
Bio-Diesel

Topic number	LI07.16-N-037819
Version	1
Design group	07.16 Common Rail Diesel Injection (CDI)
Date	02-17-2006
Validity	Sprinter MY02-06
Reason for change	

Complaint:

Customer requests usage of bio-diesel.

or

Fuel system damage such as seized common rail components (high pressure) or leaking rubber seals (low pressure).

Cause:

TSB 14-002-06 "Bio-Diesel B2 Fuel" was released in February 2006 (see attachments):

"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."

Previously the usage of bio-diesel was not allowed for Sprinter vehicles.

With the above TSB the policy was changed in order to comply with certain state regulations allowing gas stations to provide B2 bio-diesel at the normal diesel pump.

The major differences between bio-diesel and normal diesel are:

- Lubricity; bio-diesel has higher lubricity which is, up to a certain level, very positive for the common rail components and especially the high pressure pump
- Ester group; bio-diesel contains certain ester compounds which react very well with polymers (e.g. rubber, plastic), this may result in damage to seals and fuel lines
- Coating; bio-diesel develops a very thin but hard coating on metal surfaces which may lead to additional friction or sticking of internal common rail components with minimal play

Attachments	
File	Designation
14-002-06.pdf	Bio-Diesel TSB

Remedy:

B2 bio-diesel (2% volume percentage premixed by the diesel supplier) is approved for use in Sprinter vehicles and will not harm the fuel system.

The nature of bio-diesel as described in the cause section has a rather positive influence if used as a 2% blend. The lubricity increases slightly, but the negative chemical reactions will not take place at such low percentages.

Thus there is no concern when using bio-diesel as specified above. However, the usage of pure bio-diesel or a blend with significantly more than 2% bio-diesel is not allowed and may cause severe damage. It is not recommended that the customer blends the diesel himself, this procedure does not ensure that the specifications will be met.

Fuel system damages should always be checked for the influence of bio-diesel.

- Smell; bio-diesel has a typical smell similar to cooking oil
- Coating; inspect common rail fittings for the existence of a coating, which may have a color between yellow and red or a slight brown. See attached picture.
- Fuel filter; cut filter with a saw and inspect internal metal surface of the housing for the existence of a coating and the filter element for the existence of unusual debris or clogging
- Ask customer for the vehicle's history of bio-diesel usage

Fuel system damages are not warrantable if caused by bio-diesel other than specified above.

The new bio-diesel policy will make it very difficult to determine, whether the customer has operated the vehicle with bio-diesel according to our specifications.

Attachments	
File	Designation
Bio-diesel coating.JPG	Typical color for a coating caused by the usage of bio-diesel

Symptoms
Power generation / Engine management / Engine running / Stalls/goes out
Power generation / Engine management / Engine running / Poor fuel economy
Power generation / Fuel system / Fuel pump / Nonfunctional
Power generation / Fuel system / Fuel system odor / Odor
Power generation / Fuel system / Fuel system leaks / System leaks
Power generation / Fuel system / Fuel tank / Fuel tank leaks / Leaks
Power generation / Engine management / Engine performance / Poor acceleration