection criteria was communicated to VW field offices and/or dealerships and provide copies of all related communications;
 - d. Describe, and provide copies of all documents related to, all communications between VW and the supplier(s) of the high-pressure fuel pumps regarding the analysis of returned high-pressure fuel pumps;
 - e. Describe the procedures used to analyze returned high-pressure fuel pumps, including all related flow charts and technologies used;
 - f. Provide a summary spreadsheet of all warranty return analyses with the following information:

- 1) Vehicle identification number;
 - 2) Field report number;
 - 3) Warranty claim number;
 - 4) 8D report reference number;
 - 5) Date of 8D report;
 - 6) VW part number;
 - 7) Part manufacturing date;
 - 8) Problem description, customer complaint;
 - 9) Problem description, Bosch description;
 - 10) Failure date;
 - 11) Mileage;
 - 12) Defect location (e.g., roller surface);
 - 13) Defect type (e.g., ground up);
 - 14) Root cause analysis; and
 - 15) VW assessment of whether results indicate that fuel caused or contributed to pump failure.
- g. Provide copies of all warranty return analysis 8D reports and photographs of drive train components (cam shaft, roller, roller shoe), organized by model and date of complaint;
 - h. Describe all analyses performed by, or for, VW on the return part analysis results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and
 - i. Provide VW's assessment of the significant observations and conclusions from the returned part analyses and how they relate to the alleged defect in the subject vehicles.
13. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to HPFP drive train durability and performance with low lubricity fuels that have been conducted, are being conducted, are planned, or are being planned by, or for, VW. For each such action, provide the following information:
- a. Action title or identifier;
 - b. The actual or planned start date;
 - c. The actual or expected end date;
 - d. Brief summary of the subject and objective of the action;
 - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
 - f. A brief summary of the findings and/or conclusions resulting from the action.

The response to this request should include a detailed description of all past, present and future actions by any and all engineering working groups (e.g., pump/engine damage task force) of which VW and/or Audi are active members or are otherwise aware. This includes, at a minimum, all of the information requested in items "a" through "f."

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

14. Describe all modifications or changes made by, or on behalf of, VW in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production of subject vehicles to date, which relate to, or may relate to HPFP drive train durability and performance with low lubricity fuels. For each such modification or change, provide the following information:
- The date or approximate date on which the modification or change was incorporated into vehicle production;
 - A detailed description of the modification or change;
 - The reason(s) for the modification or change;
 - The part number(s) (service and engineering) of the original component;
 - The part number(s) (service and engineering) of the modified component;
 - Whether the original unmodified component was withdrawn from production and/or sale, and if so, when; and
 - When the modified component was made available as a service component.

Also, provide the above information for any modification or change that VW is aware of which may be incorporated into vehicle production within the next 120 days.

15. For each month in which VW has sold the following components, state the number of the following components that VW has sold by component name, part number (both service and engineering/production), model and model year of the vehicle(s) in which it may be used and month/year of sale of the component (including the cut-off date for sales, if applicable):
- Subject component;
 - HPFP pipe to fuel rail;
 - Fuel rail;
 - Transfer pump;
 - Auxiliary pump; and
 - Fuel tank.

For each component part number, state the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles (that is, other than subject vehicles) of which VW is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

16. Provide the most recent version of the Fuel Sample Spreadsheet provided in response to the information request for PE10-034 and later in response to a request for updated data in April 2011.
17. In an April 18, 2011 update to information furnished in response to NHTSA's information request for PE10-034, VW provided a file titled "PE FUEL SAMPLE SPREADSHEET UPDATE.xlsx" with 93 rows of information for 90 vehicles, including 56 vehicles with fuel sample test results given. ODI's review of this file, and other records submitted by VW, found 25 entries relating to 24 vehicles that have no corresponding record in any of the other requested data sets (e.g., complaints, field reports, warranty claims) submitted by VW in the April update or in response to the information request letter for PE10-034, although a field

report is apparently required for vehicles in which fuel samples were collected and a total of 24 field report numbers were provided for the vehicles.

VTA (field report)	VIN
650802	3VWRL7AJ0AM063352
640834	3VWTL7AJ2AM688311
650021	3VWRL71K19M121134
651190	3VWPL7AJ5AM674940
645614	3VWTL7AJXAM677976
644788	3VWAL7AJ0AM127466
647844	3VWRL7AJ2AM141520
646232	3VWTL71KX9M293619
635431	3VWRL71K89M007423
649455	3VWRL7AJ0AM118494
653757	WVWNM7AJ7BW044183
640197	3VWRL7AJ3AM127402
641709	3VWRL7AJ3AM127402
646233	3VWRL71K29M007482
649098	3VWAL71KX9M061707
645514	3VWCL71K09M001931
645519	3VWAL71K99M028987
None given	3VWPL7AJ4AM637586
646454	3VWPL7AJXAM631193
649426	3VWRL71K69M143484
652317	3VWRL71K79M124104
646857	3VWRL71K89M160495
645425	3VWRL7AJ9AM159223
639709	3VWTL7AJ6AM631495
641193	WVGFK7A91AD000461

Provide the following information regarding these vehicles and field reports:

- Explain why these field reports were not included in the response to the information request letter for PE10-034 or in the April 18, 2011 update;
- Provide copies of each of the listed field reports; and
- Provide a spreadsheet summary of all other field report records similarly not included in VW's PE response and update, with a brief explanation for the reason excluded (if the reason is that the report is considered outside the scope of the request(s), so state and state how VW would categorize the record).

18. Describe in detail what types of contamination (e.g., gasoline contamination, water contamination, aged biodiesel) and at what level (e.g., concentration) VW considers to be related to the alleged defect.
19. Provide VW's assessment of how engine performance varies with respect to the various types of contamination identified in your response to information request No. 19, including, but not limited to, the amounts of gasoline contamination required to produce the following effects on engine performance: (1) symptoms of impaired driveability during city driving (describe symptoms); (2) symptoms of impaired driveability during highway driving (describe symptoms); (3) engine stall; and (4) pump damage; and (5) sudden/catastrophic pump failure. In addition, provide VW's assessment of the effects of less severe gasoline contamination on engine performance and HPFP performance/durability (provide assessments for contaminations of less than 3 percent and less than 1 percent).
20. Provide the following information regarding diesel fuels sold in the United States, and test fuels used by or for VW in the design and development of the fuel system and subject component:
 - a. Identify and provide copies of all studies and surveys conducted by or for VW and other documents in the possession of and reviewed by VW, during the design and development of the subject components, regarding diesel fuel quality or characteristics in the U.S., and/or diesel fuel delivery system performance concerns related to fuel quality in the United States market;
 - b. Describe the fuel properties VW considers in its evaluations of HPFP performance/durability and state the ranges in those properties that VW believes exist in the United States market, from fuel survey data or other sources (provide the means and standard deviations for all sampled data for the United States market). In addition, describe how these properties are related to the different types of contamination identified in your response to information request No. 19;
 - c. State the specifications for all reference fuels used by VW in testing the subject component, including an explanation of the basis for the lubricity specification;
 - d. Describe how VW has ensured that the HPFP design in subject vehicles is compatible with diesel fuels sold in the United States and other markets, including, but not limited to a discussion of VW's design margin with respect to the fuel properties VW considers in its evaluations of HPFP performance/durability; and
 - e. Produce copies of all recommendations and warnings regarding diesel fuel quality that VW has provided to its customers.
21. Provide the following information regarding incidents/repairs in which misfuelling is not acknowledged by the owner but is suspected by VW in the subject vehicles ("suspected misfuelling"). (Note that the IR definitions for "misfuelling" and "fuel quality concern" do not apply to this request.) In addition, if VW's procedures, practices, or policies with respect to the matters addressed below have changed over time, please explain how they have changed, including when the changes occurred and the reason for the change:
 - a. Does VW distinguish problems from suspected misfuelling from problems involving poor fuel quality for the purposes of determining whether or not repairs to the subject component and/or vehicle are covered by warranty?

- b. Describe how VW distinguishes incidents involving suspected misfuelling from incidents involving poor fuel quality in resolving questions about warrantable repairs (e.g., describe test methods, qualitative analyses, performance symptoms or diagnostic codes that would indicate or suggest misfuelling);
 - c. State how VW resolves disputes concerning warranty coverage related to suspected fuel quality concerns; and
 - d. Describe and provide copies of all guidance provided to dealers and/or zone offices related to diagnosing, documenting and repairing fuel system failures in which fuel quality is a suspected cause or contributor.
22. Describe the following:
- a. The repair procedures for a subject vehicle that has been fueled with gasoline, for situations where (1) the engine was not started after a misfuel; and (2) the engine was started after a misfuel;
 - b. The repair procedures for a subject vehicle that has experienced catastrophic HPFP drive train failure (i.e., metallic particles/debris in the fuel system); and
 - c. All misfuel countermeasures that VW has implemented in the subject vehicles or is considering for future production light duty diesel vehicles in the United States market.
23. Describe all efforts conducted by VW from August 26, 2010 to date, to study the properties and/or quality of diesel fuel sold in the United States, including the following information for all testing conducted by, or for, VW related to testing fuel samples collected from diesel filling stations. If VW's procedures, practices, or policies with respect to the matters addressed below have changed over time (e.g., if VW switched from one test methodology to another), please explain how they have changed, including when the changes occurred and the reason for the change:
- a. Describe the test plan, including the number of samples, the geographic region(s), the criteria for selecting stations time(s) of year samples were collected, and what organization or entity was responsible for the test plan and for obtaining samples. Provide copies of all documents related to the test planning, objectives or procedures;
 - b. Describe how the test plan was communicated to VW field offices and/or dealerships and provide copies of all related communications, including criteria for selecting stations, when to collect samples and procedures for collecting samples;
 - c. Describe the test methodology, and what entity or organization did the testing;
 - d. Provide a spreadsheet in Microsoft Excel format summarizing the sample origins and test results, including the following information for each sample tested:
 - 1) Test identification number;
 - 2) Name of the filling station;
 - 3) Address of the filling station;
 - 4) Date sampled;
 - 5) Date of testing of sample; and
 - 6) Test results.
 - e. Provide copies of all test report sheets;
 - f. Describe all analyses performed by, or for, VW on the test results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and

- g. Provide VW's assessment of the significant observations and conclusions from the station test results and how they relate to the alleged defect in the subject vehicles and to diesel power vehicles in general.
24. Describe all efforts by VW from August 26, 2010 to date, to study the properties and/or qualities of diesel fuel sampled from randomly selected subject vehicles and provide the following information for all testing conducted by, or for, VW related to testing fuel samples collected from such vehicles. If VW's procedures, practices, or policies with respect to the issues identified below have changed over time (e.g., if VW switched from one test methodology to another), please explain how they have changed, including when the changes occurred and the reason for the change:
- a. Describe the test plan, including the desired number of samples, the geographic region(s), the criteria for selecting vehicles, the time(s) of year samples were collected, and what organization or entity was responsible for the test plan and for obtaining samples. Provide copies of all documents related to the test planning, objectives or procedures;
 - b. Describe how the test plan was communicated to VW field offices and/or dealerships and provide copies of all related communications, including criteria for selecting vehicles, when to collect samples and procedures for collecting samples;
 - c. Describe the test methodology, and what entity or organization did the testing;
 - d. Provide a spreadsheet in Microsoft Excel format summarizing the sample origins and test results, including the following information for each sample tested:
 - 1) Test identification number;
 - 2) Vehicle identification number;
 - 3) Vehicle mileage;
 - 4) Date sampled;
 - 5) Date of testing of sample; and
 - 6) Test results.
 - e. Provide copies of all test report sheets;
 - f. Describe all analyses performed by, or for, VW on the test results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and
 - g. Provide VW's assessment of the significant observations and conclusions from the non-incident vehicle test results and how they relate to the alleged defect in the subject vehicles and to diesel power vehicles in general.
25. Describe all efforts by VW from August 26, 2010 to date, to study the properties and/or quality of diesel fuel sampled from subject vehicles with symptoms that may be related to the alleged defect and provide the following information for all testing conducted by, or for, VW related to testing fuel samples collected from such vehicles. If VW's procedures, practices, or policies with respect to the issues identified below have changed over time (e.g., if VW switched from one test methodology to another), please explain how they have changed, including when the changes occurred and the reason for the change:
- a. Describe the test plan, including the number of samples, the geographic region(s), the criteria for selecting vehicles, the time(s) of year samples were collected, and what organization or entity was responsible for the test plan and for obtaining samples. Provide copies of all documents related to the test planning, objectives or procedures;

- b. Describe how the test plan was communicated to VW field offices and/or dealerships and provide copies of all related communications, including criteria for selecting vehicles, and procedures for collecting samples;
 - c. Describe the test methodology, and what entity or organization did the testing;
 - d. Provide a spreadsheet in Microsoft Excel format summarizing the sample origins and test results, including the following information for each sample tested:
 - 16) Test identification number;
 - 17) Vehicle identification number;
 - 18) Vehicle repair date;
 - 19) Vehicle repair mileage;
 - 20) Date sampled;
 - 21) Date of testing of sample;
 - 22) Test results; and
 - 23) VW assessment of whether results indicate that fuel caused or contributed to pump failure.
 - e. Provide copies of all test report sheets;
 - f. Describe all analyses performed by, or for, VW on the test results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and
 - g. Provide VW's assessment of the significant observations and conclusions from the incident vehicle test results and how they relate to the alleged defect in the subject vehicles and to diesel power vehicles in general.
26. Provide the following information regarding VW's fuel testing:
- a. Provide VW's assessment of the relationship between flash point and gasoline contamination – provide this in the form of a formula, a curve or set of curves (i.e., a range with curves showing low and high values);
 - b. Provide VW's assessment of other factors that can affect the flash point of diesel fuel samples (e.g., the flash point of the base diesel fuel with no contamination, the amount of #1 diesel fuel that has been added as is allowed for Winter blends, other contaminants);
 - c. Provide VW's assessment of the range of potential gasoline contamination for fuel samples with flash point values reported as "ambient temperature," and also state the specific value used for ambient temperature in the testing;
 - d. Provide VW's assessment of the correlation between the previously reported values of gasoline contamination in the fuel sample spreadsheets provided in response to PE10-034 and in the April 18, 2011 update (iPal test results) and the current test methods; and
 - e. Provide VW's assessment of the accuracy and precision of various methods used by dealers for assessing potential gasoline contamination to determine warranty coverage applicability (e.g., Styrofoam cup tests, igniting fuel on pavement, appearance, etc.).
27. Provide the following information for the common rail fuel systems used in the subject vehicles:
- a. Basic functional diagrams of each version of common rail system used in the subject vehicles, showing system components and flow paths;
 - b. Ranges of operating pressures for the suction and discharge of the HPFP (i.e., low and high pressure systems);

- c. Range in operating temperatures for fuel used in the HPFP lubrication system and a description of how HPFP inlet temperature is controlled;
 - d. Filter mesh size(s) and filter replacement criteria;
 - e. Describe all scheduled maintenance requirements;
 - f. A description of all warning lamps and driver information messages associated with the system;
 - g. A description of all Diagnostic Trouble Codes by name and number and the conditions required to set each code; and
 - h. A description of all fail-safe operating modes, including the conditions required to implement each mode and the limits on vehicle operation.
28. Separately for each model year, make, and model of subject vehicle, provide the following information for the subject component used in that vehicle:
- a. Specific supplier model name and model number;
 - b. Cross-sectional diagram of the pump showing basic operation of the drive train;
 - c. Ratio of pump speed to engine speed;
 - d. Pump maximum output/discharge pressure;
 - e. Pump minimum inlet/suction pressure;
 - f. Pump durability specifications;
 - g. The material composition and material specifications for all drive train components (e.g., plunger, plunger base, shoe, foot, rider, roller, roller shoe, cam); and
 - h. Copies of all failure mode and effects analyses.
29. Describe, and provide copies of all documents amounting or relating to, all communications between VW and Bosch regarding subject component durability, including sensitivity to gasoline contamination and/or other fuel quality issues. Provide a chronology summarizing all such communications and organize the documents accordingly.
30. Describe, and provide copies of all documents amounting or relating to, all VW internal communications regarding diesel common rail high-pressure fuel pump durability, including sensitivity to gasoline contamination and/or other fuel quality issues. Provide a chronology summarizing all such communications and organize the documents accordingly.
31. A Delphi press release dated May 11, 2010 (copy enclosed) describes a new diesel common rail fuel system jointly developed by VW and Delphi for use in "the new 3-cylinder VW Polo BlueMotion." The press release includes the following statement regarding the Delphi DFP6 high-pressure fuel pump used in the Polo fuel system:
- "The roller cam shoe mechanism has been optimized for reduced torque, dynamic mass, and noise via the Delphi patented static shoe guide. The component is pressed straight into the housing so that the shoe guide, different from previous solutions, does not oscillate during pump operation keeping the dynamic mass low, permitting a small plunger return spring size and optimum packaging geometry. The design safely prevents the shoe on the DFP6 pump from lateral rotation *which eliminates the risk of fatal pump damage* [emphasis added] and allows for a mass of just 2.4kg."

Volkswagen has provided information to ODI regarding the tappet stability of the subject component indicating that the “roller is guided by the linear contact to the camshaft lobe and is therefore self-stabilizing” and, further, that:

“An additional guide plate would lead to a statically overdetermined system, in other words the roller could seize between the two stabilizing mechanisms which would interrupt the tribological system and as a consequence, *destroy the pump’s drive.*”

Provide the following information regarding the designs of the subject component and of the Delphi DFP6 pumps:

- a. Describe VW’s role in the development of the DFP6 pump, including the static shoe guide;
 - b. Explain how VW reconciles the apparently contradictory claims by Bosch and Delphi regarding the effects of a guide on the durability of a tappet design pump with roller-cam drive train;
 - c. Provide VW’s assessment of whether the design principles given for the DFP6 pump static shoe guide apply to other tappet design pumps with roller-cam drive trains, including the subject components, and, if not, explain;
 - d. Provide copies of the design FMEA for the DFP6 pump and the CP4 pumps;
 - e. Describe all testing performed by, or for, VW on the DFP6 and CP4 pumps with gasoline contaminated diesel fuel;
 - f. Describe all other testing that has been performed by, or for, VW on diesel common rail high-pressure fuel pumps with test fuels contaminated with gasoline, including descriptions of the pumps (supplier, model and vehicle applications), the test conditions, the test fuels, and the test results; and
 - g. Identify the markets in which the VW Polo is sold.
32. Provide VW’s assessment of the subject component failure experience in the peer vehicles, including:
- a. The causal or contributory factors, including but not limited to misfuel and fuel quality concerns;
 - b. The approximate percentages of subject component failures associated with each of the causal/contributory factors identified in item “a.”
 - c. The failure mechanism for each causal condition identified;
 - d. The failure mode for each causal condition identified, including the effect on engine performance (e.g., driveability concern, engine stall);
 - e. Provide VW’s assessment of the symptoms and warning available to the driver prior to an engine stall resulting from a sudden HPFP drive train failure and describe all data used by VW in making this assessment (e.g., testing, complaint analysis);
 - f. Provide VW’s assessment of the exposure adjusted failure rates, expressed as incidents per thousand vehicle years, associated with each causal condition by model and model year – include a short description of the data and methods used for this analysis and provide VW’s assessment of the effects of each design and manufacturing change on these failure rates;

- g. Provide VW's assessment of the geographic influence on exposure adjusted failure rates (i.e., analysis by state);
- h. Provide VW's assessment of the seasonal influence on exposure adjusted failure rates (i.e., analysis by calendar month); and
- i. Provide comparisons, by model and model year, of the HPFP warranty claim rates and part sales rates in the subject vehicles and HPFP failure rates for same/similar vehicles in other worldwide markets (e.g., Germany, France, United Kingdom, Russia, China, India, Japan, Brazil, and Canada). Please note any differences between vehicle designs and market fuel distribution/quality that VW believes may affect this analysis.

This letter is being sent to VW pursuant to 49 U.S.C. § 30166(a),(e), which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information. VW's failure to respond promptly and fully to this letter could subject VW to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) Section 5(a) of the TREAD Act, codified at 49 U.S.C. § 30165(b), provides for civil penalties of up to \$6,000 per day, with a maximum of \$17,350,000 for a related series of violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. See 49 CFR 578.6 (as amended by 75 Fed. Reg. 79978 (Dec. 21, 2010)). This includes failing to respond to ODI information requests.

If VW cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, VW does not submit one or more requested documents or items of information in response to this information request, VW must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

VW's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by December 16, 2011. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to EA11-003 in VW's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. If VW finds that it is unable to provide all of the information requested within the time allotted, VW must request an extension from Jeff Quandt of my staff at (202) 366-5207 no later than five business days before the response due date. If VW is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information VW then has available, even if an extension has been granted.

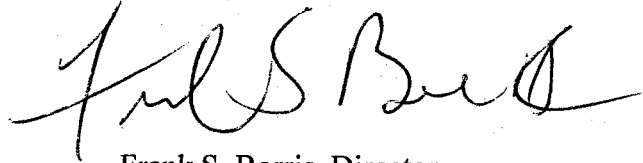
If VW claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, VW must submit supporting

information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended, to the Office of Chief Counsel (NCC-111), National Highway Traffic Safety Administration, Room W41-326, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. VW is required to **submit two copies of the documents containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted.** Please remember that the word "CONFIDENTIAL BUSINESS INFORMATION" must appear at the top of each page containing information claimed to be confidential, and the information must be clearly identified in accordance with 5 U.S.C. § 512.6. If you submit a request for confidentiality for all or part of your response to this IR, that is in an electronic format (e.g., CD-ROM), your request and associated submission must conform to the new requirements in NHTSA's Confidential Business Information Rule regarding submissions in electronic formats (49 CFR 512.6(c)). See Federal Register, volume 72, page 59434 (October 19, 2007).

Please send email notification to Jeff Quandt (jeff.quandt@dot.gov) and to ODI_IRresponse@dot.gov when VW sends its response to this office and indicate whether there is confidential information as part of VW response.

If you have any technical questions concerning this matter, please call Jeff Quandt at (202) 366-5207.

Sincerely,



Frank S. Borris, Director
Office of Defects Investigation
Enforcement

Enclosure 1, one CD ROM titled "EA11003 Data Disk" containing six files:

(1) VWEA11003IRLTR 114 VOQs Counting.pdf; (2) EA11-003-Production Data.mdb; (3) EA11-003-Request Number Two Data.mdb and (4) EA11-003-Warranty Data.mdb; (5) EA11-003-Dealer Data, (6) EA11-003-Misfueling Data

10424340,10423829,10422735,10420825,10420805,10420779,10420245,10418884,10418288,10418189,10418074,10418029,10418020,10417930,10417207,10417118,10417068,10416485,10416301,10415850,10415442,10415372,10414282,10412275,10411651,10410717,10408900,10408881,10408862,10408838,10407659,10407044,10406793,10405634,10405460,10402931,10402168,10402131,10401911,10401084,10400930,10399150,10397916,10397516,10397352,10395792,10394943,10393204,10392884,10390183,10390013,10384588,10384417,10384051,10383936,10383830,10383819,10383749,10383516,10383398,10383321,10383283,10383163,10383016,10382949,10382939,10381048,10380120,10379500,10379448,10379146,10378743,

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Media Room

Press Releases

Delphi's Multec® Diesel common Rail System Helps New Volkswagen Polo BlueMotion Achieve Record Low CO₂ Emissions and Fuel consumption

Latest evolution of Delphi's solenoid injector and next generation Delphi pump help vehicle reach 87g/km of CO₂ emissions, fuel consumption of 3,3l/100km (71mpg) without performance compromise

Cleanest car in its class; voted 2010 World Car of the Year by international automotive journalists

Release Date: May 11, 2010

PARIS — Delphi Corp. and Volkswagen have developed one of the "greenest" diesel systems ever produced with the new 3-cylinder VW Polo BlueMotion. This allows the automaker, a recognized leader in diesel-powered passenger cars, to offer consumers a vehicle with exceptionally low CO₂ emissions and fuel consumption, while still delivering exceptionally refined powertrain performance.

After more than a year of co-development with Volkswagen, Delphi, a global leader in diesel engine management systems, is supplying its Multec® Diesel Common Rail System for the new 1.2-liter, 3-cylinder Volkswagen Polo BlueMotion.

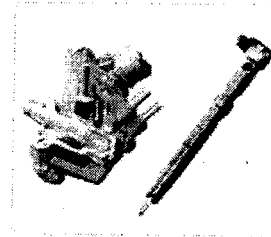
"Our customers are downsizing their engines to meet stringent CO₂ requirements. The new Volkswagen 3-cylinder Common Rail diesel engine allows Delphi to demonstrate the great potential of our solenoid-based fuel injection system technology," said Michael Gassen, general director, Delphi Powertrain Systems and Delphi Europe, Sales & Marketing. "This is Delphi's first diesel Common Rail program with Volkswagen and it is on a vehicle that is now the most economical five-seater with the lowest emissions and the 2010 World Car of the Year. This is an excellent match for our technology."

Delphi's Multec® Common Rail System supports downsizing concepts while maintaining competitive cost and performance criteria

Delphi's Multec® Diesel Common Rail System, with a balanced valve fast servo-solenoid injector, was launched in 2000 and has evolved and improved to meet changing emissions standards and drive new powertrain strategies, while maintaining cost and performance competitiveness.

The common rail system on VW Polo BlueMotion includes the latest evolution of solenoid type diesel common rail injector technology with Delphi's next generation DFP6 fuel pump. This combination allows for just 87 g/km of CO₂ emissions.

"Delphi's new common rail system provides significantly improved fuel delivery control, extended multiple injection capability, enhanced spray atomization and air mixing," said John Fuerst, general manager, Delphi Diesel Systems. "The system in this vehicle can deliver up to six injection

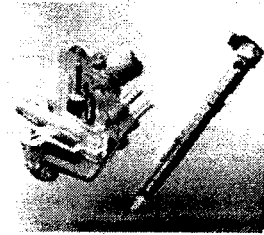


DFP6 single plunger common rail fuel pump with injector.

[Download](#) high resolution version of image.

events per combustion cycle, which translates into a very smooth combustion process and therefore lowers the NVH levels."

As well as optimized combustion, the injection efficiency of the system is improved through reduced parasitic losses, reduced component mass, improved energy consumption and hydraulic performance. Because of this, Delphi's common rail system will suit future generations of downsized engines in a range of vehicle classes.



Delphi's next generation high pressure pump unveiled at the Vienna Symposium

Delphi unveiled the new DFP6 single plunger common rail fuel pump during the 31st International Motor Symposium, 29-30 April, in Vienna. The pump is designed to simplify packaging and reduce weight while providing 2,000 bar maximum rail pressure. Its design combines a relatively small specific capacity of up to 0.42 cc/rev with the capability to run at engine speed to provide flexibility for efficient utilization on a range of engine sizes up to 2.2 liters. This is achieved by an approach that includes a new compact hydraulic head design which helps to improve the volumetric and mechanical efficiency enabling a potential reduction of engine CO₂. The new concept is much stiffer than the previous generation head, with Delphi's integrated inlet valve assembled directly into the head and a forged high-pressure outlet, which incorporates the outlet valve and helps to achieve reduced stress and offers further room for extension to rail pressures higher than 2,000 bar.

DFP6 single plunger common rail fuel pump with injector. (Shaded background)

[Download](#) high resolution version of image.

"Through Delphi's design, the dead volume within the head is much less than other pump heads in the industry resulting in best in class volumetric efficiency well above 90 percent at very high pump speeds," said Fuerst. "In addition, unlike other pumps on the market, there is no high pressure leak path to the environment so there is no potential risk of high pressure leaks."

An additional advantage of Delphi's design involves the specific roller and shoe mechanism. The twin lobe cam offers two pumping events per revolution reducing the number of pump strokes needed. On later 4-cylinder engine applications, one further advantage will be the opportunity of running the pump at engine speed in combination with a twin cam lobe to generate pumping synchronized with injection. It is an effective means to achieve the lowest possible emissions at the highest performance level.

The roller cam shoe mechanism has been optimized for reduced torque, dynamic mass, and noise via the Delphi patented static shoe guide. The component is pressed straight into the housing so that the shoe guide, different from previous solutions, does not oscillate during pump operation keeping the dynamic mass low, permitting a small plunger return spring size and optimum packaging geometry. The design safely prevents the shoe on the DFP6 pump from lateral rotation which eliminates the risk of fatal pump damage and allows for a mass of just 2.4kg.

In addition to Delphi's Multec® Diesel Common Rail system, the new 1.2-litre three cylinder Volkswagen Polo BlueMotion is fitted with the following Delphi products: anti-theft and immobilizer systems, radiator and compressor.

About Delphi

Delphi is a leading global supplier of electronics and technologies for automotive, commercial vehicle and other market segments. Operating major technical centers, manufacturing sites and customer support facilities in 30 countries, Delphi delivers real-world innovations that make products smarter and safer as well as more powerful and efficient. Connect to innovation at www.delphi.com.

For more information contact:

Delphi
Lynn Kier
U.S.
lynn.kier@delphi.com
[1] 248.732.0615

Delphi
Malika Venezia
Europe
malika.venezia@delphi.com
+33 1 49 90 4888