

Bosch tips

Damage due unsuitable fuel fed to distributor injection pumps

The quality and composition of commercially available biodiesel fuels is very diverse and not controllable
Suitable diesel fuels are those which conform to DIN EN 590

Examples of unsuitable fuels are:

- a. Fuels with free water
- b. Inadequately filtered fuels
- c. Fuels with poor lubricating qualities
- d. "Alternative" fuels (Biodiesel, RME, PME, FAME - 'Fatty Acid Methyl Ester' etc.)
- Contaminated fuels (e.g. with petrol, solvents, used engine oil, alcohol, kerosene)

Examples of damage:

a. Fuels with free water



Scavenging and erosion.

b. Inadequately filtered fuels



Mechanical wear due to solid particles.

c. Fuels with poor lubricating qualities



Example Cam plate claw:
Clearly visible wear, also on the drive shaft claw and the cross slot in the plate.

d. "Alternative" fuels (Biodiesel, RME, PME, FAME 'Fatty Acid Methyl Ester', etc.)



Damage to injection advance piston: Operation with biodiesel (FAME) will clog the fuel filter. This causes the distribution injection pump to suck in air, leading to the erosion of the control valve piston area, such as depicted in the illustration.



Erosion of solenoid-actuated shut-off parts due to aggressive components in FAME.



Attacks on the face of the cover plate due to aggressive components in FAME.

d. Other examples



A: Illustration of damage caused by unsuitable fuels such as PME, RME and FAME. Consequences: Hysteresis and consequential high wear, changes to mapped data and an associated wide range of potential faults. (Arrowed = deposits in the half-differential short-circuiting ring sensor mechanism).

B: Actuator mechanism damage due to use of undefined PME fuel (biodiesel). Actuator mechanism heavily gummed up with sticky reddish brown deposits from RME.



Deposits on the surfaces of copper parts (black oxidized) in the half-differential short-circuiting ring due to aggressive components in FAME.



Deposits and gumming on drive train parts so that also rubber gaskets (not illustrated) can fail.

Warranty

BOSCH warranty will not apply to damage to parts of distributor injection pumps (mechanical pumps and electronic diesel control pumps) which is traceable to the use of unsuitable fuels, even if the first installer or vehicle manufacturer permitted the use of other fuels.