

## Daimler Chrysler

### FUEL REQUIREMENTS (DIESEL ENGINES)

Use good quality diesel fuel from a reputable supplier in your Dodge truck. For most year-round service, No. 2 diesel fuel meeting ASTM (see chart below) specification D-975 will provide good performance. If the vehicle is exposed to extreme cold (below 20°F or -7°C), or is required to operate at colder-than-normal conditions for prolonged periods, use climatized No. 2 diesel fuel or dilute the No. 2 diesel fuel with 50% No. 1 (see chart below) diesel fuel. This will provide better protection from fuel gelling or wax-plugging of the fuel filters.

**NOTE:** A maximum blend of 5% biodiesel may be used with your Cummins Diesel equipped Dodge Ram Truck.

**NOTE:** In addition, commercially available fuel additives are not necessary for the proper operation of your Cummins Diesel equipped Dodge Ram Truck.

**NOTE:** No. 1 diesel fuel should only be used where extended arctic conditions (-10°F or -23°C) exist.

Further please see attached bulletin.

Ultimately though DCX would request that drivers and operators review the owners manual and or the service manual. The supplemental, for B20, filter is only available from the local Dodge dealer or an Upfitter.

<b>Number 2 Diesel Fuel Specifications</b>
Fuel Properties -No. 2 -Diesel Reference
Viscosity -1.9 to 4.1 centistokes (ASTM D-445)
Cetane Number -40 min. (ASTM D613)
Sulfur Content -.05% by weight (ASTM D-2622)
Water & Sediment -less than (ASTM D-2709) 0.05 % by volume
Carbon Residue -Less (Ramsbottom ASTM than.35% D-524
Flash Point -125°F min. (ASTM D-93)
Density -40-34 API gravity (ASTM D-287)
Cloud Point 15°F (ASTM D-97)
Active Sulfur (ASTM D-130)
Copper Strip
Corrosion -#3 rating
Ash -0.01% by mass (ASTM D-482)
Distillation -curve is smooth & cont. (ASTM D-86)

<b>Number 1 Diesel Fuel Specifications</b>
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Fuel Properties -No. 1 -Diesel Reference
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Viscosity -1.3 to 2.4 centistokes (ASTM D-445)
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Cetane Number -40 min. (ASTM D613)
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Sulfur Content -maximum of.05% by weight (ASTM D-2622)
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Water & Sediment -less than 0.05 % by volume (ASTM D-2709)
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Carbon Residue -Less than.15% (Ramsbottom ASTM D-5240)
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Flash Point -100°F min. (ASTM D-93)
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Density -40-34 API gravity (ASTM D-287)
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Cloud Point -(-30F°) (ASTM D-97)
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Active Sulfur (ASTM D-130)
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Copper Strip
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Corrosion -#3 rating
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DCX POC:

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DCX Fleet Operations  
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**NUMBER:** 14-002-06

**GROUP:** Fuel

**DATE:** February 14, 2006

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**SUBJECT:**

Bio-Diesel B2 Fuel

**MODELS:**

2002 - 2006 (VA)

Sprinter

**SYMPTOM/CONDITION:**

Fuels with a maximum volume percentage of 2% Bio-Diesel can be used for Sprinter engines type OM612 and OM647. Bio-Diesel, also known as Fatty Acid Methyl Esters (FAME), fuel must comply with specification ASTM D 6751 by the World-Wide Fuel Charter (WWFC), category 1-3.

**CAUTION:** The engine may suffer severe damage if operated with concentrations of Bio-Diesel higher than 2%.

**POLICY:**

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**THIS BULLETIN SUPERSEDES TECHNICAL SERVICE BULLETIN 14-007-06, DATED AUGUST 25, 2006, WHICH SHOULD BE REMOVED FROM YOUR FILES. ALL REVISIONS ARE HIGHLIGHTED WITH **\*\*ASTERISKS\*\*** AND INCLUDES ADDITIONAL INFORMATION REGARDING FUELING OF EARLY BUILT 2007 RAM TRUCK CAB AND CHASSIS (DC) VEHICLES.**

***SUBJECT:***

Fuel And Fuel Filtering Requirements For Cummins 5.9L And 6.7L Engines

***OVERVIEW:***

This bulletin involves a discussion regarding fuel system requirements.

***MODELS:***

2006 - 2007 (DH/D1/DC) Ram Truck (Heavy Duty)

**NOTE: This bulletin applies to vehicles equipped with a 5.9L High Output or a 6.7L Cummins Turbo-Diesel Engine (sales codes ETH or ETJ respectively) that were built on or after March 07, 2006 (MDH 0307XX).**

***DISCUSSION:***

**Current Fuel Systems:**

- For the diesel engine system to operate at its peak performance a high level of fuel quality must be maintained. Emission control and fuel delivery systems have advanced significantly. Care must be taken to insure that the fuel that is delivered to the engine fuel injection system is of the highest quality possible and free of contaminants.
- Significant components to fuel quality are: the initial quality of the fuel (as dispensed from the service station fuel pump or bulk storage), on-vehicle fuel storage, and the on-vehicle fuel filtering of the diesel fuel prior to the fuel injection process.
- Refer to the Owners Manual for fuel and fuel system information.

**Proper Fuel And Fuel Quality:**

- Use good quality diesel fuel from a reputable supplier. It is recommended that purchase of diesel fuel should be made from a service station that is known to dispense a high volume of highway diesel fuel.
- **\*\* Ultra Low Sulfur Highway Diesel Fuel (15 ppm of sulfur or less and meeting ASTM D975 - grade S-15) is required for use in Dodge Ram Trucks equipped with a 6.7L diesel**



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engine. \*\*

- \*\* The 2007 Ram Truck Cab and Chassis (DC) vehicle is equipped with a 6.7L diesel engine. This vehicle is to use Ultra Low Sulfur Highway Diesel Fuel. Due to limited availability of Ultra Low Sulfur Highway Diesel Fuel, during the initial production of this vehicle, Low Sulfur Highway Diesel Fuel (500 ppm of sulfur or less) may be used **ONLY** until Ultra Low Sulfur Highway Diesel fuel becomes readily available and fuel pumps that dispense Ultra Low Sulfur Highway Diesel Fuel are required to be labelled as such. This is expected to occur around **October 15, 2006**. \*\*

- \*\* Ultra Low Sulfur Highway Diesel Fuel (preferred) or Low Sulfur Highway Diesel Fuel (500 ppm of sulfur or less) are required for use in Dodge Ram Trucks equipped with a 5.9L diesel engine. \*\*

- A maximum blend of 5% biodiesel (B5) is acceptable as long as the biodiesel mixture meets ASTM specification D-975, D-975 - grade S-15, and ASTM D6751. A biodiesel fuel blend that is higher than 5% is not acceptable without additional fuel processing because these higher percentage biodiesel blends contain excess amounts of moisture which exceed the water stripping capability of the on-engine final fuel filter. Should a higher percentage biodiesel fuels be used an auxiliary water stripping filter will be required.

- A maximum blend of 20% biodiesel (B20) can be used by government, military, and commercial fleets who equip their vehicle(s) with an optional water separator, and adhere to the guidelines in the Department of Defense specification A-A-59693 (in addition to: ASTM specification D-975, D-975 - grade S-15 and ASTM D6751)

- Off-highway diesel fuel (i.e. farm or marine use diesel fuel) that does not meet Ultra Low Sulfur Highway or Low Sulfur Highway fuel specifications (as listed above) is NOT acceptable. Unknown sulfur and water content and unknown cetane number may adversely affect the performance of the engine and fuel injection system.

- Fuel conditioners (additives) are not recommended and should not be required if you buy good quality fuel and follow cold weather advice supplied in the Owners Manual.

### **Proper Bulk (Off-Vehicle) Fuel Storage:**

- Proper maintenance of stored fuel is essential. Diesel fuel is seldom entirely free of moisture. Fuel contaminated with moisture may develop a bacteria or "slime" that may restrict or block fuel filters and lines.

- As diesel fuel is lighter than water, drain condensation no less than monthly from the diesel fuel supply/storage tanks.

- Change the storage tank in-line filter regularly. This filter acts as the last filter prior to the diesel fuel entering the vehicle diesel fuel tank. Good quality diesel fuel is mandatory. If the storage tank does not have an in-line filter, then a in-line filter should be added. Refer to the table on the following page for recommended in-line filter specifications.

### **Proper On-vehicle Fuel Storage And Filtering:**

- Proper on-vehicle fuel storage that prevents fuel contamination is important.

- The original (OEM) vehicle fuel tank module (fuel pickup) filter performs a primary filtering of the on-vehicle diesel fuel as the fuel leaves the fuel tank and enters the fuel lines.

- On-vehicle auxiliary diesel fuel tanks are often added by the vehicle owner to extend vehicle driving range. Auxiliary fuel tank systems must protect the quality of the diesel fuel just as well as the originally equipped (OEM) fuel tank that came with the vehicle when it

was new.

- On-vehicle auxiliary diesel fuel storage tanks must have a primary fuel filter to prevent contamination and moisture accumulation. Refer to the table on the following page for recommended filter specifications.

- The prevention of moisture in the fuel system, the prevention of fuel stagnation, and the use of a primary fuel filter should all be considered in the purchase, installation, and maintenance of any auxiliary on-vehicle diesel fuel tank.

**Proper On-vehicle Final Fuel Filtering:**

- The large fuel filter mounted at the engine is the final fuel filter, water separator, fuel heater, and water drain. This filter is the final “line of defense” when maintaining a high level of fuel quality. If the diesel fuel is contaminated or contains moisture, the engine mounted fuel filter system is the last chance to affect possible correction.

- The quality of the fuel, its prior storage, and fuel handling prior to the final filter all have a significant impact on the amount of contamination and moisture entering the final fuel filter.

- It is important to drain accumulated moisture/water at least monthly from the final fuel filter. Do not wait until the “Water In Fuel” indicator illuminates before performing this maintenance.

- Maintenance on the final fuel filter / water separator is important. Follow the maintenance schedule per the Owners Manual. Replace the filter more frequently if highly contaminated or high moisture content fuel is encountered.

- On a 5.9L engine, if the final fuel filter is replaced due to a high moisture content diesel fuel, verify that the water sensor probes in the final filter have been cleaned. Excessive moisture may contaminate the sensor sensing probes. The 6.7L engine includes a new water-in-fuel sensor with the new final fuel filter element.

- The final fuel / water separator filter must meet or exceed OEM specifications. Some aftermarket filters may not meet OEM specifications.

- The final fuel / water separator filter must meet or exceed the filtration specifications listed in the table below.

CATEGORY	FUEL FILTER SPECIFICATION
Particle Removal Efficiency Per SAE J1985 (Single Pass)	7 micron @ 98.7% Efficiency
Dirt Holding Capacity at 1.5 PSI and 52 GPH (Bosch CRFS TKU)	Greater than or equal to 15 grams
Maximum Delta Pressure @ Rated Flow (Filter Installed in Housing)	1.5 PSI (New) or 5 PSI (Plugged of Cold Weather)
Water Stripping Performance Per SAE J1488	95% Efficient @ 36.5 GPH
Fluid Compatibility	Commercial Diesel US#1 and US#2 (LSD/ULSD) B20 Material Compatible with SBME (Soybean Methyl Ester) and RSME (Rapeseed Methyl Ester)

- Final fuel / water separator filters that meet the above specifications are approved for use on Cummins 5.9L and 6.7L diesel engines.
- The use of non-approved fuel filters will result in engine performance deterioration, and/or possible progressive damage to the engine from foreign particle ingestion, and/or fuel system component corrosion.
- It is recommended that customers use the MOPAR approved or Cummins Equivalent fuel filters to protect the engine from debris and water contamination.
- The following final fuel / water separator filters are known to meet or exceed the specifications listed in the table above.

<b>Manufacturer</b>	<b>2006-2007 5.9L Part Number</b>	<b>2007 6.7L Part Number</b>
MOPAR	68001914AA	05183410AA
Cummins	4935205	4936025
Fleetguard	FS19800	FS4325200

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