

Ti

Products affected

Truck in Series					Bus in Series				I&M
3	4	P	R	T	3	4	K	N	
-	X	X	X	X	-	X	X	X	-

**Miscellaneous:** Applies to trucks equipped with an HPI or PDE engine and buses equipped with a PDE engine. Does not apply to engines with an in-line pump.

## FAME fuel

### Changes

The following changes have been made to this issue:

- The TI also embraces buses as above. The "Background" section has been augmented as regards "Consumption, performance and emissions" as well as "Driving conditions where FAME is not recommended".
- The "Conditions" section has been supplemented with oil-change intervals for buses and the section headed "Other factors that could be affected by FAME operation" now includes information about auxiliary equipment, particle filters and gases from FAME.

### Background

To meet wishes expressed by the market for biofuel, Scania diesel engines will be able to run on 100% FAME which meets European standard EN14214 or max. 5% FAME according to EN590.

FAME (Fatty Acid Methyl Ester) is the collective name for fatty acid methyl esters. RME (Rape Methyl Ester) is the most common form of FAME in Europe.

**Note!** At temperatures above +38 degrees C FAME can self-ignite together with fibrous (flammable) materials.

### Consumption, performance and emissions

FAME has a lower energy content than diesel fuel, which could affect performance, fuel consumption and emissions. In connection with FAME operation the emissions level for NOx could exceed the legal limits.

## Driving conditions where FAME is not recommended

FAME is not recommended as fuel for vehicles such as fire engines which are parked and unused for lengthy periods or which have a low fuel turnover.

If the fuel tank is filled up with FAME and the vehicle is left parked and unused for a lengthier period of time, condensate will form in the tank and the conditions for bacterial growth will be favourable. FAME also has lower oxidation stability than diesel, which could lead to the fuel thickening and clogging parts of the fuel system, such as the fuel filter.

## Conditions

The following conditions must be met in order to run Scania diesel engines on 100% FAME.

### 1. FAME must comply with EN14214

The customer will have to bear costs related to the grade of fuel, that is to say if the fuel does not comply with EN14214.

### 2. Shorter oil-change intervals for engine oil

The boiling point of FAME fuel is higher than that of diesel fuel, which means that the fuel does not boil away if it collects in the sump. To avoid the risk of using oil that is too thin, the oil should be changed more frequently.

<b>Type of operation for trucks</b>	<b>Type 0</b>	<b>Type 1</b>	<b>Types 2-4</b>
Oil-change interval (km)	30 000	20 000	10 000
<b>Type of operation for buses</b>	<b>Type 1 long-distance</b>	<b>Type 2 scheduled services</b>	<b>Type 3 urban traffic</b>
Oil-change interval (km)	20 000	10 000	5 000

- Extended oil-change intervals are not possible.
- The viscosity grade of the oil should be xW-40 (xW-30 oils are unsuitable due to their fuel dilution effects). Oil grade as specified in the Workshop Manual.
- On switching from diesel to FAME operation the oil filter should be changed and the centrifugal oil cleaner cleaned after 1000 km and subsequently at every oil change. Such extra cleaning is necessary to remove possible slag products.
- The engine oil level should also be checked regularly. If it exceeds the maximum level the oil should be changed.
- Change the oil at least once a year, irrespective of the distance driven (odometer reading).
- Change the fuel filter at each oil change.

### 3. Extra fuel filter changes

Change the fuel filter at 1000 km intervals the first three times if the engine has previously been run on diesel oil. This is because FAME fuel dissolves the deposits left by diesel fuel. Afterwards change the fuel filter at every oil change.

On a new vehicle supplied straight from the factory the fuel filter should be changed at every oil change. No extra changes are necessary.

## **Other factors that could be affected by FAME operation**

### **HPI**

In cold weather the fault codes D706 and 1292 could be generated on HPI engines (D706 on Euro 3, 1292 on Euro 4).

### **Auxiliary equipment**

It is important to ensure that auxiliary bodywork equipment using the same fuel as the vehicle engine can also run on FAME fuel. Certain types of peripheral equipment such as Eberspächer and Webasto heaters cannot run on FAME fuel.

### **Bodywork**

In order for the vehicle to be capable of using FAME fuel the bodybuilder must use materials that are impervious to contact with FAME in the fuel system.

### **Particle filter**

Scania does not recommend the use of FAME as the fuel for vehicles equipped with a particle filter.

The oxidation catalytic converter on Euro 4 engines is not a particle filter and can therefore cope with FAME operation.

## **Gases from FAME**

Gases from FAME can affect the surrounding environment. The paint on side skirts and panels above the fuel filler, for example, could undergo material changes.

## **Switching from FAME to diesel**

On switching over from FAME to diesel operation, change the engine oil when the fuel tank is empty.

If the vehicle is driven alternately on FAME and diesel fuel, observe the FAME service intervals.

## **Differences**

If FAME operation gives rise to differences as compared to ordinary diesel fuel operation, such differences should be reported to a Scania distributor for forwarding to the factory.

## **Other fuels**

Other biofuels such as PPO (Pure Plant Oil) are also available on the market. These fuels are not approved as fuel for Scania diesel engines. To be approved for use in Scania diesel engines today the fuel must be FAME and fulfil the requirements of EN14214 or else diesel and comply with EN590.