Scania Engines

Important information
Serious risk of injury

When working on the engine, for example when adjusting drive belts and the clutch, or when changing the oil, it is important not to start the engine. The engine could be damaged, but more importantly there is a serious risk of injury.

For this reason, always secure the starting device or disconnect a battery cable before working on the engine. This is especially important if the engine has a remote starter or automatic starting.

WARNING!

This warning symbol and text can be found next to those maintenance items where it is particularly important to bear in mind the risk of injury.

Operator's manual
DC09
XPI
Industrial engine
en-GB 2 398 932

Issue 3.0

IMPORTANT!

The owner is responsible for making sure that maintenance is carried out on time and in accordance with the instructions.

The owner must entrust the maintenance, renewal and repair of emission-related components and systems to a qualified workshop or person.

Before starting

Ensure that all guards are in place before starting the engine. Ensure that no tools or other objects have been left on the engine.

WARNING!

The air filter must be fitted before starting the engine. Otherwise there is a risk of objects being sucked into the compressor impeller or of injury if you come into contact with the air filter.

Certification

An emissions certified engine fulfils the emissions requirements for a particular range of application.

On each emissions certified engine there is a label which shows which requirements the engine fulfils. Scania guarantees that each such engine fulfils the emissions requirements for the range of application for which it is certified.

The following are required for the certified engine to fulfil the emissions requirements once it has been taken into service:

- Maintenance is to be carried out in accordance with the instructions in this Operator's manual.
- The maintenance and repair of injection equipment are to be carried out by a qualified workshop or person.
- The engine may only be modified with equipment that has been approved by Scania.
- Seals may be broken and setting data edited only once approval has been granted by Scania. Modifications may be made by authorised personnel only.
- Modifications affecting the exhaust and intake systems must be approved by Scania.

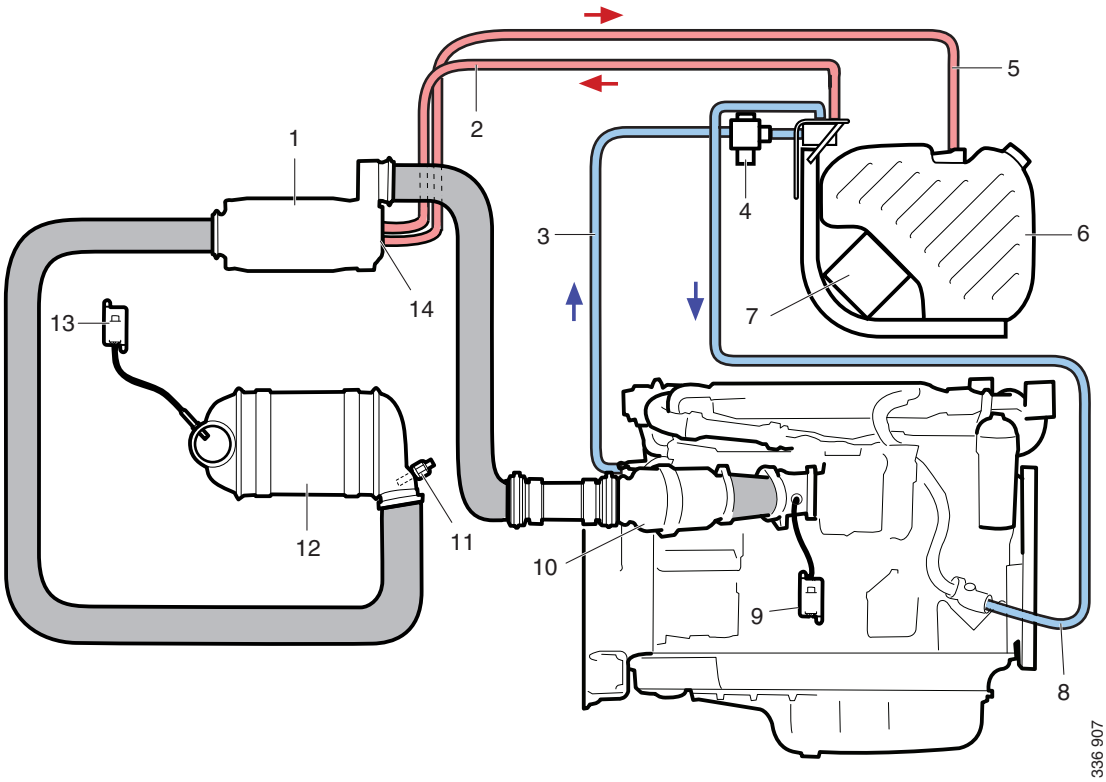
Otherwise, the instructions in the Operator's manual for the running and maintenance of the engine shall apply. The safety precautions should be observed.

IMPORTANT!

For Scania to guarantee that the engine corresponds to its certified configuration, and take responsibility for any damage and injuries that occur, maintenance must be carried out as above.

SCR system

The illustration provides an overview of SCR system components.



1. Evaporator
2. Pressure line for reductant
3. Coolant hose for tank and pump heating
4. Coolant valve
5. Reductant return line
6. Reductant tank
7. Reductant pump and control unit
8. Coolant hose, return from tank and pump heating
9. NOx sensor with control unit[1]
10. Oxidation catalytic converter[1]
11. Exhaust gas temperature sensor
12. SCR catalytic converter
13. NOx sensor with control unit
14. Reductant doser

1. DC09 084/085/086/087/089A only.

Engines with few hours of operation

IMPORTANT!

On engines with few hours of operation, maintenance must be carried out annually or every 5 years.

Stand-by generator sets and the like that are not used regularly should be test run and checked in accordance with the manufacturer's instructions.

The following maintenance items must be carried out once the engine has been warmed up to operating temperature.

1. Checking oil level.
2. Checking coolant level.
3. Checking vacuum indicator.
4. Checking fuel level.
5. Checking for engine leaks.

Cleaning the engine

The engine must be cleaned before starting work.

Clean the engine with hot water. Also use a degreasing agent, if necessary.

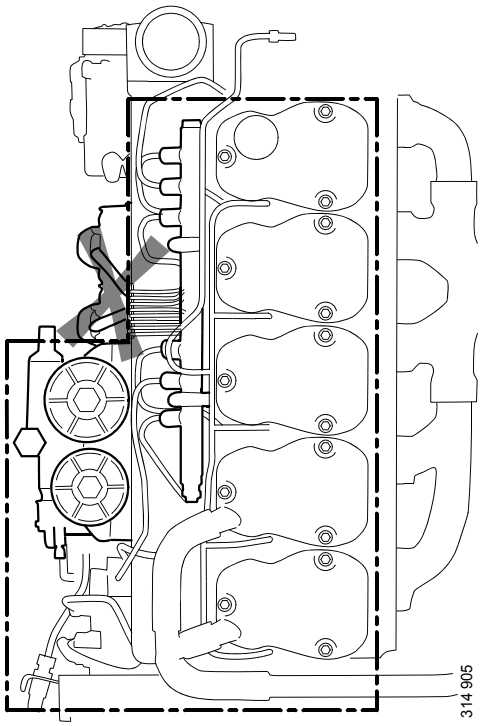
Avoid spraying water on the engine control unit, see illustration.

WARNING!

Beware of hot water! Use suitable protective equipment.

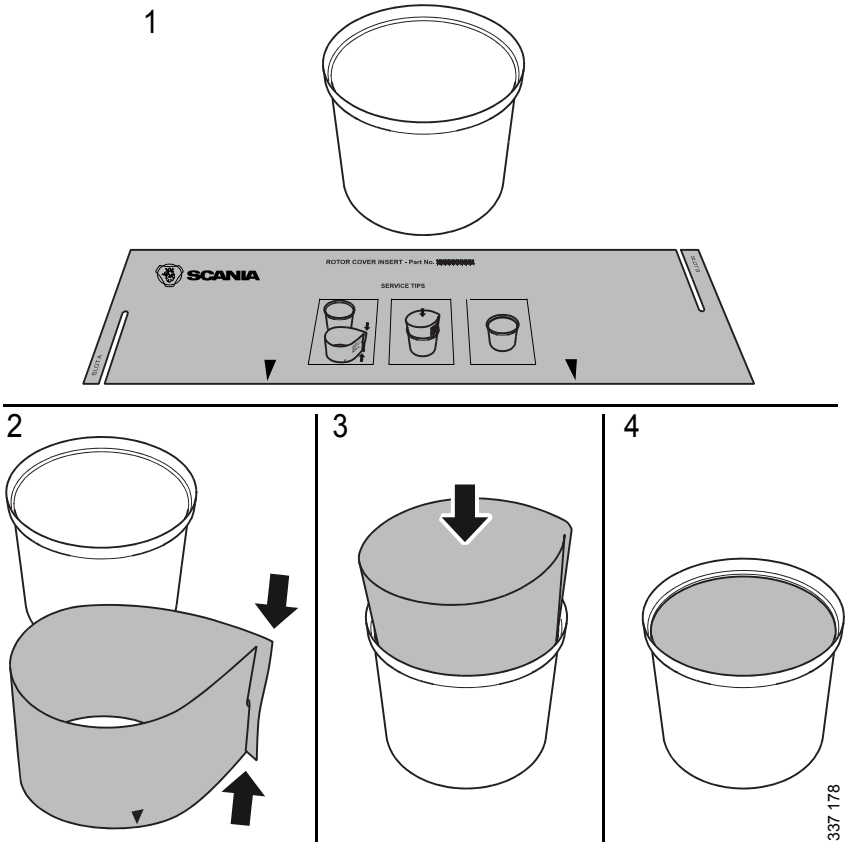
Environment

The washing water must be disposed of in compliance with the relevant national and international regulations.



Clean within the marked area.

11. Fit a new paper insert on the inside of the rotor cover.



Changing coolant

Environment

Avoid spillage and use a suitable container. Used coolant must be disposed of as specified in national and international law.

IMPORTANT!

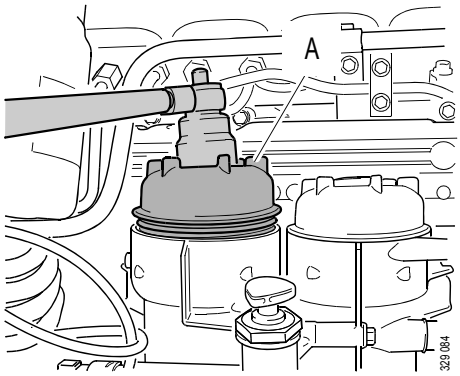
Mix the coolant as specified under the section Coolant.

1. Remove the expansion tank cap.
2. Drain the coolant at the following two points:
   - Lowest point of the cylinder block.
   - The lowest point of the cooling system.
3. Close the drain taps.

IMPORTANT!

Do not use an adjustable spanner or other open tool to undo the filter covers, as this risks damaging the filter covers.

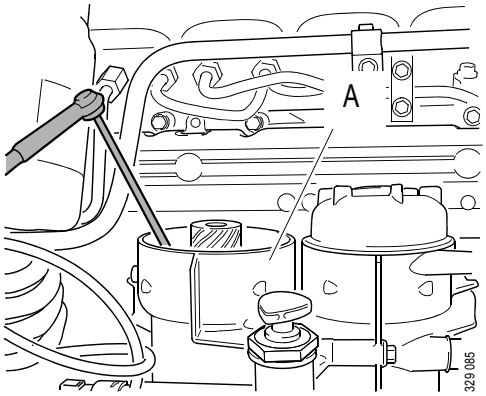
1. Make a mark on the water separating suction filter cover (A). Unscrew the cover 3 to 4 turns using a socket wrench with hexagon driver, e.g. 588 475.



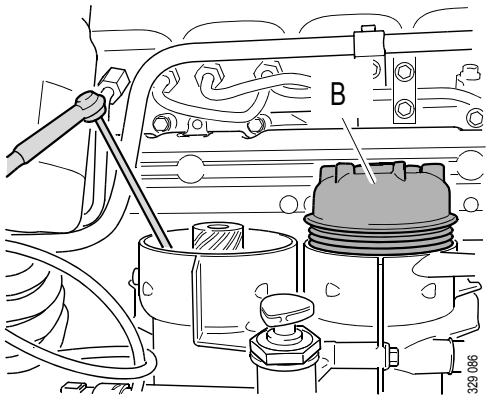
IMPORTANT!

Wait a minimum of 2 minutes to allow as much of the fuel as possible to drain out of the filter housing.

2. Unscrew the filter cover (A) and lift it up slowly with the filter element.
3. Make sure the suction tool is completely drained before starting work. Draw out remaining fuel and any particles using suction tool 588 793 or a similar tool.
4. Keep the suction tool hose in the filter housing for the water separating suction filter (A).



5. Make a mark on the pressure filter cover (B). Unscrew the cover 3 to 4 turns, using a socket wrench with hexagon driver, e.g. 588 475. Draw out fuel which may drain into the water separating suction filter housing when the pressure filter is detached.



IMPORTANT!

Wait a minimum of 2 minutes to allow as much of the fuel as possible to drain out of the filter housing.

Diesel

Composition of the fuel

The composition of the fuel is extremely important for the operation and service life of the engine and injection system. The engine output and exhaust gases are also dependent on the fuel grade.

The requirements and testing standards for the most important characteristics are described in the Workshop Manual which can be ordered from Scania dealers or directly from Scania.

The table shows some of the key properties.

Property	Requirements
Viscosity at 40°C (104°F)	2.0-4.5 cSt
Density at 15°C (59°F)	0.82-0.86 cSt
Ignitability (CET rating)	minimum 49
Flashpoint	56°C (132°F)
Particulate contamination level	ISO 11500, class 22/20/17

Sulphur content of fuel

It is important to use low-sulphur fuel

It is important for sulphur-free or ultra-low sulphur fuel to be used on engines with SCR systems certified in accordance with Stage III B/ Tier 4i and Stage IV/Tier 4f to ensure that the engine operates correctly. Use of the wrong fuel grade can cause damage to the engine and the exhaust gas aftertreatment system.

From January 2011 legislation in the USA and Europe requires all diesel engines not used on the road to be run on sulphur-free or ultra-low sulphur fuel.

REQUIREMENT!

In Europe, the fuel should be sulphur-free according to standard EN 590. This means that the sulphur content must not exceed 10 ppm.

In the USA the fuel must be an ultra-low sulphur fuel in accordance with standard ASTM D975. This means that the sulphur content may not exceed 15 ppm.

Responsibility

IMPORTANT!

The machine operator is responsible for using the correct type of fuel to ensure that local laws are complied with.