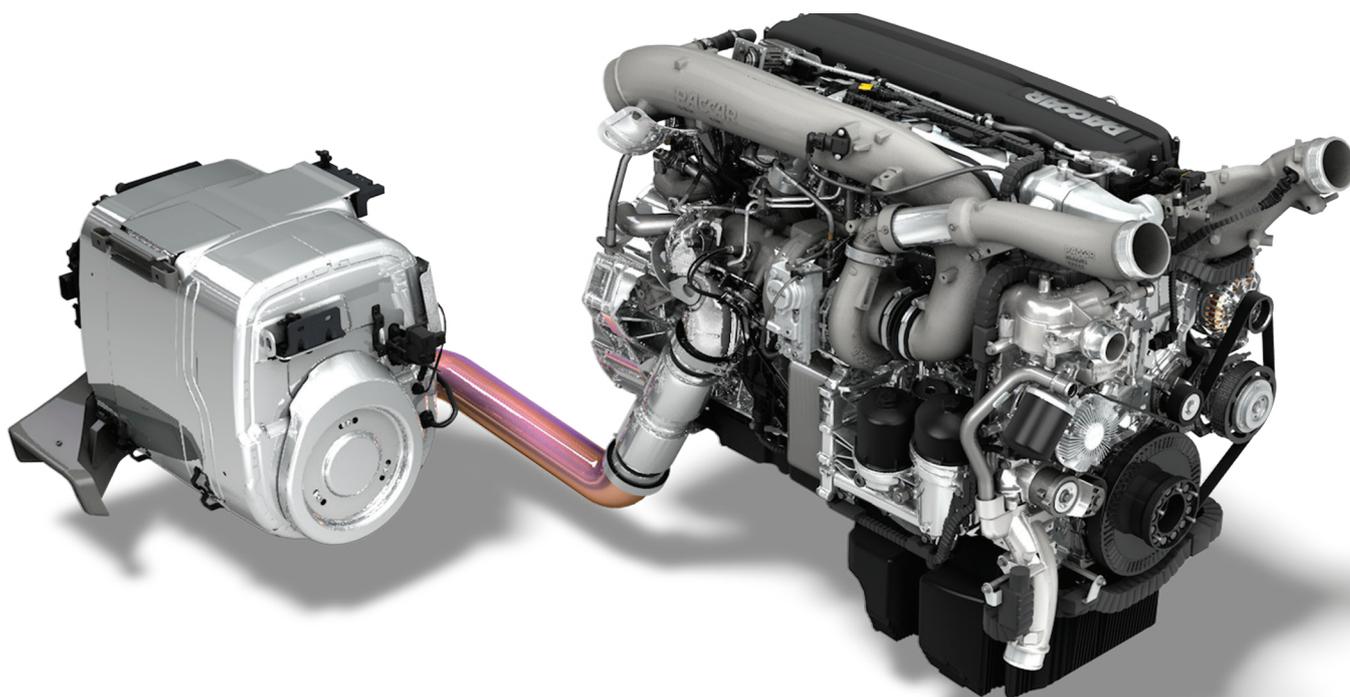


# Emission Aftertreatment System

new CF / XF series



## Emission Aftertreatment System (EAS)

The emission aftertreatment system with AdBlue tank and EAS unit forms the biggest part of the exhaust system. It is mounted on the chassis, just behind the cab. In the aftertreatment system the  $\text{NO}_x$  and PM (particulate matter – particles) levels are reduced to meet the Euro 6 emission requirements.

## Filter

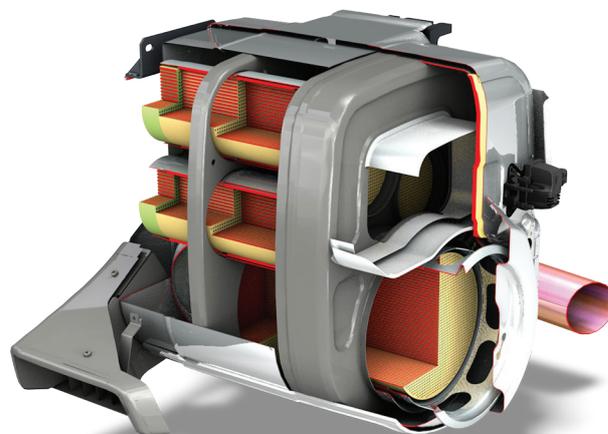
From the engine the exhaust gases pass through an insulated downpipe to the filter box. The filter box contains the Diesel Oxidation Catalyst (DOC) and the Diesel Particulate Filter (DPF). In the DOC part of the soot particles in the exhaust gases is removed via a chemical process. The remaining particles are collected in the DPF.

## Gases

After the filter the gases are mixed with AdBlue (urea solution). Via the SCR catalyst the  $\text{NO}_x$  content in the exhaust gases is converted to harmless nitrogen ( $\text{N}_2$ ) and water  $\text{H}_2\text{O}$ . In the AMOX catalyst the excess ammonia ( $\text{NH}_3$  - ammonia slip) is also converted to nitrogen and water, after which the cleaned exhaust gases can be released into the atmosphere via a diffuser.

## Regeneration of the DPF filter

If the conditions (temperature and  $\text{NO}_x$  level) are favourable, which largely depends on the duty cycle of the vehicle, most of the collected soot in the DPF will burn passively. If the soot level in the DPF becomes too high (indicated by the pressure drop over the DPF), the system will start an active regeneration.



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## Active regeneration

The engine switches to the regeneration mode to augment the temperature in the DOC. As soon as the temperature reaches 250°C a fuel/air mixture is injected upstream of the filter box. As a result the temperature in the DPF will rise to above 500°C and the soot will be burned. When the filter is clean, the fuel/air dosing stops and the engine switches back to the normal operating mode.

Active regeneration whilst driving will not be noticed by the driver.

## Exhaust diffuser

At the end of the aftertreatment system an exhaust diffuser is mounted for release of the exhaust gases. In the diffuser the exhaust gases are mixed with air and spread out in order to cool down the exhaust gases and dissipate the heat.



## Forced stationary regeneration

In operating conditions where the temperature in the DPF remains too low to initiate an automatic regeneration (low engine load), often accompanied by a high soot output (transient drive cycle), the driver may have to start a regeneration manually. This is indicated by three successive notifications on the instrument panel:



- **SOOT LEVEL HIGH**  
(regeneration required)



- **SOOT LEVEL TOO HIGH**  
(regeneration required immediately)



- **SOOT FILTER FULL**  
(engine power limit - regenerate now!)

The driver has to park the vehicle in a save place and press the button to initiate a regeneration. The engine will switch to the regeneration mode and the regeneration process will start as described previously.

## Aftertreatment Control Module (ACM)

The whole process of aftertreatment and regeneration, as well as the exhaust emission at the tailpipe is monitored and controlled by the Aftertreatment Control Module together with the engine control unit (PMCI – PACCAR Multi-Control Injection). The input for the ACM is given by various sensors in the aftertreatment system.