EA11-003
MERCEDES
12-9-2011
Attachment 5
Service Documents







DTB September 4, 2007

Order No.: T-B-07.16/77

Supersedes:

Group: 07

SUBJECT: Model 164.122/822

Model 251.122

Leaking High Pressure Fuel Pump / Possible Fuel Loss/Odor

In the event of a leak in the high-pressure fuel pump, and possible fuel loss/odor, the following potential causes and remedies are available.

Note: The coolant hoses and poly-v belt must always be checked for fuel contamination. If contaminated with fuel, they must be replaced.

<u>Cause 1</u>: The hose/low pressure connection fitting assembly may leak especially at low outside temperatures.

Note: If old version of Clic clamps (yellow tabbed) are used, the preload force is too low. Replace the Clic clamps (stainless steel).

<u>Remedy 1</u>: If high-pressure pump is found to be leaking at the low-pressure connections, then only the Clic clamps and the fuel feed and return hoses must be replaced.

Retightening the low-pressure connections is **NOT** permissible and will cause leakage. It is not permissible to use screw clamps due to lack of tension reserves.

If after the above repair a leak still persists, the low pressure hose fitting cannot be replaced; in this case, the high pressure pump should be replaced.

If the high-pressure pump is leaking at the quantity control valve, then the o-rings should be checked and replaced individually if damaged. Should the quantity control valve be defective in itself, then this can be replaced separately. In this case, **DO NOT** replace the high pressure pump.

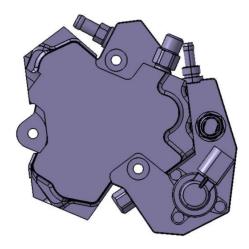
This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

Cause 2: Leakage from high-pressure pump itself.

Remedy 2: The pump should be replaced with the leak marked.

In order to localize the leak on the high-pressure pump, always clean the high-pressure pump and spray it with MB leak detector spray.

Upon replacing the high-pressure pump, the leak should be marked on the pump and on the associated drawing and evaluated. The drawing with the identification of the leak and the evaluation of the leak should be sent back with the old part.



Engine OM642

1 = Serious Leak

2 = Dripping Leak

3 = Sweating Leak

Parts Information

| Qty. | Part Name | Part Number |
|-----------|------------------------|----------------|
| 1 | High-Pressure Pump | A642 070 03 01 |
| As needed | Clic clamp | A004 997 20 90 |
| As needed | Clic clamp | A006 997 18 90 |
| 1 | O-ring | A000 078 01 80 |
| 1 | O-ring | A000 078 00 80 |
| 1 | Fuel Feed Hose | A642 070 02 81 |
| 1 | Fuel Feed Hose | A642 078 20 81 |
| 1 | Quantity Control Valve | A646 074 02 84 |

Note: The following allowable labor operations should be used when submitting a warranty claim for this repair. This information has been generated on September 4, 2007. Please refer to Netstar → Star TekInfo → Star Time for the most current labor time allowance.

In Case of Warranty

Operation: High pressure fuel pump, clean (07-0000)

Fuel supply and return lines – all, replace (47-2660)

Volume control valve, replace (07-1731) High pressure fuel pump, replace (07-5732) Poly V-belt – single belt drive, replace (13-1202)

Engine coolant hose – one (specify), replace (20-7450)

| Damage Code | Operation Number | Time (hrs.) | Model Indicator (s) |
|--|---------------------------|-------------|---------------------|
| Remedy 1: 07206 85 ¹ or 07274 0 | 07 0000 4 ² | 0.2 hrs. | BD, EB, Z4 |
| | 47 2660 | 0.0 hrs. | BD, EB, Z4 |
| and / or | | | |
| 07307 04 ³ | 07 1731 | 1.0 hrs. | BD, EB, Z4 |
| and / or Remedy 2 07324 04 ⁴ | 07 5732 | 0.9 hrs. | EB, Z4 |
| | | 1.9 hrs. | BD |
| If necessary | 13 1202 | 0.7 hrs | BD, EB, Z4 |
| | 20 7450 | 0.0 hrs. | BD, EB, Z4 |

¹Fuel hose, feed line ²Fuel hose, return line

³ Quantity control valve

⁴ High-pressure pump







DTB Date: September 4, 2007

Order No.: P-B-07.16/76

Supersedes: P-B-07.02/42a dated April 19, 2006

Group: 07

SUBJECT: Model 211.022/026

Leaking High Pressure Fuel Pump / Possible Fuel Loss/Odor

In the event of a leak in the high-pressure fuel pump, and possible fuel loss/odor, the following potential causes and remedies are available.

Note: The coolant hoses and poly-v belt must always be checked for fuel contamination. If contaminated with fuel, they must be replaced.

<u>Cause 1</u>: The hose/low pressure connection fitting assembly may leak especially at low outside temperatures.

Note: If old version of Clic clamps (yellow tabbed) are used, the preload force is too low. Replace the Clic clamps (stainless steel).

<u>Remedy 1</u>: If high-pressure pump is found to be leaking at the low-pressure connections, then only the Clic clamps and the fuel feed and return hoses must be replaced.

Retightening the low-pressure connections is **NOT** permissible and will cause leakage. It is not permissible to use screw clamps due to lack of tension reserves.

If after the above repair a leak still persists on Model 211.026, the low pressure hose fittings and o-rings should be replaced. On Model 211.022, the low pressure hose fitting cannot be replaced; in this case, the high pressure pump should be replaced.

If the high-pressure pump is leaking at the quantity control valve, then the o-rings should be checked and replaced individually if damaged. Should the quantity control valve be defective in itself, then this can be replaced separately. In this case, **DO NOT** replace the high pressure pump.

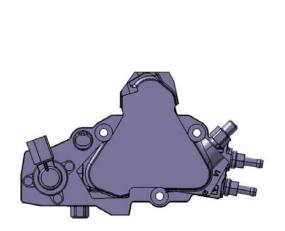
This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

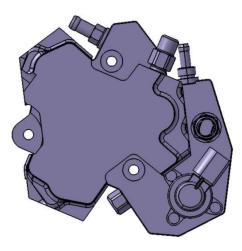
Cause 2: Leakage from high-pressure pump itself.

Remedy 2: The pump should be replaced with the leak marked.

In order to localize the leak on the high-pressure pump, always clean the high-pressure pump and spray it with MB leak detector spray.

Upon replacing the high-pressure pump, the leak should be marked on the pump and on the associated drawing and evaluated. The drawing with the identification of the leak and the evaluation of the leak should be sent back with the old part.





Engine OM648

Engine OM642

- 1 = Serious Leak
- 2 = Dripping Leak
- 3 = Sweating Leak

Parts Information

| Qty. | Part Name | Part Number |
|-----------|---|----------------|
| 1 | High-Pressure Pump (OM642) | A642 070 05 01 |
| As needed | Clic clamp (OM642) | A004 997 20 90 |
| As needed | Clic clamp (OM642 / OM648) | A006 997 18 90 |
| 1 | O-ring (OM642 / OM648) | A000 078 01 80 |
| 1 | O-ring (OM642 / OM648) | A000 078 00 80 |
| 1 | High-Pressure Pump (OM648) | A646 070 04 01 |
| 1 | Fuel Feed Hose (OM648) | A648 070 10 81 |
| 1 | Fuel Feed Hose (OM648) | A648 070 12 81 |
| 1 | Fuel Feed Hose (OM642) | A642 070 02 81 |
| 1 | Fuel Feed Hose (OM642) | A642 078 20 81 |
| As needed | Hexagon of Low Pressure Fitting (OM648) | A000 078 02 31 |
| 1 | Quantity Control Valve | A646 074 02 84 |

Note: The following allowable labor operations should be used when submitting a warranty claim for this repair. This information has been generated on September 4, 2007. Please refer to Netstar → Star TekInfo → Star Time for the most current labor time allowance.

In Case of Warranty

Operation: High pressure fuel pump, clean (07-0000)

Fuel supply and return lines – all, replace (47-2660)

Volume control valve, replace (07-1731) High pressure fuel pump, replace (07-5732) Poly V-belt – single belt drive, replace (13-1202) Engine coolant hose – one (specify), replace (20-7450)

| Damage Code | Operation Number | Time (hrs.) | Model Indicator (s) |
|---|-------------------------|-------------|---------------------|
| Remedy 1: 07206 85 ¹ or 07274 04 ² | 07 0000 | 0.2 hrs. | T6, TC |
| | 47 2660 | 0.0 hrs. | T6, TC |
| and / or | | | |
| 07307 04 ³ | 07-1731 | 1.0 hrs. | T6, TC |
| and / or Remedy 2 07324 04 ⁴ | 07-5732 | 0.9 hrs. | TC |
| | | 1.9 hrs. | T6 |
| If necessary | 13-1202 | 0.7 hrs | TC |
| | | 1.4 hrs. | Т6 |
| · | 20-7450 | 0.0 hrs. | T6, TC |

¹Fuel hose, feed line

² Fuel hose, return line

³ Quantity control valve

⁴ High-pressure pump





DTB Date: February 4, 2009

Order No.: S-B-47.20/48b

Supersedes: S-B-47.20/48a dated January 6, 2009

Group: 47

Revision History

Revision Date Purposeb 2/4/09 Remedy Revised

a 1/6/09 Applicable Models and Report Information Updated

8/20/07 Initial issue

SUBJECT: All Models Equipped with Diesel Engines

Check Engine Lamp Illuminated and Engine Will Not Start or Stalls After Starting at

Low Ambient Temperatures (-15°C / 5°F)

If you receive customer reports in the above model diesel vehicles that the **C**heck **E**ngine **L**amp is illuminated and the engine will not start or engine stalls after starting at low ambient temperatures (-15°C / 5°F), this may be due to diesel fuel jelling.

Note: The Diagnostic Trouble Code "Rail Pressure too low" is stored in the engine control unit (refer to next page).

Diesel fuel jelling is a condition which occurs at low outside temperatures due to paraffin separation causing impaired diesel fuel flow. The diesel fuel supply for the injection system may be impaired due to clogged fuel filters. An indication of this condition is that the vehicle will start when the vehicle / fuel system has warmed up. There is no need to replace any fuel system or injection components.

To prevent this condition from occurring due to poor winter diesel fuel quality, it may be necessary to add a diesel fuel additive to the fuel. After adding the fuel additive to the diesel fuel allow the vehicle to idle for a short time in order for the additive to mix thoroughly with the diesel fuel.

Note: When adding the fuel additive to the diesel fuel follow the directions on the bottle for the correct dosage amount. If too much fuel additive is added, the effect may be to increase paraffin separation when using winter diesel fuel.

This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

Warning! The use of gasoline to improve the resistance of diesel fuel jelling in the cold is **NOT** allowed. Check your vehicle manual for details.

To Remedy a vehicle with this issue:

- 1. Warm the vehicle / fuel system to a minimum temperature of 3°C / 38°F
- 2. Replace the fuel filter. Refer to EPCNet for applicable part number.
- 3. Add diesel fuel additive to the fuel ensuring both the additive and fuel is at a temperature of at least 3°C / 38°F (Follow recommended dosage on the label)
- 4. Allow the vehicle to idle for a short time in order for the additive to mix thoroughly with the diesel fuel.

i Note: For more information regarding diesel fuel and additives check WIS Documents:

BB00.40-P-0137-00A – Winter operation with diesel fuels BB00.40-P-0137-01A – Flow improvers for diesel fuels

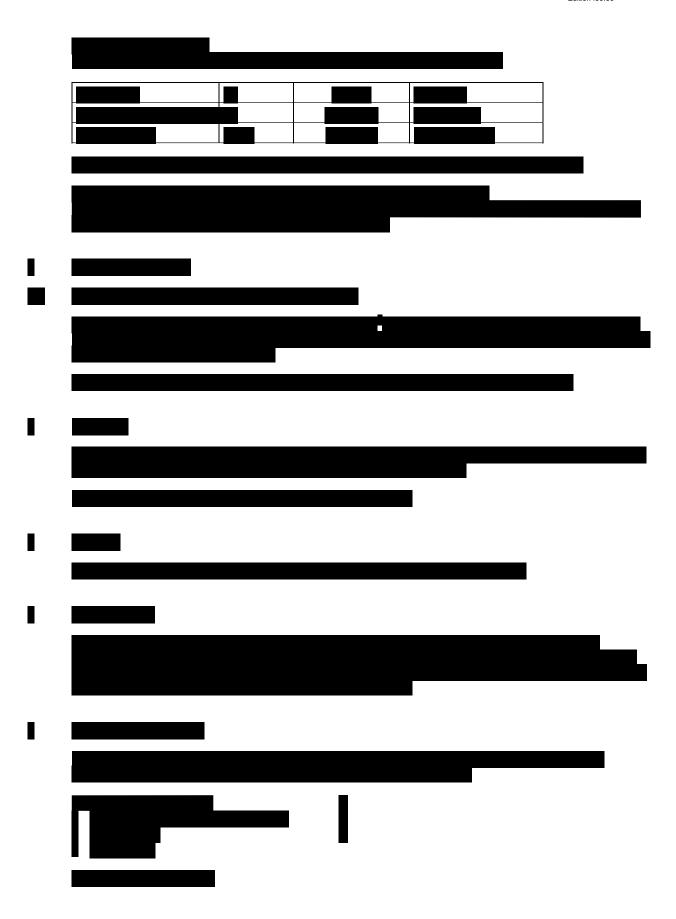
Parts Information

| Qty. | Part Name | Part Number |
|------|---------------|----------------|
| 1 | Fuel Additive | A000 989 28 45 |

EA11-003
MERCEDES
12-9-2011
Attachment 6
Fuel Specification
CONFIDENTIAL

| DaimlerChrysler AG Standard | Supply Specification Special Diesel Fuels | DBL6545 BQF available Edition 05.06 |
|--------------------------------|---|---------------------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | Continued on pages 2 to 5 |

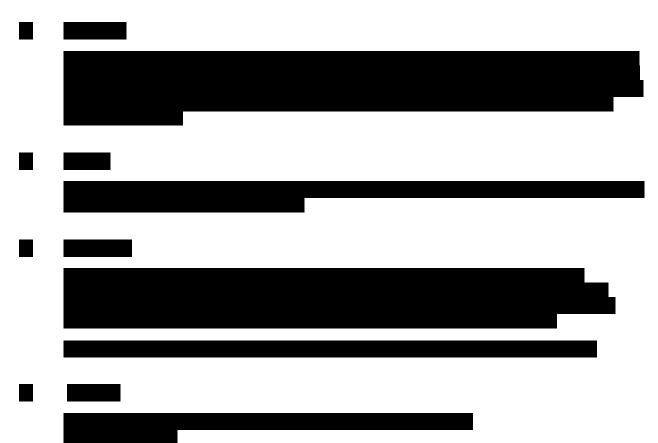
Edition :05.06



| DaimlerChrysler | |
|-----------------|--|
| Standards | |

DBL 6545 Page 3

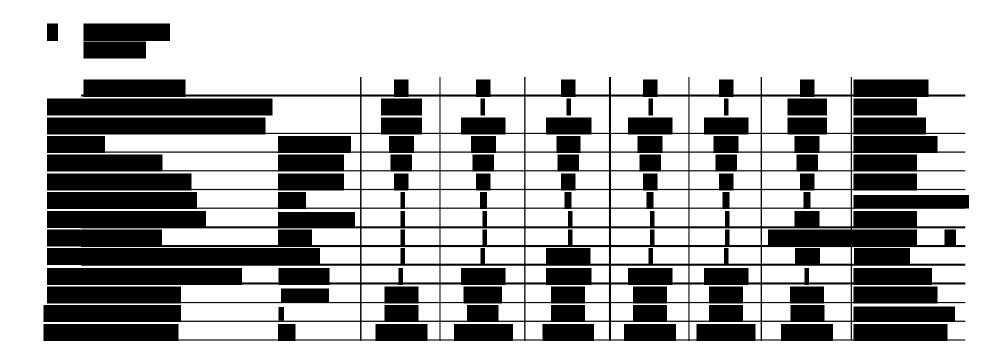
Edition:05.06



| | | | | | ļ | |
|------|----------|----------|---------|----------|--------------|--|
| i | | | | | 土 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | <u> </u> | <u>_</u> | <u></u> | <u>_</u> | <u> </u> | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



| DaimlerChrysler | |
|-----------------|--|
| | |
| Standards | |
| Startaaras | |





| DaimlerChrysler | |
|-----------------|--|
| Standards | |
| Standards | |

EA11-003
MERCEDES
12-9-2011
Attachment 7
Part Sales Data CONFIDENTIAL

EA11-003, Attachment 7 - Part Sales Data Parts Sales Net Qty By Year and Month

| Part Number Id Dir | Reporting Year | Reporting Month | Part Sales Net Qty |
|--------------------|----------------|-----------------|--------------------|
|--------------------|----------------|-----------------|--------------------|

EA11-003 MERCEDES 12-9-2011 Attachment 8

Diagnostic Trouble Codes CONFIDENTIAL

EA11-003 ATTACHMENT 8 DIAGNOSTIC TROUBLE CODES

DTC Description Status Mil Reaction / limp home mode

EA11-003 MERCEDES 12-9-2011 Attachment 9 Returned Parts Analysis CONFIDENTIAL

EA11-003, ATTACHMENT 9 RETURNED PARTS ANALYSIS

| Reference # | Repair date | Diagnostic findings |
|-------------|----------------|---------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | REDAC' | TED |
| (CONI | _ | |
| (COM | | BUSINESS |
| | INFORMA | TION) |
| | | , |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

EA11-003 MERCEDES 12-9-2011 Attachment 10 Fuel Survey Summary CONFIDENTIAL



11/2011























EA11-003

MERCEDES

12-9-2011

Attachment 11

Biodiesel Customer Information



Overview

- Definitions of Bio-Based Diesel Fuels
- Mercedes Benz / Daimler Approval Concerning Biodiesel
- Frequently Asked Questions on Biodiesel Fuel Issues
- Frequently Asked Questions on Biodiesel Vehicle Issues

_

Biodiesel: Biodiesel is chemically referred to Fatty Acid Methyl Ester (FAME). It is produced from raw vegetable oil or animal fat and methanol. Biodiesel is chemically distinct from petroleum diesel and bears quality risks, depending on feedstock (fuel ageing, cold flow), given physical properties (fuel evaporation), and accuracy of production process (contaminations). Therefore, the use of biodiesel can have technical implications upon the operation of the engine/fuel system.

Renewable Diesel Fuels: Non-biodiesel fuels. Produced from different biological materials through various production processes:

Renewable Diesel: A paraffinic fuel with high quality produced from vegetable oil or animal fat by hydro treatment.

Biomass-to-Liquid = Sun Diesel (BTL): A paraffinic fuel with high quality produced from biomass (e.g. waste biomass) which is converted through high-temperature gasification into a synthetic gas, which is then transferred by Fischer-Tropsch process to the liquid fuel.

Vegetable Oil: Non-biodiesel fuel. Unprocessed vegetable oil extracted from plants is not suitable as fuel for on-road diesel vehicles due to it's low cetane number <40, high viscosity, and coking behavior.

Main Quality Characteristics of Straight Biodiesel (B100 / 100%)

Fatty Acid Methyl Ester content:

Describes the purity of biodiesel and is not regulated in the USA.

Aging characteristics:

Biodiesel tends to oxidize more rapidly than diesel by forming acids and polymers. The oxidation

stability depends on the feedstock used. Soybean Methyl Ester (SME) which is mainly used in the United States has a lower oxidation stability compared to that of biodiesel from other feedstocks.

Contaminations:

Due to production shortcomings there are possibilities for the contamination of biodiesel with a lot of harmful byproducts. There are distributors/retailers selling biodiesel blended diesel that are not certified for the quality of their product and production processes.

Higher biodiesel blending increases the possible negative effects of the above mentioned quality deficiencies and possible damage to the engine/fuel system. Mercedes-Benz/Daimler Approval Concerning Biodiesel.

Mercedes-Benz approves the use of B5 according to ASTM D975 (standard Ultra Low Sulphur Diesel (ULSD) with a maximum of up to 5 % biodiesel) in all Common Rail Injection (CDI) and BlueTEC diesel engines

The only approved processed biodiesel for B5 blending is one that meets ASTM D975 specification to prevent damage to the engine system from deposits and / or corrosion.

Diesel fuels containing a higher percentage of biodiesel, (e.g. B6 to B20) according to ASTM D7467 as well as straight biodiesel (B100 / 100%) ASTM D6751 may cause severe damage to your engine/fuel system and are not approved.

The Mercedes-Benz Limited Warranty does not cover damages caused by the use of fuels that do not meet Mercedes-Benz approved fuel standards.

Mercedes-Benz vehicles must only use qualified commercial brand fuel that meet Mercedes-Benz approved fuel standards!

Labeling of approved fuels.

Attention! Any percentage of homebrewed biodiesel does not meet Mercedes-Benz approved fuel standards and is not approved!

Frequently Asked Questions on Biodiesel Fuel Issues

- Fuel Regulations in the USA Concerning Biodiesel
- Home Brewed Versus Commercially Produced Biodiesel
- Technical Risks of Diesel Fuel Containing Biodiesel

Fuel Regulations in the USA Concerning Biodiesel

Regular ultra low sulfur diesel (ULSD) acc. to ASTM D975 might contain biodiesel up to 5 % v/v.

Recently another specification for an ULSD with a biodiesel content of 5.5 to 20 wv/v = B20 was passed.

Biodiesel which is used for blending or as straight biodiesel (B100 / 100%) has to fulfill the ASTM D6751. The requirement for aging stability is not sufficiently regulated. B100 itself is not suitable for DPF applications

It is up to the individual US states to adopt the ASTM standards.

Due to quality deficiencies B20 and B100 are not suitable for passenger car and light duty truck applications of Mercedes-Benz equipped with diesel particulate traps.

Fuels which are labeled like this are: Approved by Mercedes-Benz!

Only diesel with the ULSD label is the approved fuel. Up tp 5% vol biodiesel (ASTM D975): no special labeling



Fuels which are labeled like this are: Not approved by Mercedes-Benz!

100% Biodiesel (ASTM D6751): B100









Up to 20% Vol Biodiesel (ASTM D7467):B20

Private fuel storage facilities may not be suitable.

Fuels which do not meet the ASTM specifications are NOT approved by Mercedes Benz and the Mercedes-Benz Limited Warranty does not cover damages caused by the use of fuels that do not meet Mercedes-Benz approved fuel standards!

Frequently Asked Questions on Biodiesel Vehicle Issues

- Technical Risks of Diesel Fuel Containing Biodiesel
- Further Impacts of Biodiesel on Vehicle Characteristics
- Recommendations for a Vehicle With Extended Standstill Period Which Use Diesel Fuel Containing Biodiesel for Periods> 4Weeks
- Warranty Guidelines for Biodiesel Usage

_

Technical Risks of Diesel Fuel Containing Biodiesel

Clogging of fuel filter caused by

- a) soaps, which may be formed by biodiesel components (aging products and contaminants)
- b) microbes, which may contaminate biodiesel blends.

Fuel gelling under cold climate conditions, e.g. additives of biodiesel and conventional diesel are sometimes incompatible.



Technical Risks of Diesel Fuel Containing Biodiesel (continued)

Sludge formation within engine oil due to biodiesel aging products.

Increase in engine oil degradation when driving under low load conditions as biodiesel has difficulty evaporating from engine oil.



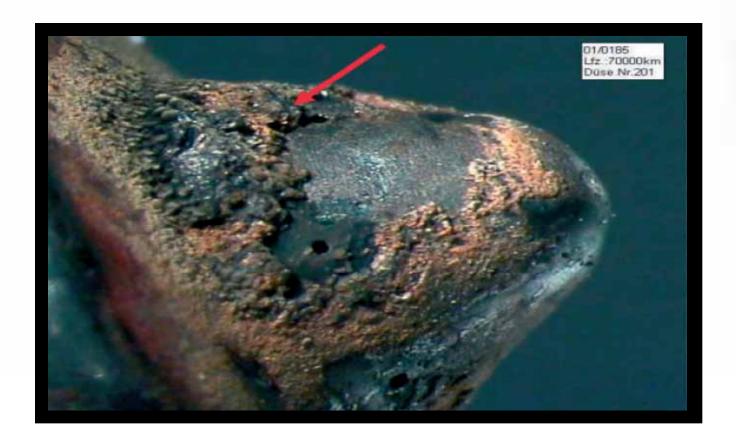
Sticking /corrosion of high pressure pump parts / injectors especially after a longer stand-still period of the vehicle due to aging products of biodiesel (sticky polymers, acids).



Technical Risks of Diesel Fuel Containing Biodiesel (continued)

Nozzle coking / and injector deposits accelerated through by-products of biodiesel.

Deposit formation on piston rings and also on lambda sensors, exhaust gas recirculation system parts.



Further Impacts of Biodiesel on Vehicle Characteristics

Impact of Biodiesel on Engine Noise

There is no negative impact on noise, vibration, or harshness when using approved biodiesel containing ULSD (B5)

Burning Properties of Diesel Fuel Containing Biodiesel (Emissions)

There is no change in the level of regulated emissions when using approved biodiesel blended ULSD (B5)

Exhaust Smell When Using Diesel Fuel Containing Biodiesel

The use of B5 will not result in a different smell.

B100 exhaust has a different smell than that of diesel exhaust. (smells like French fry oil). For diesel containing biodiesel, smell depends on blending rate.

Fuel Consumption and Engine Power Comparison (Diesel vs. Biodiesel Blended Diesel) Biodiesel containing up to B5 will have no difference in terms of power and fuel economy notable when compared to normal diesel.

Biodiesel > B5 has a lower energy content than diesel fuel which results in a slight power loss and a slightly increased fuel consumption.

Recommendations for a Vehicle With Extended Standstill Periods Which Use Diesel Fuel Containing Biodiesel for Periods > 4 Weeks

Before parking the vehicle, the fuel tank should be filled. Reducing the empty volume of the fuel tank reduces the amount of oxygen left in the fuel tank which leads to biodiesel aging.

The vehicle should not be parked in the sun, higher temperature will cause quicker biodiesel aging and can lead to the formation of corrosive acids and sticky polymers.

When vehicle idling is not possible during and after the stand still period as listed above, an authorized Mercedes-Benz dealer may have to change hydraulic parts and pump out the fuel tank.

Refer to the appropriate owner, maintenance manuals for your vehicle. Diesel fuel with up to B5 Biodiesel content according to ULSD specification ASTM D975 meets Mercedes-Benz approved fuel standards and will not void coverage under the Mercedes-Benz Limited Warranty.

All diesel fuels containing greater than B5 biodiesel as well as straight biodiesel (B100 / 100%)

are not approved by Mercedes-Benz as the risk for severe engine damage is increased. Any damages caused by the use of such non-approved fuels will not be covered by the Mercedes-Benz Limited Warranty.

Vehicle Modifications for Biodiesel Usage

No modification kit is necessary for up to B5 Biodiesel content.

Biodiesel content greater than B5 is NOT approved for Mercedes-Benz vehicles, hence no approved modification kit is available.

8 Emission System Maintenance

anticorrosion/antifreeze coolant meeting factory specifications. Please see your authorized Mercedes-Benz Center for more information on this subject.

Emission System Maintenance

Gasoline Engines

Booklet

The U.S. Environmental Protection Agency and, in California, the Air Resources Board have certified that the emission control systems of your vehicle comply with the applicable exhaust emission standards for MY 2010 vehicles.

To be certain that the emission control systems function as designed, regular maintenance is necessary for components of the vehicle which affect exhaust and evaporative emissions composition.

The vehicle owner is responsible for the regular maintenance of the emission control system, as well as the use of premium unleaded gasoline with an anti-knock index of at least 91 (displayed on the pump) in all gasoline engine models unless otherwise specified.

Failure to properly maintain the emission system may result in repairs not being covered by the emission system warranties. Explanations of each maintenance job are given on (> page 10).

Emission Control System Caution -Gasoline Engines

Your Mercedes-Benz vehicle is equipped with both a three-way catalyst and a closed loop oxygen sensor system to comply with current exhaust emission regulations. Keep your vehicle in proper operating condition by following our recommended maintenance instructions as outlined.

The following has to be adhered to:

a) In all gasoline engine models, use only premium unleaded gasoline with an antiknock index of at least 91 (as displayed on the pump) unless otherwise specified. Damage to the engine could occur

specified. Damage to the engine could occur if premium unleaded fuel is not used. Refer to the Operator's Manual for special precautions.

b) Leaded gasoline should not be used under any circumstances. Damage to the emission control components will result.

c) In select models, the use of Ethanol (E85) is also permissible. Models capable of also operating with E85 are identified by a label on the fuel filler flap reading 'Premium gasoline or E85 only!'. Do not use Ethanol fuel (E85) to operate any vehicle unless it is specifically identified as Ethanol fuel (E85) compatible. Damage to the engine could occur if improper fuels are used. Refer to the Operator's Manual for special precaution.

d) The specified engine maintenance jobs have to be performed completely and at the required intervals. Correct ignition timing and properly functioning spark plugs for instance are important for the service life of the catalysts. Failure to properly perform the specified maintenance jobs may adversely affect the emission control system on the vehicle and reduce its service life.

e) The operation of the emission control system must not be altered in any way. Alterations are not permissible by law. In addition, alterations may result in damage to the catalysts, increased fuel consumption, and impaired engine running conditions.

f) Irregular engine running conditions should be corrected immediately by an authorized Mercedes-Benz Center. Such irregular running conditions can influence the proper function of the emission control system.

If the "CHECK ENGINE" indicator lamp in the instrument cluster illuminates when the engine is running, it indicates a possible



Please make sure you read the technical documentation, such as the Operator's Manual and workshop information, before carrying out any maintenance work.





S-Class

Operator's Manual



Problems with the transmission

| Problem | Possible causes/consequences and ▶ Solutions |
|---|---|
| The transmission has problems shifting gear. | The transmission is losing oil. ► Have the transmission checked at a qualified specialist workshop, e.g. an authorized Mercedes-Benz Center, immediately. |
| The acceleration ability is deteriorating. The transmission no longer changes gear. | The transmission is in emergency mode. It is only possible to shift into second gear and reverse gear. ➤ Stop the vehicle. ➤ Shift the transmission to position P . ➤ Switch off the engine. ➤ Wait at least 10 seconds before restarting the engine. ➤ Shift the transmission to position D or R . If D is selected, the transmission shifts into second gear; if R is selected, the transmission shifts into reverse gear. ➤ Have the transmission checked at a qualified specialist workshop, e.g. an authorized Mercedes-Benz Center, immediately. |

Transfer case

This section is only valid for vehicles with 4wheel drive (4MATIC). Power is always transmitted to both axles.

- Performance tests may only be carried out on a 2-axle dynamometer. The brake system or transfer case could otherwise be damaged. Contact a qualified specialist workshop for a performance test. Mercedes-Benz recommends that you use an authorized Mercedes-Benz Center for this purpose.
- I To prevent ESP® from intervening, the ignition must be switched off (SmartKey or the Start/Stop button in position **0** or **1**) if:
 - the electric parking brake is being tested on a brake dynamometer.
 - the vehicle is being towed with only one axle raised (not permitted for vehicles with 4MATIC).

The brake system could otherwise be damaged.

Refueling

Important safety notes



↑ WARNING

Gasoline and diesel fuels are highly flammable and poisonous. They burn violently and can cause serious injury.

Never allow sparks, flames or smoking materials near gasoline or diesel fuel!

Turn off the engine before refueling.

Whenever you are around gasoline or diesel fuel, avoid inhaling fumes and any skin or clothing contact. Extinguish all smoking materials.

Direct skin contact with fuels and the inhalation of fuel vapors are damaging your health.

↑ WARNING

Overfilling of the fuel tank may create pressure in the system which could cause a gas discharge. This could cause the gasoline to spray back out when removing the fuel pump nozzle, which could cause personal injury.

/ WARNING

Hybrid vehicles: be sure to read the "HYBRID" supplement. Otherwise, you could fail to recognize dangers.

/ WARNING

Do not fill diesel tanks with gasoline. Do not mix diesel fuel with gasoline. Otherwise the fuel system and engine could be damaged. In addition, the vehicle could catch fire.

- Do not use gasoline to refuel vehicles with a diesel engine. Do not use diesel to refuel vehicles with a gasoline engine. Even a small quantity of the wrong fuel will damage the fuel system and engine.
- Do not switch on the ignition if you accidentally refuel with the wrong fuel. Otherwise, the fuel will enter the fuel lines. Notify a qualified specialist workshop and have the fuel tank and fuel lines drained completely.

Gasoline

Fuel grade

- You should only refuel with unleaded premium-grade gasoline as this avoids damaging the catalytic converter. If engine running problems are apparent, have the cause checked immediately and repaired. Excess unburned fuel can otherwise enter the catalytic converter, leading to overheating and possibly causing a fire.
- Use a filter when refueling from a fuel can. Otherwise, the fuel lines and/or injection

- system could be blocked by particles from the fuel can.
- 1 Only refuel with premium-grade unleaded gasoline with a specified minimum octane number of 91 (average value of 96 RON/ 86 MON).

You will usually find information about the fuel grade on the pump. If you cannot find the label on the pump, ask the staff for assistance.

You can find more information under "Fuel" (⊳ page 525), or by contacting an authorized Mercedes-Benz Service Center or visiting http://www.mbusa.com (USA only).

Diesel

Fuel grade

Only refuel with ULTRA-LOW SULFUR DIESEL FUEL (ULSD, 15 ppm SULFUR MAXIMUM). Using other diesel fuels could result in increased wear and damage to the engine and/or exhaust system.

Never refuel with marine diesel or heating oil.

Do not mix these fuels with diesel fuels and do not use any special additives, as this may result in damage.

- Use a filter when adding fuel from a fuel can. Otherwise, the fuel lines and/or the fuel injection system could be blocked by particles from the fuel can.
- ① Usually, you will find information about the fuel grade on the pump. If you cannot find the label on the gasoline pump, ask the gas station staff.

You can find more information under "Fuel" (⊳ page 525), or by contacting an authorized Mercedes-Benz Service Center or visiting http://www.mbusa.com (USA only).

Low outside temperatures

Do not use gasoline to refuel vehicles with a diesel engine. Never mix diesel with gasoline or kerosene, as this may result in damage to the engine or fuel system.

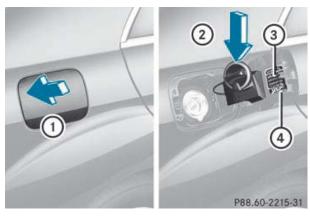
Diesel fuel with improved cold flow properties is available during the winter months. Further information on fuel properties can be obtained from oil companies, e.g. at gas stations.

Refueling

Fuel filler flap

The fuel filler flap is unlocked or locked automatically when you open or close the vehicle with the SmartKey or using KEYLESS-GO.

The position of the fuel filler cap is displayed in the instrument cluster . The arrow next to the filling pump indicates the side of the vehicle.



- 1) To open the fuel filler flap
- (2) To insert the fuel filler cap
- 3 Tire pressure table
- 4 Fuel type

Opening

- ▶ Switch off the engine.
- ▶ Remove the SmartKey from the ignition lock.

- KEYLESS-GO: open the driver's door. This switches the ignition to position **0**, which corresponds to having removed the SmartKey. The driver's door can be closed again.
- ▶ Press the fuel filler flap in the direction of arrow ①.
 - The fuel filler flap opens slightly.
- ► Open the fuel filler flap.
- ► Turn the fuel filler cap counter-clockwise and remove it.
- ▶ Insert the fuel filler cap into the holder bracket on the inside of filler flap (2).
- Completely insert the pump nozzle into the filler neck and refuel.
- ➤ Only fill the tank until the pump nozzle switches off.
- Overfilling the fuel tank could damage the fuel system.

Closing

- Replace the fuel filler cap and turn it clockwise. The fuel filler cap audibly engages.
- ► Close the fuel filler flap.
- ilf you drive with the fuel filler cap open, the reserve fuel warning lamp flashes. In addition, the Check Engine warning lamp may light up. A message appears in the multifunction display (▷ page 407). For further information on warning and indicator lamps in the instrument cluster, see (▷ page 427).
- Close the fuel filler flap before locking the vehicle. A locking pin otherwise prevents the fuel filler flap from closing after the vehicle has been locked.

| Problems with fue | and the fu | iel tank |
|-------------------|------------|----------|
|-------------------|------------|----------|

| Problem | Possible causes/consequences and ▶ Solutions |
|--|---|
| Fuel is leaking from the vehicle. | ⚠ Risk of explosion or fire The fuel line or the fuel tank is defective. Turn the SmartKey to position O(> page 303) in the ignition lock immediately and remove it. Do not restart the engine under any circumstances. Consult a qualified specialist workshop. |
| The fuel filler flap cannot be opened. | The fuel filler flap is not unlocked. or The SmartKey battery is discharged. ▶ Unlock the vehicle (▷ page 78). or ▶ Unlock the vehicle using the mechanical key (▷ page 81). |
| | The fuel filler flap is unlocked, but the opening mechanism is jammed. ▶ Consult a qualified specialist workshop. |
| The engine will not start. | The fuel tank of a vehicle with a diesel engine has been run completely dry. ▶ Refuel the vehicle with at least 5.3 US qt (5 liters) of diesel. ▶ Turn the ignition on for at least 10 seconds (▷ page 303). ▶ Start the engine continuously for up to 10 seconds until it runs smoothly. or ▶ Start the engine via the touch-start function. To do this, turn the SmartKey to position 3 (▷ page 303) in the ignition lock and then release it immediately. If the engine does not start: ▶ Turn the ignition on again for approximately 10 seconds (▷ page 303). ▶ Start the engine again continuously for up to 10 seconds until it runs smoothly. or ▶ Start the engine again via the touch-start function. If the engine does not start after three attempts: |
| | ► Consult a qualified specialist workshop. |

DEF

Important notes on use

To function properly, BlueTEC exhaust gas aftertreatment must be operated with the reducing agent DEF. Adding DEF is one of the tasks performed during maintenance. Under normal operating conditions, a tank of DEF lasts until the next service due date.

When the DEF supply has almost run out, the Check Additive See Operator's Manual message is shown in the multifunction display.

When the DEF supply sinks to a minimum level, the Remaining Starts: 16 message is shown in the multifunction display.

When the Remaining Starts: 16 message is shown in the multifunction display, you can start the engine 16 more times. If DEF is not added, it is then not possible to start the engine again. Fill the DEF tank with about 1 gal (3.8 I) DEF or have the DEF tank refilled at a qualified specialist workshop.

Use the special DEF refill bottle when filling between maintenance intervals. Contact an authorized Mercedes-Benz Center with any questions or, if necessary, contact Roadside Assistance (⊳ page 29).

Further information about BlueTEC exhaust gas aftertreatment and DEF is available at any authorized Mercedes-Benz Center.

Adding DEF



↑ WARNING

Make sure

- DEF does not come into contact with skin, eyes, or clothing
- to keep DEF out of the reach of children

If you and/or others have come into contact with DEF:

- If DEF has gotten into contact with eyes, flush with plenty of water immediately and seek medical help.
- Clean affected skin immediately with plenty of water.
- If DEF was swallowed, rinse mouth immediately with plenty of water and drink plenty of water. Consult a physician.

↑ WARNING

If you open the DEF tank cap at high temperatures, ammonia vapors can be released.

Ammonia vapors have a pungent odor and are particularly irritating to:

- skin
- mucous membranes

You may experience a burning sensation in your eyes, nose and throat, as well as coughing and watering of the eyes.

Do not inhale any ammonia vapors that may be released. Only refill the DEF tank in well ventilated areas.

Only use DEF that complies with ISO 22241. Do not add any special additives to DEF and do not thin DEF with water. This could destroy the BlueTEC exhaust gas aftertreatment.

If the outside temperature is lower than -11 °C, damage may occur when topping up. If DEF is frozen and there is an active warning indicator, topping up may not be possible. Park the vehicle in a warmer place, e.g. in a garage, until DEF has become fluid again. Filling is then possible again. Alternatively, have the DEF tank refilled at a qualified specialist workshop.

Rinse surfaces that have come into contact with DEF immediately with water or remove DEF using a damp cloth and cold water. If the DEF has already crystallized,

use a sponge and cold water to clean it. DEF residues crystallize after time and contaminate the affected surfaces.

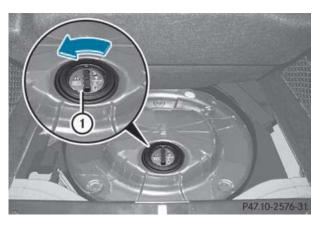
- DEF is not a fuel additive and must not be added to the fuel tank. If DEF is added to the fuel tank, this can lead to engine damage.
- intervals, add approximately 1 gallon (3.8 l) of DEF to the DEF tank. One gallon (3.8 l) of DEF is approximately 2 DEF refill bottles. Then, have the DEF supply checked and filled completely if necessary. For this purpose, Mercedes-Benz recommends a qualified specialist workshop.

Further information on DEF (▷ page 527). The filler neck for DEF is located under the "Minispare" emergency spare wheel in the trunk floor.

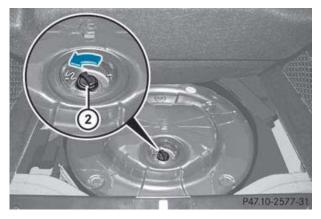
- ► Switch off the ignition.
- ▶ Open the trunk.
- ► Lift up the trunk floor (> page 436).



- ➤ Turn the "Minispare" emergency spare wheel fastening in the direction of the arrow and remove it.
- ► Remove the "Minispare" emergency spare wheel.

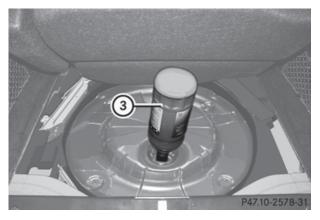


► Turn DEF cap ① counter-clockwise and remove it.



► Turn DEF filler cap ② counter-clockwise and open it.

Filler cap ② is secured with a plastic strap.

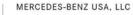


- ► Unscrew the covering cap from DEF refill bottle (3).
- ▶ Place DEF refill bottle ③ on the filler neck as shown and screw on clockwise handtight.
- Only screw on the DEF refill bottle handtight. It could otherwise be damaged.

ACKNOWLEDGEMENT 5% (B5) BIODIESEL FUEL CONTENT LIMIT DISCLOSURE

| THE DISTRIBUTOR OF THIS | |
|---|---|
| (YEAR) | (Model) |
| (VIN) | |
| INDICATES THAT THIS MERCEDES-BE OPERATED WITH BIODIESEL CONTEN BIODIESEL (B5). | |
| designed to comply with current diesel exha | imum sulfur with a <u>maximum of 5% biodiese</u> |
| Diesel fuels containing a higher percentage not approved. Use of these higher biodiese damage to the fuel system, exhaust system use of such non-approved fuels will not be of Warranty. See the vehicle Operator's Manu Service and Parts → Facts About Biodiesel) | I content fuels may result in significant and the engine. Any damages caused by the overed by the Mercedes-Benz Limited al, or visit MBUSA.com (Owner Resources: |
| DATED: | |
| BLIYER / LESS | EE SIGNATURE |

EA11-003 MERCEDES 12-9-2011 Attachment 12 Fuel Analysis Instructions





One Mercedes Drive, P.O. Box 350, Montvale, NJ 07645-0350 Phone (201) 573-0600 Fax (201) 573-0117 MRUSA com

newschannel UPDATE

TO: Dealer Principals
Parts Managers
Service Managers
Shop Foreman

FROM: Dale Vanderbeck, Service Engineering

DATE: June 18, 2010

RE: Diesel Fuel Analysis for Diesel Engines and Diesel Fuel Components

MBUSA is investigating contamination found in diesel engines and diesel fuel components that have been returned to the QEC for failure analysis. In order to determine the source of the contamination, a diesel fuel analysis is necessary at the time of the repair.

In preparation for this detailed diesel fuel analysis, MBUSA has put into place the following prerequisites to assist with this investigation.

- 1. ALS Laboratory Fuel Test
- 2. Leitenburger Go/No Go Diesel Fuel Tester
- 3. Engine Pre-Authorization Form Update

Now that all prerequisites have been implemented, as of this posting MBUSA would like the cooperation of our dealer body when performing any diesel engine and diesel fuel component replacement*.

There is now a tool available for the dealer to indicate potential biodiesel fuel present in diesel fuel. The tool is a go/no go tester manufactured by Leitenburger and is used to help the dealer technician to determine if biodiesel is present at the time of repair. This tool has been shipped to all dealers. Please refer to Netstar news channel announcement dated May 21, 2010 – Leitenburger Go/No Go Fuel tester.

- Utilize the Leitenburger Go/No Go tester to test the diesel fuel in the vehicle at the time of repair. (Follow the directions on the instruction card included with the tester)
- Open a TAC online case and record the result from the Go/No Go test. Please use
 the following symptom string when opening the case as this will help us retrieving the
 test results. (Engine Management/Engine performance/No/poor output) In the
 "Complaint Information" tab the technician will type in "Go/No Go Diesel Fuel Test"



- If the tester indicates the fuel is in the yellow, orange or red areas, the fuel is well outside the allowable limit of up to 5% biodiesel content. Any repair preformed would not be covered under warranty and would be considered paid service.
- If the tester indicates the fuel is in the green area (70-90%), advise the customer that his/her vehicle has fuel which may be above the allowable limit of up to 5%. A further fuel test is required in order to determine if the repair will be covered under warranty.
- If the tester indicates either of the above, please refer to DTB S-B-47.10/30 / LI 47.10-P-046862 (Procedure for when diesel fuel tank is filled with incorrect fuel).
- If the biodiesel content tester indicates the fuel is in the green area (95-100%), proceed with the repair of the vehicle under warranty.

In <u>ALL</u> cases, a fuel sample of 500 ml must be taken from the vehicle fuel filter and sent to ALS Laboratory for testing. (See Netstar message "Diesel Fuel Testing Service" Posted on April 9, 2010) This test will not only provide the Biodiesel content, it will also provide the following other test criteria that the Leitenburger go/ No go tester cannot provide. The additional information this test provides is appearance, Cetane index, distillation, API Gravity, Viscosity, Sulfur, Cloud Point, Water by Karl Fischer, and Total Acid Number. This additional test results will assist us in our fuel / engine component analysis.

*Diesel Fuel Components:

Low Pressure Fuel Pump
Fuel Filter
High Pressure Fuel Pump
Quantity Control Valve
Fuel Rails (Left, Right or Both)
Pressure Control Valve
Rail Pressure Sensor
Fuel Injectors

Should you have any questions or need assistance please contact me at: vanderbeckd@mbusa.com. Please be sure to provide your full contact information including dealer code, and phone numbers.

Regards, Dale Vanderbeck Service Engineering





DIESEL FUEL TEST ORDER FORM

| Date: | Contact Name | | Email: | (<u> </u> | |
|--------------------|--------------------|---------------|--------------------|-------------------------|--|
| Dealer Name: | | | Dealer Code: | | |
| Address: | | | | | |
| O.U. | | | 61.1 | Zip: | |
| Phone: | | Ext | | _ Fax: | |
| Method of Payment: | ☐ Mastercard | ☐ Visa | ☐ AMEX | P.O. (number) | |
| Card Number: | | | Exp | o. Date: | |
| Name on Card: | | | | | |
| | | | | | |
| Shipping charg | ros are applied to | all orders Al | l ordore will chin | around unloss othorwise | |

Shipping charges are applied to all orders. All orders will ship ground unless otherwise requested. Orders will ship once payment has been made and processed.

| Quantity | Package | Amount | Price Per |
|-----------|---|-----------------------|-----------------------------------|
| Requested | | Required | Sample |
| | PrePaid Diesel Fuel Test MBUSAF: Appearance, Cetane Index, Distillation, API Gravity, Viscosity, Sulfur, Cloud Point, Water by Karl Fischer, FAME (% Biodiesel) and Total Acid Number | 16 oz. or 500 mls. | \$52.40 + Outbound Shipping |

Please send completed form to ALS Laboratory Group via email or fax to:

Eastern USA

Fax: 216-383-3883
Ph: (800) 726-5400
csr@staveleyna.com
Attn: Customer Service

ALS Laboratory Group, Tribology

18419 Euclid Avenue Cleveland, OH 44112

Western USA

Fax: 503-286-1562 Ph: (800) 770-4128 csr@alstribology.com Attn: Customer Service

ALS Laboratory Group, Tribology

4943 Front Street Portland, OR 97210

Thank you for choosing ALS Laboratory Group for your fluids analysis needs.



MERCEDES-BENZ USA, LLC

One Mercedes Drive, P.O. Box 350, Montvale, NJ 07645-0350 Phone (201) 573-0600 Fax (201) 573-0117 MBUSA.com

newschannel UPDATE

TO: Dealer Principals Parts Managers Service Managers Shop Foreman

FROM: Dale Vanderbeck, Service Engineering

DATE: April 8, 2010

RE: Diesel Fuel Testing Service

MBUSA in cooperation with ALS Laboratory Group is introducing a new diesel fuel testing kit. Using this new service, dealers will be able to accurately determine if a diesel engine with running complaints and/or system damages are fuel related.

The benefits of switching to the ALS Laboratory Group are:

- Reduced turnaround time.
- Reduced Testing Cost (\$52.40 + outbound shipping).
- Wider scope of testing which includes FAME content (% biodiesel content) as well as appearance, Cetane index, distillation, API Gravity, Viscosity, Sulfur, Cloud Point, Water by Karl Fischer, and Total Acid Number.
- Test kits can be ordered and stocked by dealers to be readily available.
- ALS has two testing centers located in the Eastern and Western USA respectively.
- Test results are sent electronically to dealer contact provided on ALS Test Kit Order Form.

Test kits are available to all dealers from ALS by filling out an ALS Test Kit Order Form and faxing it to the appropriate (test center) number located on the form.

ALS will ship the test kits ordered by your dealership upon payment processing so they can be stocked for future use. The purchase of the test kit includes the cost of testing the diesel fuel sample so no additional charge is incurred at time of fuel analysis.

Note: The cost of this test can be claimed under warranty as a "sublet repair".

Shipment Contents:

Sample bottle, UN- Shipping box with packing tape, Absorbent lined bag, shipping labels, Instructions for Returning Fuel Samples sheet and Fuel Sample Information Form

Should you have any questions or need assistance please contact me at: vanderbeckd@mbusa.com Please be sure to provide your full contact information including dealer code, and phone numbers.

Regards, Dale Vanderbeck Service Engineering





Mercedes-Benz

One Mercedes Drive, P.O. Box 350, Montvale, NJ 07645-0350 Phone (201) 573-0600 Fax (201) 573-0117 MBUSA.com



TO: Dealer Principals
Parts Managers
Service Managers
Shop Foreman

FROM: Dale Vanderbeck, Service Engineering

DATE: May 20, 2010

RE: Diesel Fuel Testing Service - Fuel Sample Information Form

MBUSA's Diesel Fuel Testing Service has been in effect for six weeks. Thanks to the dealer participation, results are looking positive and MBUSA would like to thank all dealers for their ongoing support and cooperation.

Based upon the preliminary results to date, there seems to be some confusion about the proper way to fill out the "Fuel Sample Information Form". In order to be provided with more accurate and timely test results from ALS Testing Laboratories, it is important that dealers fill out the "Fuel Sample Information Form" in the proper manner.

Below is a completed sample of the "Fuel Sample Information Form". Take note that both the TAC number and VIN number MUST be filled out. Failure to provide either of these numbers will result in MBUSA's inability to properly process the diesel fuel test results that are received from the ALS Laboratories with the technical history of the vehicle in our system.

A TAC Case number is required for this repair/ test, please open an online TAC Case in order to receive a TAC Case number for the "Fuel Sample Information Form". Please provide details of customer complaint, why the test is being submitted and which if any component is suspect.





FUEL SAMPLE INFORMATION FORM

EXPIRATION DATE: 3/18/2012

ONLINE RESULTS AT WWW.ALSSTAVELEY.COM DO NOT PHOTOCOPY - RETURN ORIGINAL FORM WITH SAMPLE

Not Needed

| Has ALS previously tested this tank? ☐ Yes 🕱 No |
|---|
| UIN NOTE: Providing this number will assist in |
| sample. It is located on the top left of your |
| or previous lab #previous report. |
| Sampled date: Month/Date/Year |
| Test package: COMPLIMENTARY - MBUSAFUEL-I |
| Please complete next section or affix compartment label from PRAXIS |
| VIN#. 4JGBD25XXXA123456 |
| |
| TAC Case #: 241123456 |
| What is the fuel type? (select all that apply) |
| |
| MS S15 □ S500 □ S5000 |
| Diesel Fuel #1 □ K1-Kerosene |
| Diesel Fuel #2 Marine Diesel Oil #_ |
| □ Biodiesel% □ Residual Fuel Oil |
| ☐ Jet Petroleum-A ☐ Marine Residual Fuel Oil IFO 180 |
| Jet Petroleum-5 Marine Residual Fuel Oil IFO 360 |
| ☐ Jet Petroleum-8 ☐ Other |
| What is the sampling point? Uehicle Tank Above Ground Storage Tank |
| |
| □ Delivery Truck Tank □ Under Ground Storage Tank □ Pipeline Delivery System □ Other: VEHICLE |
| Where was sample drawn? |
| ☐ Top of Tank ☐ Pipeline |
| ☐ Middle of Tank ☐ Pump Nozzle |
| □ Bottom of Tank □ Other: FUEL FILTER |
| Tank capacity: (Not Needed) |
| Is fuel treated? Biocide Stabilizer Winterizer De-icer |
| Is there water in the tank? Yes No Unknown |
| Comments / recent maintenance / operating problems (Customer complaint) |
| z wienthi) |
| |
| Are there any additional tests requested? |
| None |
| Order account #: 20515992 Dealer Code 12 3 45 |
| Company name: MERCEDES-BENZ USA LLC |
| Please provide current email address for electronic test reports for primary account contact |
| (Teur email address here) |
| End user name / location: Is this a new location? |
| (Dealer ship address) |
| |
| Email additional report copy to: (OPTIONAL) |
| |
| |
| Tracking No: 102392520001 |
| Keep This Stub For Your Records - Send Top Portion with Sample |
| Date mailed: [Current Date tracking #: 102392520001 |
| Test package: COMPLIMENTARY - MBUSAFUEL-1 |

(Not Needed)
Questions? Call: PORTLAND @ 800-770-4128 Tank ID #:____

Should you have any questions or need assistance please contact me at: vanderbeckd@mbusa.com Please be sure to provide your full contact information including dealer code, and phone numbers.

Regards, Dale Vanderbeck Service Engineering





INSTRUCTIONS FOR RETURNING FUEL SAMPLES

The fuel package provided to you by ALS Laboratory Group is approved for the ground transportation of limited quantities of fuel samples, including diesel fuel and aviation fuel. This package should not be used for any other materials, as it may not be compatible with or compliant with U.S. Department of Transportation regulations.

PACKAGE CONTENTS

Including in the fuel package are the following sample and shipping materials:

- Sample bottle(s) [1, 4, 8, or 16 ounce plastic bottle] with cardboard collar protector (collar protector not included in all kits)
- UN-approved shipping box with packing tape
- Absorbent lined bag with zip tie or adhesive-lined seal
- ORM-D (Other Regulated Materials-Domestic) label for exterior of box
- Sample information form
- Return mailing label, if applicable

INSTRUCTIONS

- 1. Fill the bottle at least ¾ full in order to provide enough sample to perform all tests included in the fuel test package.
- 2. Place the cardboard collar protector, if included, over the neck of the filled bottle.
- 3. Place everything in the absorbent lined bag.
- 4. Depending on the package type, twist the top of the bag and secure it with the zip tie OR peel off the adhesive liner and stick the top flap onto the bottom flap.
- 5. Place the bagged sample into the shipping box along with the completely filled out sample information form.
- Seal the box with the packing tape, and place the ORM-D label on one of the sides of the box.
- 7. Apply a mailing label to the box indicating the appropriate laboratory location.

It is the shipper's responsibility to follow all applicable regulations related to proper packaging, labeling, and offering for shipment of fuel shipments, which are regulated as hazardous materials. Please consult with the U.S. Department of Transportation and your courier for more information.

If you have any questions in regarding the fuel package, please contact your local ALS Laboratory Group customer service representative.

Thank you for choosing ALS Laboratory Group for your fluids analysis needs.

Laboratory Locations

Cleveland, Ohio 800.726.5400

Portland, Oregon 800.770.4128

MERCEDES-BENZ USA, LLC



One Mercedes Drive, P.O. Box 350, Montvale, NJ 07645-0350 Phone (201) 573-0600 Fax (201) 573-0117 MRUSA com

newschannel UPDATE

TO: Dealer Principals Parts Managers Service Managers Shop Foreman

FROM: Mike Roth - Dealer Workshop Services

DATE: May 21, 2010

RE: Leitenburger Go/No Go Diesel Fuel Tester

MBUSA in cooperation with Leitenburger is introducing a Go/No Go Diesel Fuel Testing service. Using this new service, dealers will be able to indicate potential biodiesel fuel presence in diesel fuel. The tester will be used by the dealer technician to determine biodiesel state at the time of a repair.

The benefits of using the Leitenburger Go/No Go Tester:

- Quickly determine biodiesel presence in diesel fuel.
- Indicate if the fuel involved in a certain repair is outside the allowable limit of up to 5% biodiesel.
- Receive an indication of whether or not the repair will be under warranty.
- Determine if fuel is contaminated.
- Visually show customers the condition of their fuel.

In cases of suspected biodiesel fuel issues (thick engine oil, odd fuel smell, turbo seizure, French fry oil smell from exhaust), dealers should:

- 1. Utilize the Leitenburger Go/No Go testing Service to see if a) repairs should proceed and b) if repairs will be under warranty.
- 2. Collect 500 mL fuel sample and send to ALS Laboratory for testing as instructed in Newschannel Update "Diesel Fuel Testing Service" posted on April 9, 2010.

Directions for use of the Leitenburger Go/No Go Testing Service and its related graph can be found below:





DIRECTIONS FOR USE Diesel Fuel Tester DMP 01 MBUSA

Art. no. 110801 2

Measuring unit to measure the mixture ratio of biodiesel and diesel fuel based on the principle of density measurement. The test result is displayed on a colored scale.



Safety precautions:

Please observe the safety precautions when working with diesel fuel. To prevent fire, observe the no smoking rule without fail and do not work in the vicinity of open flame!

Keep a fire extinguisher within easy reach!

Dispose of diesel fuel in accordance with the applicable regulations.



green indication 100 % diesel fuel concentration



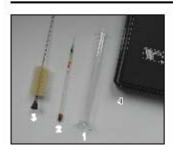
yellow indication mixture ratio of 50 % diesel fuel, 50 % biodiesel



orange indication mixture ratio of 20 % diesel fuel, 80 % biodiesel

Test procedure:

- Before carrying out each test, ensure that the volumetric cylinder and hydrometer are clean and dry. Contaminants may have an adverse effect on the test result.
- Extract approx. 250 ml of diesel fuel from the vehicle fuel filter.
- Pour approx. 230 ml of the extracted fuel into the volumetric cylinder.
- Slowly immerse the hydrometer into the volumetric cylinder.
 Warning: If the hydrometer is immersed too quickly, it will be damaged beyond further use. If necessary, top up fuel until the hydrometer floats.
- Read off the test result on the colored scale (for interpretation, see table on reverse side).
 Test results are based on an ambient temperature of 20 ℃ / 68 ℉.
- On completing the test, dispose of diesel fuel in accordance with the applicable regulations.
- Clean volumetric cylinder and hydrometer carefully with the cleaning brush and cleaning fluids like soap water or cleaning solvent and allow to dry.

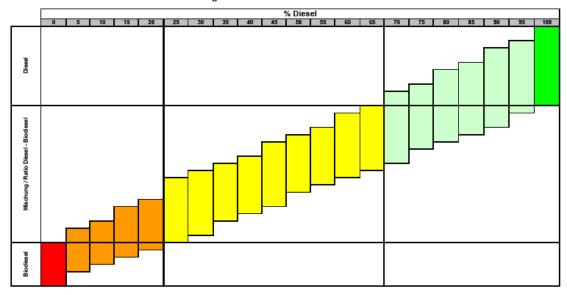


Available spare parts:

| 1 | ET 553 | (111598) | volumetric cylinder |
|-----|---------|------------|--|
| 2 | ET 561 | (111607) | hydrometer |
| 3 | ET 562 | (111608) | cleaning brush |
| 4 | ET 57.1 | (120102_1) | plastic case |
| (5) | ET 617 | (111683_1) | instruction card for diesel fuel tester DMP 01_MBUSA (110801_2) |

We reserve the right to introduce technical modifications without notice

Mischungsverhältnis / Mixture - Ratio Diesel - Biodiesel in % Diesel:



As always, if you have any questions on the Mercedes-Benz Standard Service Equipment Program feel free to contact us at: mbtoolsandequipment@mbusa.com

Thank you, Mike Roth Dealer Workshop Services EA11-003
MERCEDES
12-9-2011
Attachment 13
Repair Procedures



Procedure for When Diesel Fuel Tank is Filled with Incorrect Fuel Type (S-B-47.10/30e, May 11, 2009)

Topic number LI47.10-P-046862

Version 1

Design group 47.10 Fuel tank
Date 05-25-2009

Validity Model 164.122/125/822/825

Model 211.022/026 Model 251.122/125

Reason for change Reason for block

Complaint:

Procedure for When Diesel Fuel Tank is Filled with Incorrect Fuel Type

Cause:

Incorrect Fuel Type

Remedy:

In addition, biodiesel fuel above 5% (B5) in the fuel tank is not permitted for use in the above model vehicles. Please follow the procedure below.

[i] Note: If the fuel tank is filled with the wrong type of fuel this may not be submitted as a warranty claim.

If the engine was NOT started after the fuel tank was filled with the wrong type of fuel, then emptying the tank and cleaning the fuel low-pressure lines should be enough to resolve the problem.

If the engine was started after the fuel tank was filled with the wrong type of fuel, disconnect the Y-distributor unit (return line high pressure pump/rail) at the output and with the ignition ON collect the fuel in a clean container. Check fuel for shavings.

If there are no shavings in the injection system and the high pressure pump is not damaged, emptying the fuel tank, cleaning the low pressure lines and changing the fuel filter should resolve the condition.

If metal shavings are found in the injection system and/or the high pressure pump is damaged, replace the following components to ensure there are no metal particles in the fuel system. Refer to EPCNet for applicable part number.

- a) Fuel Tank
- b) Low Pressure fuel pump
- c) Fuel Filter
- d) High Pressure pump

- e) Rail (Including Pressure regulating valve and the rail pressure sensor)
- f) High pressure lines and the leak lines
- g) Injectors

The low pressure lines need to be thoroughly cleaned.

If there are no shavings in the injection system and the high pressure pump is damaged, the reason for the damaged high pressure pump must be found and resolved prior to replacing the high pressure pump.

Symptoms

Power generation / Fuel system / Fuel pump / Nonfunctional

Power generation / Fuel system / Fuel system odor / Odor

| Validity | | |
|----------|--------|--------------|
| Vehicle | Engine | Transmission |
| 164.122 | * | * |
| 164.125 | * | * |
| 164.822 | * | * |
| 164.825 | * | * |
| 211.022 | * | * |
| 211.026 | * | * |
| 251.122 | * | * |
| 251.125 | * | * |

| Full model designation breakdown | | | |
|----------------------------------|---------|--------------|--|
| Vehicle | Engine | Transmission | |
| 164.122 | 642.940 | 722.902 | |
| 164.125 | 642.820 | 722.902 | |
| 164.822 | 642.940 | 722.902 | |
| 164.825 | 642.820 | 722.902 | |
| 211.022 | 642.920 | 722.902 | |
| 211.026 | 648.961 | 722.626 | |
| 251.122 | 642.950 | 722.902 | |
| 251.125 | 642.870 | 722.902 | |







DTB Date: May 11, 2009

Order No.: S-B-47.10/30e

Supersedes: S-B-47.10/30d dated October 1, 2008

Group: 47

Revision History

| | • | |
|----------|---------|---|
| Revision | Date | Purpose |
| е | 5/11/09 | Repair Instructions Revised |
| d | 10/1/08 | Applicable Models Updated |
| С | 7/18/08 | Additional Models Added |
| b | 9/12/06 | Applicable Model / Step 3 and Parts Information Updated |
| а | 9/02/04 | Additional Information Pertaining to Biodiesel Fuel |
| - | 8/17/04 | Initial issue |

SUBJECT: Model 164.122/125/822/825

Model 211.022/026 Model 251.122/125

Procedure for When Diesel Fuel Tank is Filled with Incorrect Fuel Type

If the above model diesel powered vehicles with a common rail injection system have been refueled with gasoline, kerosene, etc. and/or other mixtures thereof, follow the steps below to remedy. In addition, biodiesel fuel above 5% (B5) in the fuel tank is not permitted for use in the above model vehicles. Please follow the procedure below.

Note: If the fuel tank is filled with the wrong type of fuel this may not be submitted as a warranty claim.

If the engine was **NOT** started after the fuel tank was filled with the wrong type of fuel, then emptying the tank and cleaning the fuel low-pressure lines should be enough to resolve the problem.

If the engine **was** started after the fuel tank was filled with the wrong type of fuel, disconnect the Y-distributor unit (return line high pressure pump/rail) at the output and with the ignition **ON** collect the fuel in a clean container. Check fuel for shavings.

If there are **no** shavings in the injection system and the high pressure pump is not damaged, emptying the fuel tank, cleaning the low pressure lines and changing the fuel filter should resolve the condition.

This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

If metal shavings **are** found in the injection system and/or the high pressure pump is damaged, replace the following components to ensure there are no metal particles in the fuel system. Refer to EPCNet for applicable part number.

- a) Fuel Tank
- b) Low Pressure fuel pump
- c) Fuel Filter
- d) High Pressure pump
- e) Rail (Including Pressure regulating valve and the rail pressure sensor)
- f) High pressure lines and the leak lines
- g) Injectors

The low pressure lines need to be thoroughly cleaned.

If there are **no** shavings in the injection system and the high pressure pump **is** damaged, the reason for the damaged high pressure pump must be found and resolved prior to replacing the high pressure pump.

EA11-003
MERCEDES
12-9-2011
Attachment 14
Driver Warnings (2)

EA11-003 Attachment to Response to Request 18g Driver Warnings

1. Fuel tank door label indicating that ultra low sulfur highway diesel fuel must be used:



2. Fuel tank cap and door labels indicating that diesel fuel is required:





3. Vehicle operator's manual instructions warning against misfueling:

Page 318:

Driving and parking

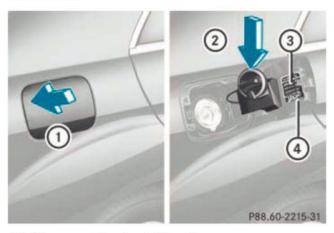
↑ WARNING

Do not fill diesel tanks with gasoline. Do not mix diesel fuel with gasoline. Otherwise the fuel system and engine could be damaged. In addition, the vehicle could catch fire.

- Do not use gasoline to refuel vehicles with a diesel engine. Do not use diesel to refuel vehicles with a gasoline engine. Even a small quantity of the wrong fuel will damage the fuel system and engine.
- Do not switch on the ignition if you accidentally refuel with the wrong fuel. Otherwise, the fuel will enter the fuel lines. Notify a qualified specialist workshop and have the fuel tank and fuel lines drained completely.

You can find more information under "Fuel" (▷ page 525), or by contacting an authorized Mercedes-Benz Service Center or visiting http://www.mbusa.com (USA only).

The position of the fuel filler cap is displayed in the instrument cluster . The arrow next to the filling pump indicates the side of the vehicle.



- 1) To open the fuel filler flap
- ② To insert the fuel filler cap
- ③ Tire pressure table
- 4 Fuel type

Page 526:

Diesel engines - important safety notes

- Only use commercially available ULTRA-LOW SULFUR DIESEL FUEL (ULSD, 15 ppm MAXIMUM SULFUR) that meets the ASTM D975 standard. Failure to use ULTRA-LOW SULFUR DIESEL FUEL (ULSD) can severely damage the vehicle's exhaust gas aftertreatment system.
- Do not fill the tank with gasoline. Do not blend diesel fuel with gasoline or kerosene. Otherwise, the fuel system and the engine could be damaged.