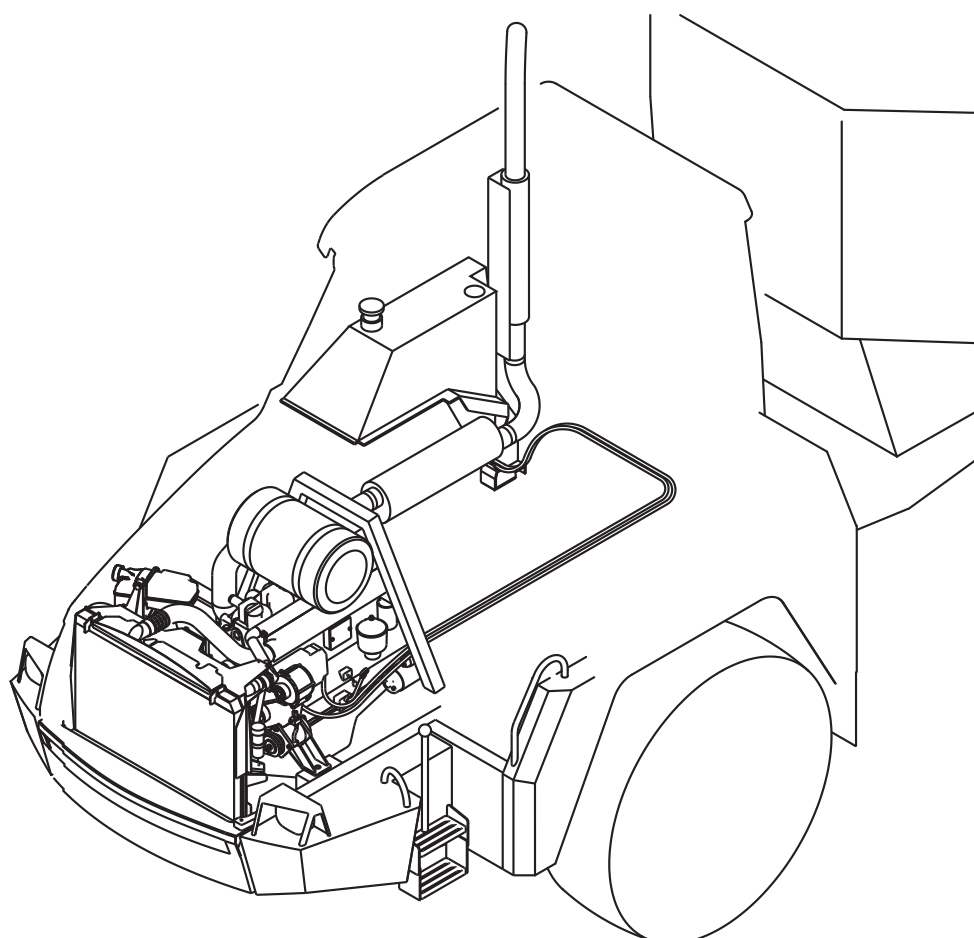


Chapter 1

Engine



Chapter 1

Engine

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Removal of engine assembly

NOTE!

Place the dump truck on level ground and apply parking brake

Apply articulation lock.

Turn off main switch in battery case.

Raise the dump body and lock it with the safety support.

Raise the tiltable cab and lock it with the safety support

Drain engine coolant

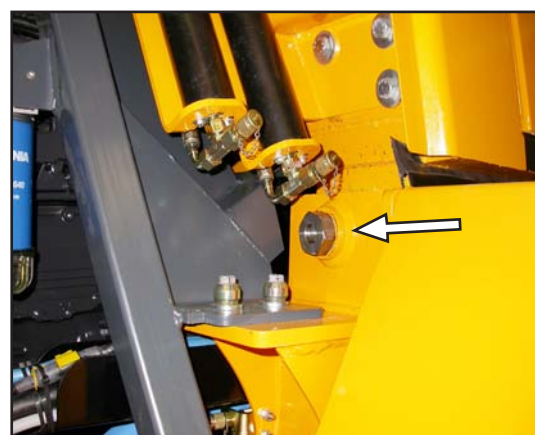
Look in OPERATION & MAINTENANCE MANUAL chapter 2 for instructions.



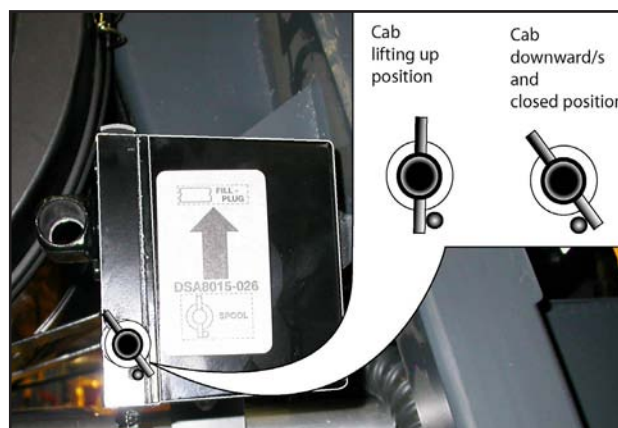
Place wheel chocks to the front wheel

Take away the cab bolt, left and right hand side.

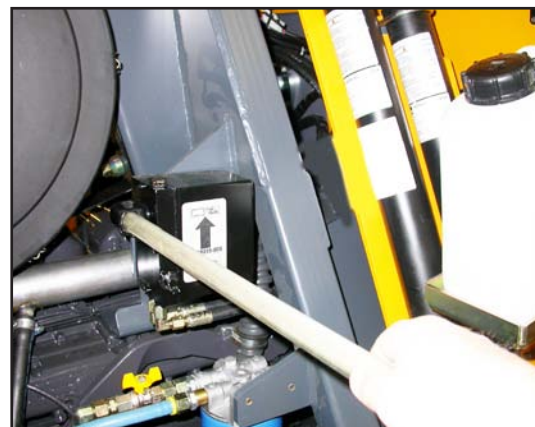
Nv 46 mm



Turn the direction valve on the pump in lifting up position.



With the handle, pump and raise the cab.



Left side:

1

Disassemble the cab pump unit from the air filter stand.

2

Remove the water hose from the pipe socket.

3

Remove the fuel hoses (3 pcs) and

4

Disassemble screws from filter stand bracket



Disconnect the brake hose from the magnetic valve.

(Left side behind the cab bracket)



Right side:

1

Unscrew the hose clamps and remove the pipe bend, filter - turbo

2

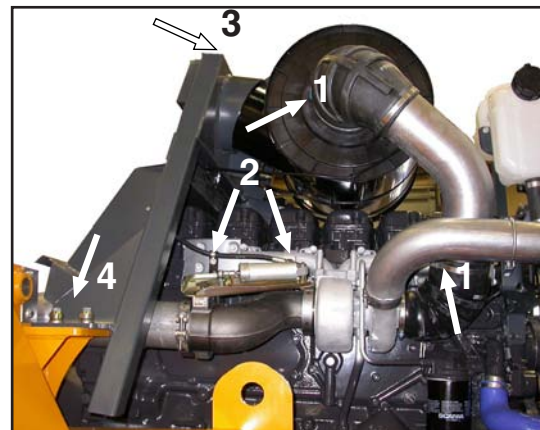
Disconnect the oil hose from engine brake cylinder and bracket disassemble the other end at left side on the magnetic valve

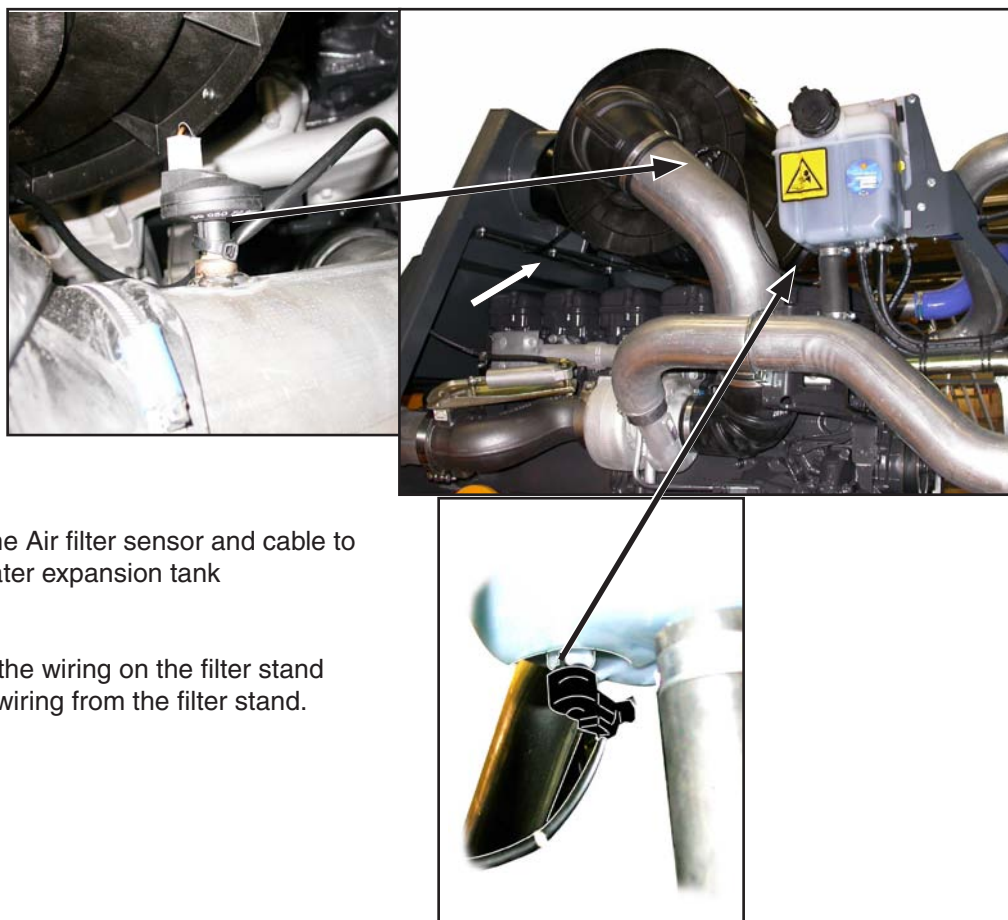
3

Hook up the filter stand in lifting device.

4

Screw off the fastening bolt for filter stand, left and right hand side





Disassemble the cable to the Air filter sensor and cable to the sensor for the cooling water expansion tank (black arrows).

Disassemble the clamps for the wiring on the filter stand (white arrow). Remove the wiring from the filter stand.

Disconnect the exhaust pipe from the turbo pipe bend.



Slack the transmission belt.

Disassemble the ground wiring.

Detach the Air Cond. compressor with the hoses on, from the engine. Check that all of the clamps are undone.

Place the Air condition compressor on the left while the engine is dismount.

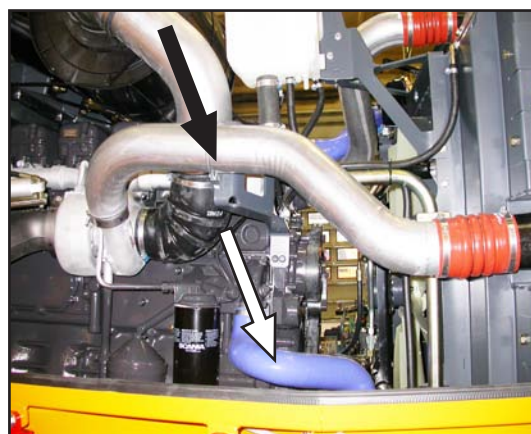


Disconnect the hose from the thermostathousing, the pipe between the air cooler and the engine air inlet.

Disconnect bracket for the air pipe and bracket between engine and fan rack



Disconnect the outlet pipe bend from turbo, and the inlet water hose from the transmission cooler.



Disconnect the retur hose. (Engine - ekspansionstank)

(Quick release coupling)

(Front of the engine, view from the right hand side)



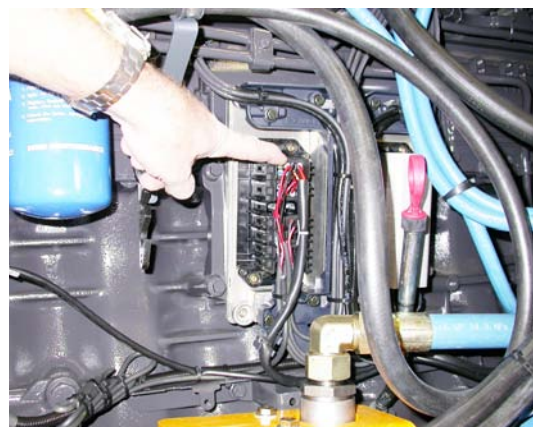
Disconnect the cables between starter motor and the frame



Disconnect the contact on the dynamo.



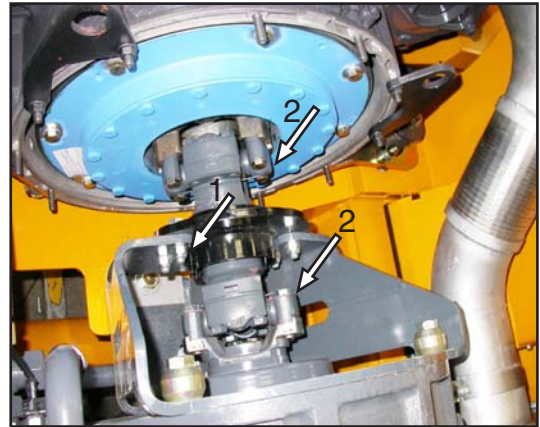
Remove the cover and disconnect the electrical contact from the engine ECU -S6 control unit



Drive shaft

Remove safety atcher.

Remove driveshaft between transmission and engine coupling,



1

Disassemble screw for the ground cable (2 pcs)

2

Left and right hand side, disassemble 3 screws on the engine mounting bracket.



1

Disassemble the hose clamp bracket.

2

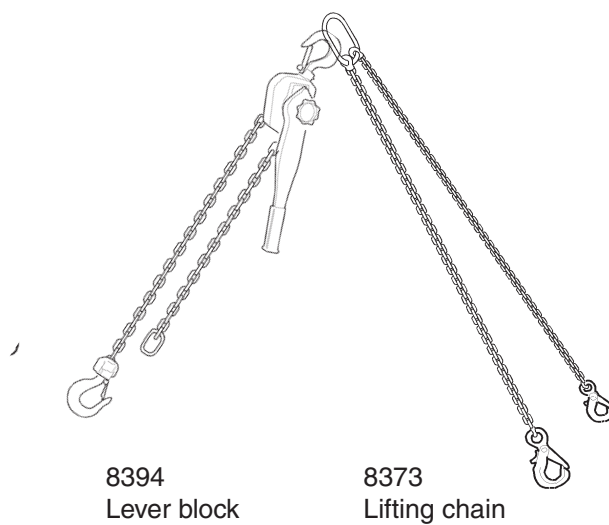
Unscrew the engine bracket bolt left and right hand side.



Lifting the engine

Note:

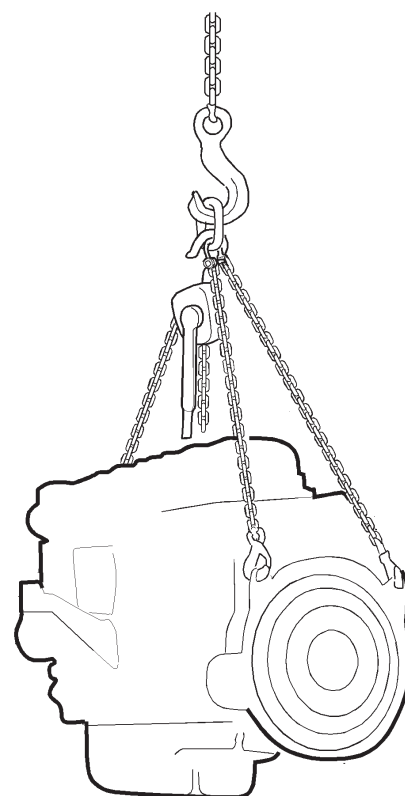
The engine lifting eyes are designed for lifting the engine only, not the engine together with its ancillary equipment (alternator, gearbox etc.) or fram



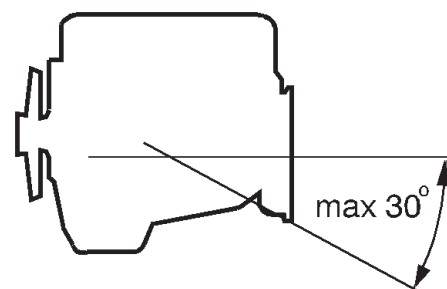
- Fasten the lifting chain 8373 to the rear lifting eyes.

- Fasten the lever block 8394 to the front lifting eye.

With attention, lift the engine out from the frame

**Note:**

The lifting eyes are sized to cope with a maximum angle of 30°.



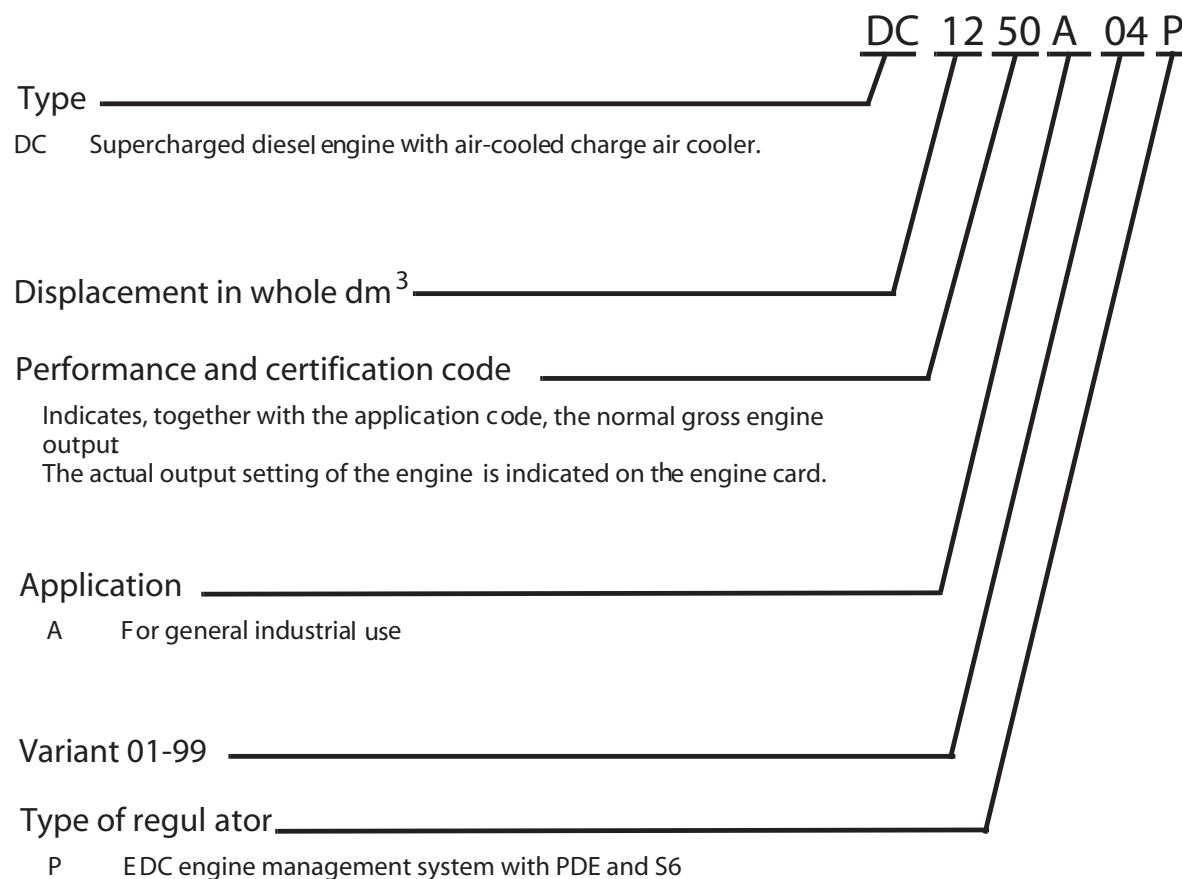
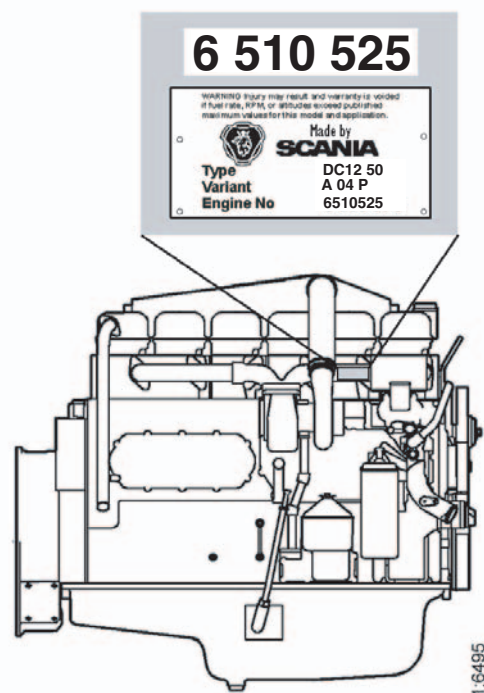
Engine identification

The engine designation indicates, in the form of a code, the type of engine, its size and applications, etc.

The type designation and engine serial number are indicated on a type plate affixed to the right-hand side of the engine.

The engine number is also stamped on the engine block immediately above the type plate.

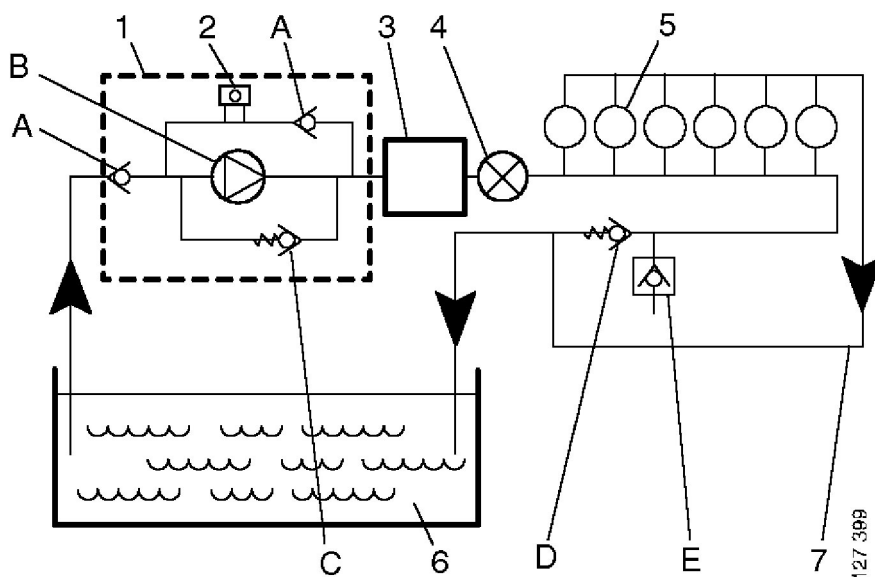
Refer to the illustration.



Fuel system

Schematic diagram of the fuel system

- 1 Feed pump
- 2 Hand pump
- 3 EMS control unit
- 4 Fuel filter
- 5 Cylinders
- 6 Fuel tank
- 7 Return line for excess fuel
- A Check valve
- B Gear pump (feed pump)
- C Safety valve
- D Pressure relief valve
- E Drain nipple

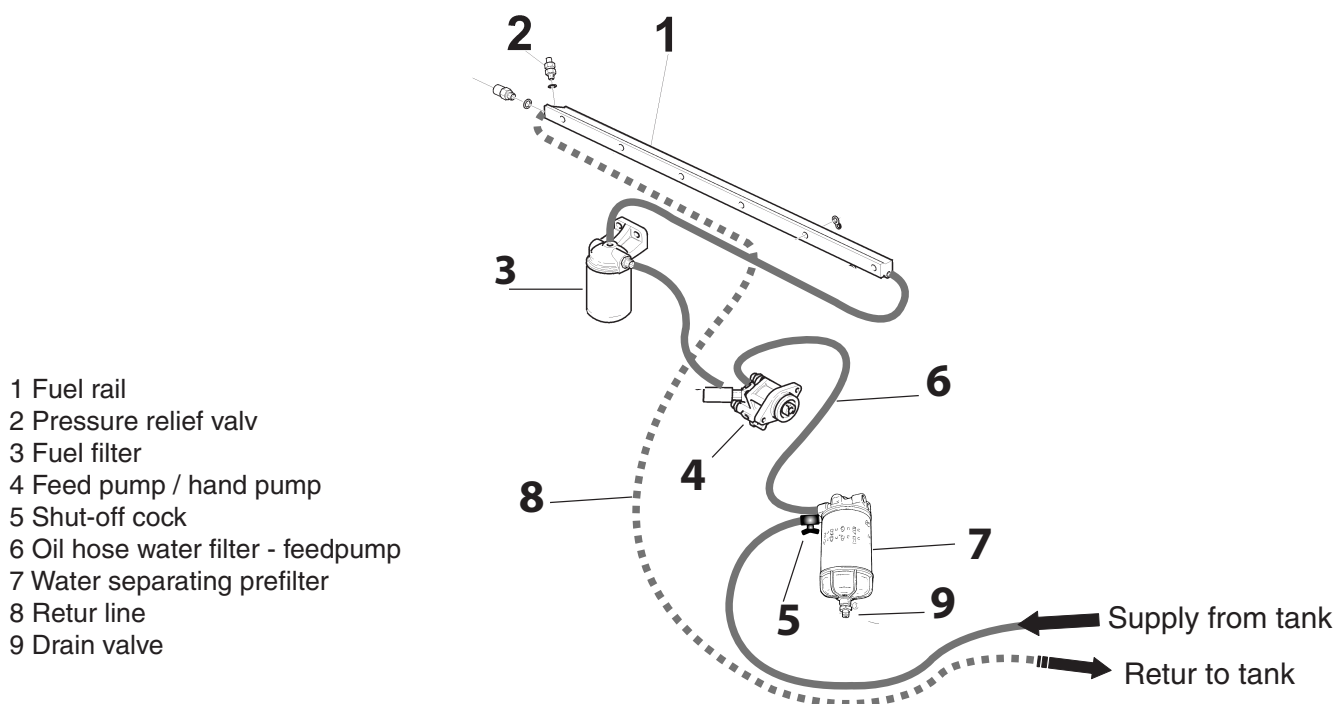


Overflow valve

The purpose of the overflow valve is to limit the pressure in the fuel system and continuously vent it. The overflow valve ensures that the fuel circulates round the system and that there is always fuel in the injection pump for cooling, lubrication and injection.

Opening pressure is **0.6 - 0.8 bar**.

Working pressure is approx. **1 bar**.

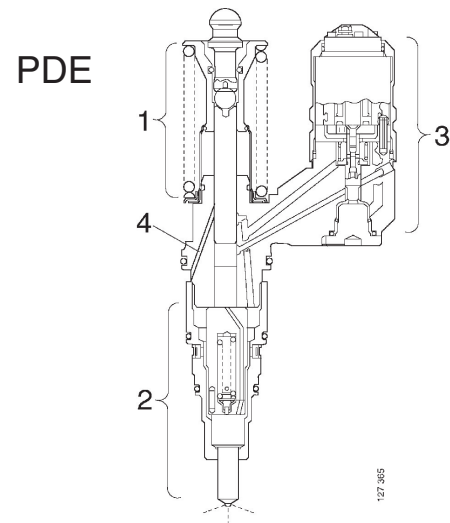


General

Apart from fuel lines and a fuel tank, a PDE (Pumpe-Düse-Einheit) fuel system with unit injectors consists of the following items:

- a feed pump
- a hand pump
- a fuel filter
- one fuel rail.
- a pressure relief valve
- One PDE type unit injector per cylinder.

The fuel system also includes an electronic control system. The control system includes an electronic control unit, the unit injector solenoid valves and sensors.



FUEL

Diesel fuel oil

The composition of the diesel fuel oil has a great influence on the functioning and the service life of the engine and the injection system.

The engine output and exhaust emissions are also dependent on the fuel quality.

The diesel fuel must meet European standard EN 590.

The table below shows the requirements for some of the most important properties:

Property	Requirement
Viscosity at 40°C	2.0 - 4.5 mm ² /s (cSt)
Density at 15°C	0.82 - 0.86 kg/dm ³
Sulphur (concentration by mass)	max. 0.3%
Ignitability (CET rating)	min. 49
Flashpoint	56°C

Environmentally favourable fuels (low sulphur fuels)

There are three classes of so called environmentally favourable fuels (SS15 54 35).

Class 1 is sulphur-free and class 2 is low in sulphur. Compared with class 3 (normal fuel), these fuels are less dense and this reduces engine power output.

Fuel filter

Design

Fuel filter are of single-mounted type. The filter screw on to a retainer which is bolted to the engine.

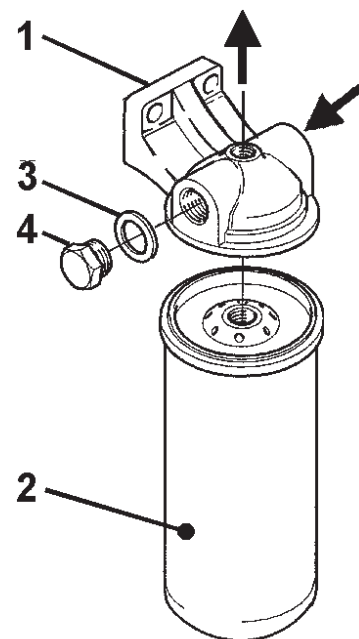
The filter consists of a metal container with a folded paper element. The filter cannot be dismantled but must be changed as a complete unit.

The fuel filter has no bleed screw and is bled by undoing plug 4 in the free inlet passage.

Function

Fuel is pumped into the inlet by the fuel pump. It then continues through passages in the filter retainer to the upper part of the filter, down through the filter or filters and on to the outlet passage. From there, the fuel is piped to the injection pump.

- 1. Filter retainer
- 2. Filter
- 3. Gasket
- 4. Plug



Fuel filter, constituent parts

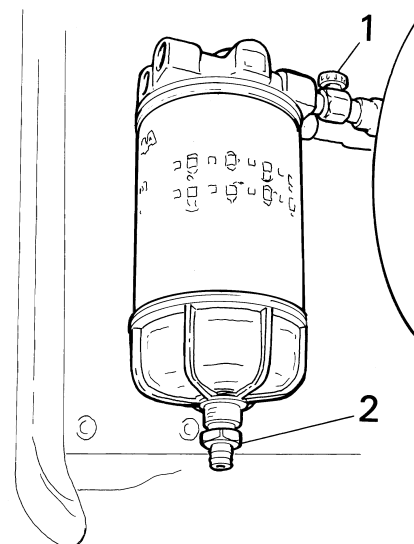
Water separating prefilter

Note:

Close the shut-off cock when renewing the filter.

The same intervals between changes apply as for those for an ordinary fuel filter.

- 1 Shut-off cock
- 2 Drain valve



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