

Case IH 12.9L Engine

Repair Manual

87523642

CASE IH

ENGINE

Section

General specifications

1

Fuel

2

Industrial application

3

Overhaul and technical specifications

4

Tools

5

Safety prescriptions

Appendix**PREFACE TO USER'S GUIDELINE MANUAL**

Section 1 describes the engine illustrating its features and working in general.

Section 2 describes the type of fuel feed.

Section 3 relates to the specific duty and is divided in four separate parts:

1. Mechanical part, related to the engine overhaul, limited to those components with different characteristics based on the relating specific duty.
2. Electrical part, concerning wiring harness, electrical and electronic equipment with different characteristics based on the relating specific duty.
3. Maintenance planning and specific overhaul.
4. Troubleshooting part dedicated to the operators who, being entitled to provide technical assistance, shall have simple and direct instructions to identify the cause of the major inconveniences.

Sections 4 and 5 illustrate the overhaul operations of the engine overhaul on stand and the necessary equipment to execute such operations.

SECTION I**General Specifications**

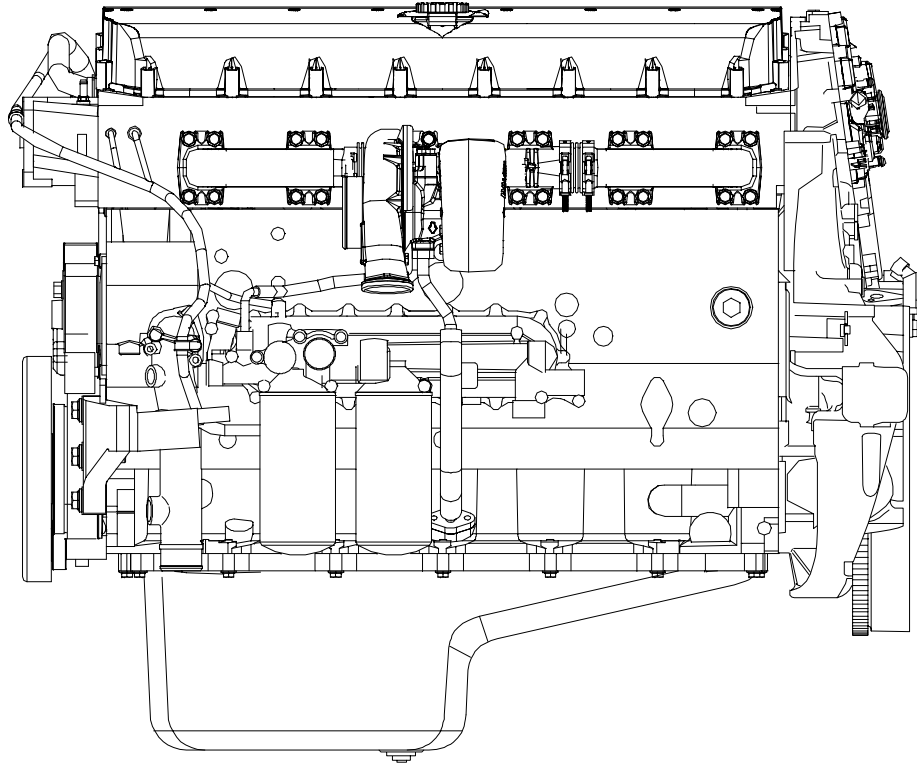
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TECHNICAL CODE

Technical Code
F3BE0684H*E90I
F3BE0684G*E90I

VIEWS OF ENGINE

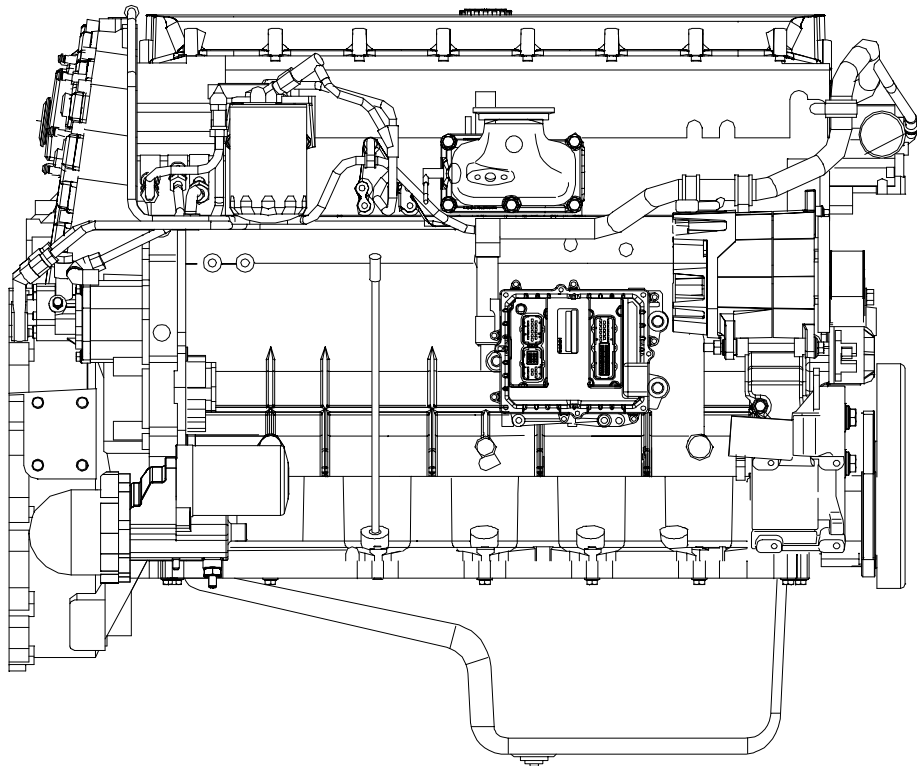
Figure 1



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LEFT-HAND SIDE VIEW

Figure 2

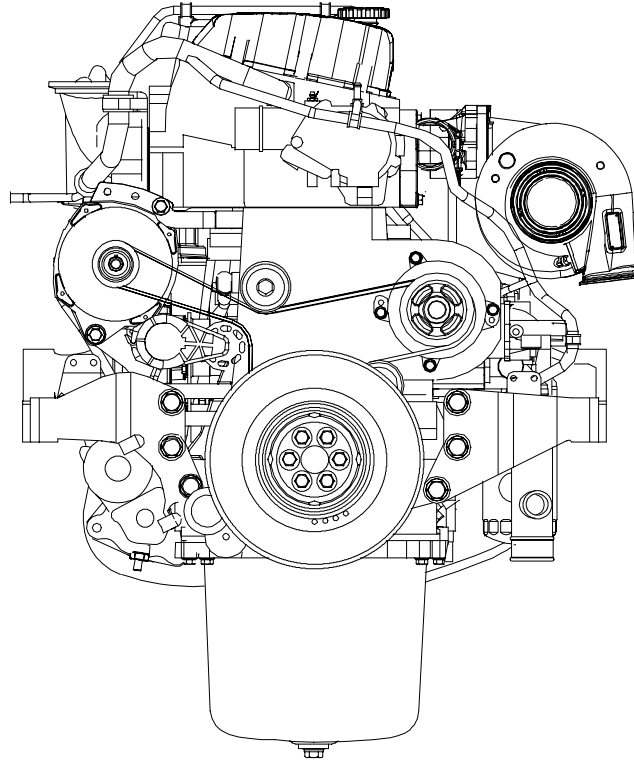


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RIGHT-HAND SIDE VIEW

VIEWS OF ENGINE

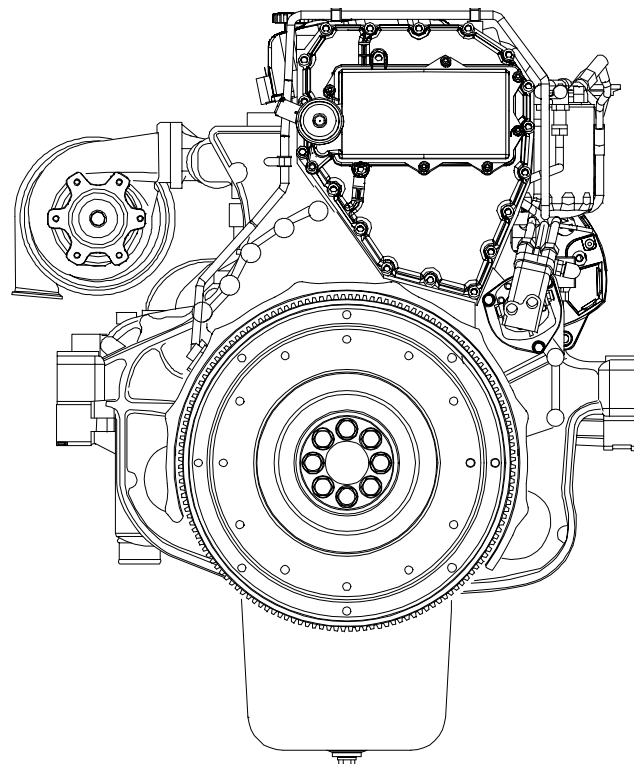
Figure 3



FRONT VIEW

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Figure 4

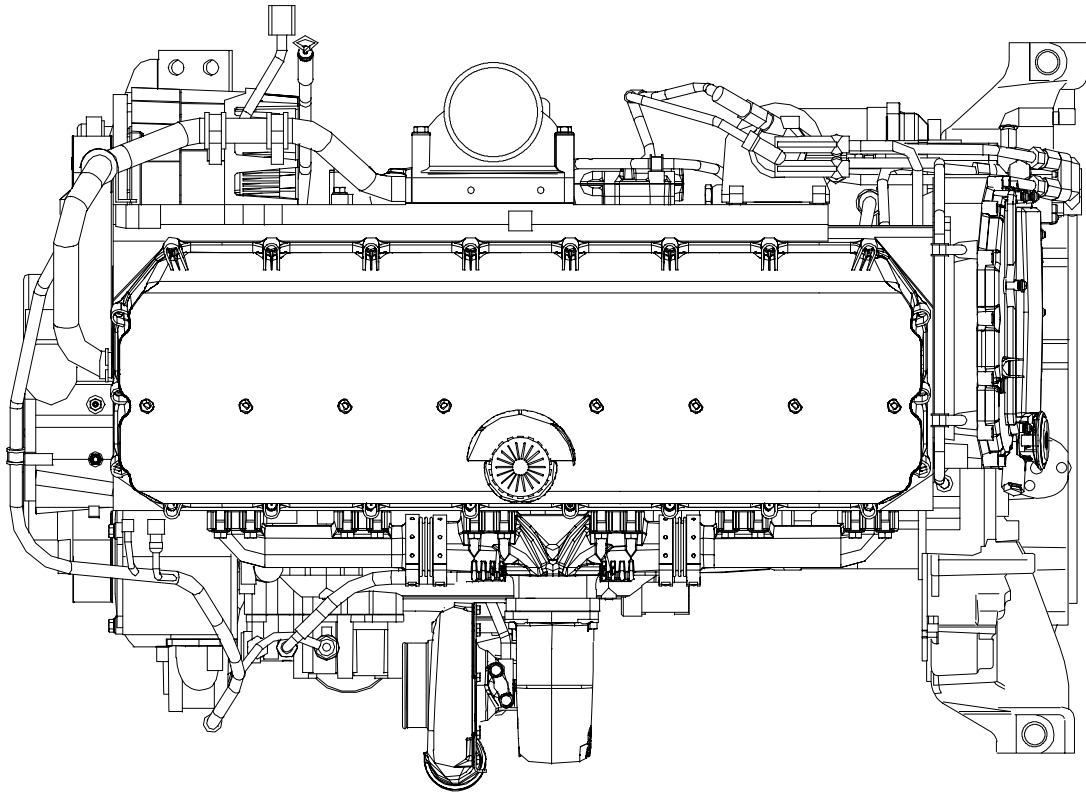


REAR VIEW

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VIEW OF ENGINE

Figure 5

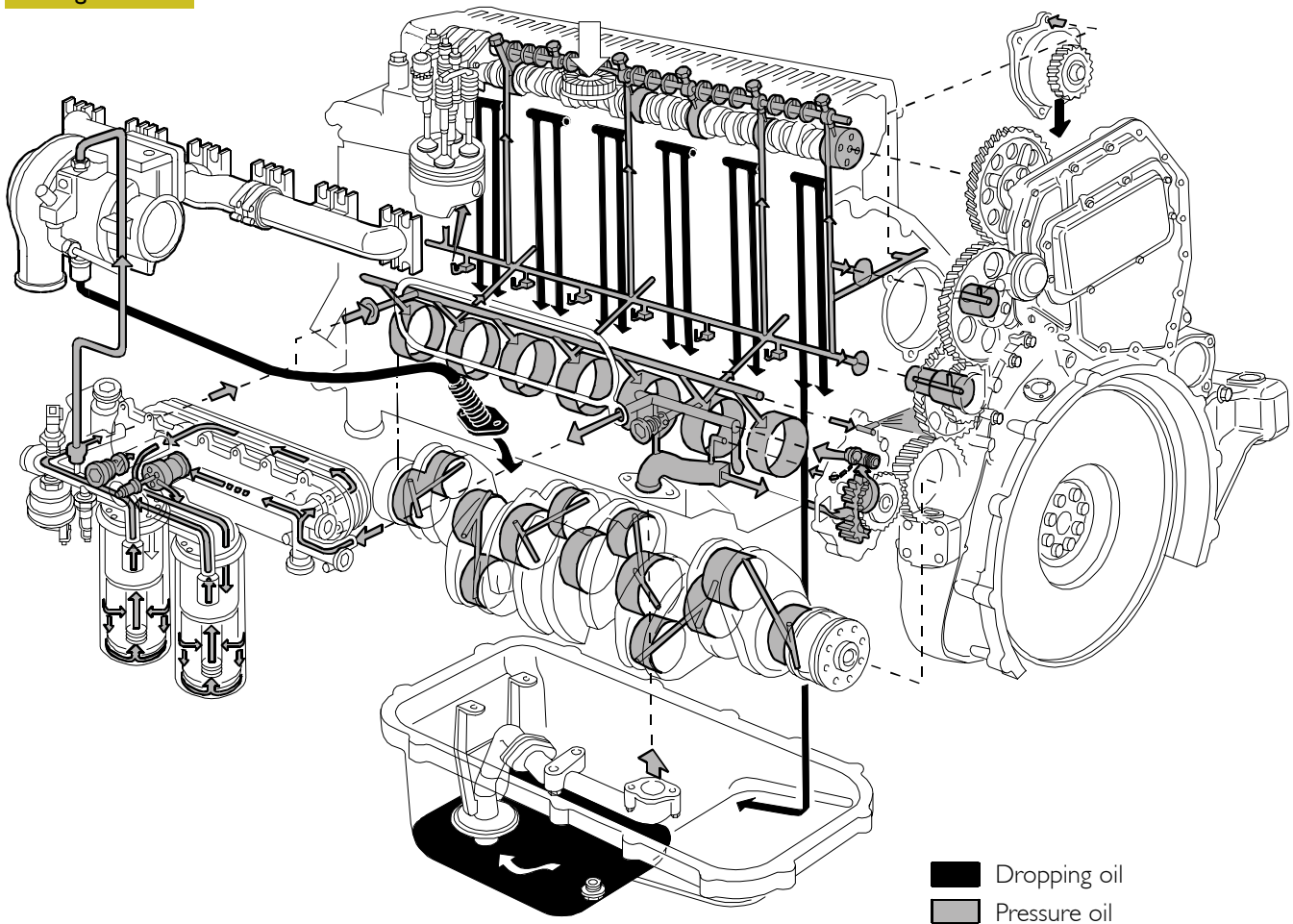


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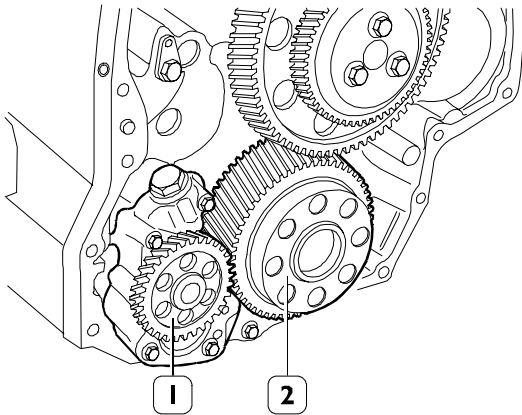
TOP VIEW

LUBRICATION DIAGRAM

Figure 6



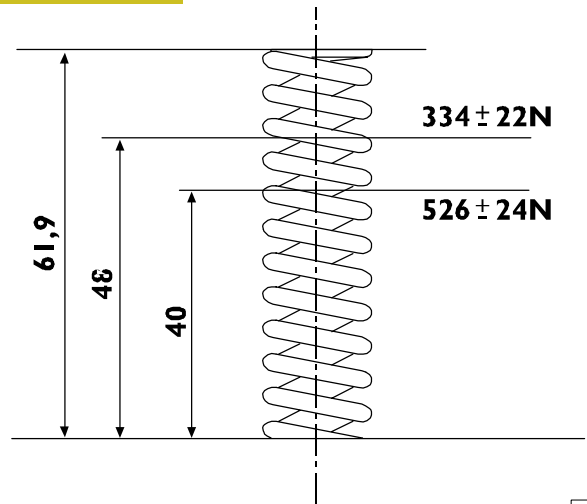
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Oil pump**Figure 7**

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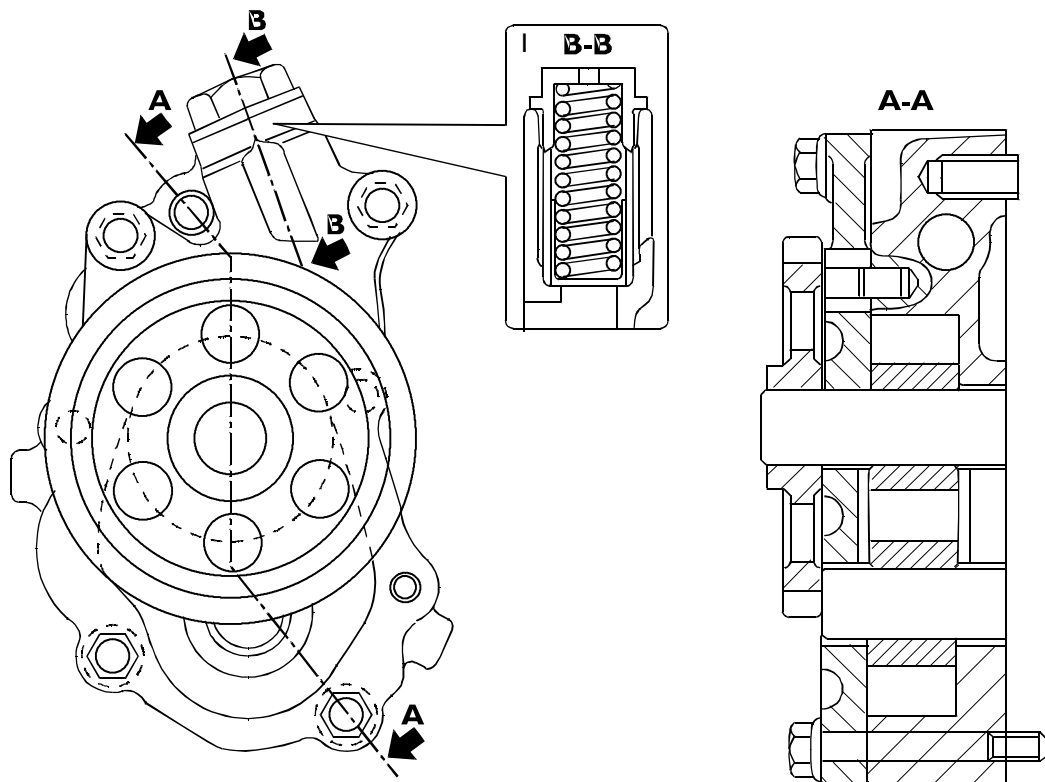
The oil pump (1) cannot be overhauled. On finding any damage, replace the oil pump assembly.

See under the relevant heading for replacing the gear (2) of the crankshaft.

Overpressure valve**Figure 9**

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MAIN DATA TO CHECK THE OVERPRESSURE VALVE SPRING

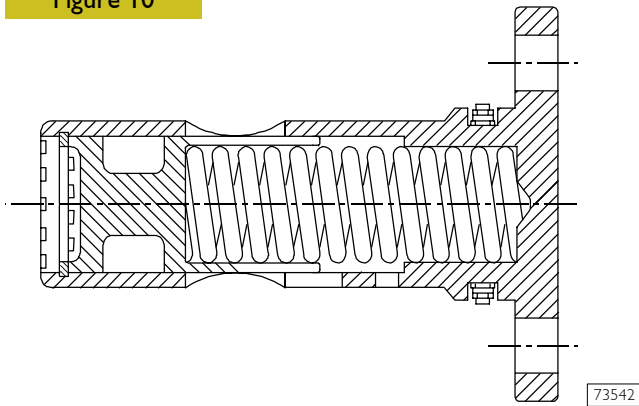
Figure 8

OIL PUMP CROSS-SECTION
I. Overpressure valve – Start of opening pressure 10.1 ± 0.7 bars.

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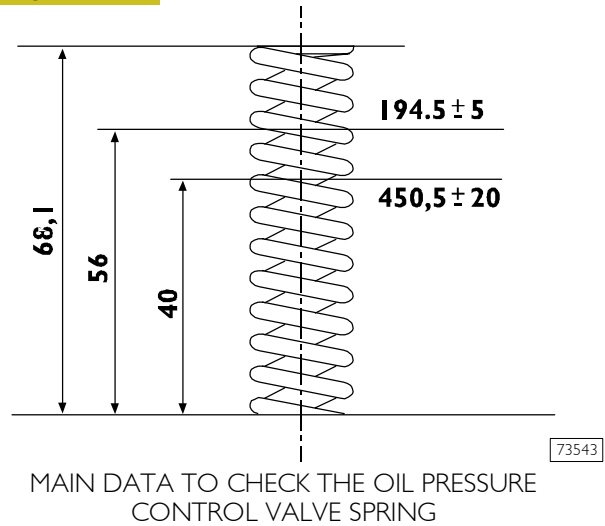
Oil pressure control valve

Figure 10



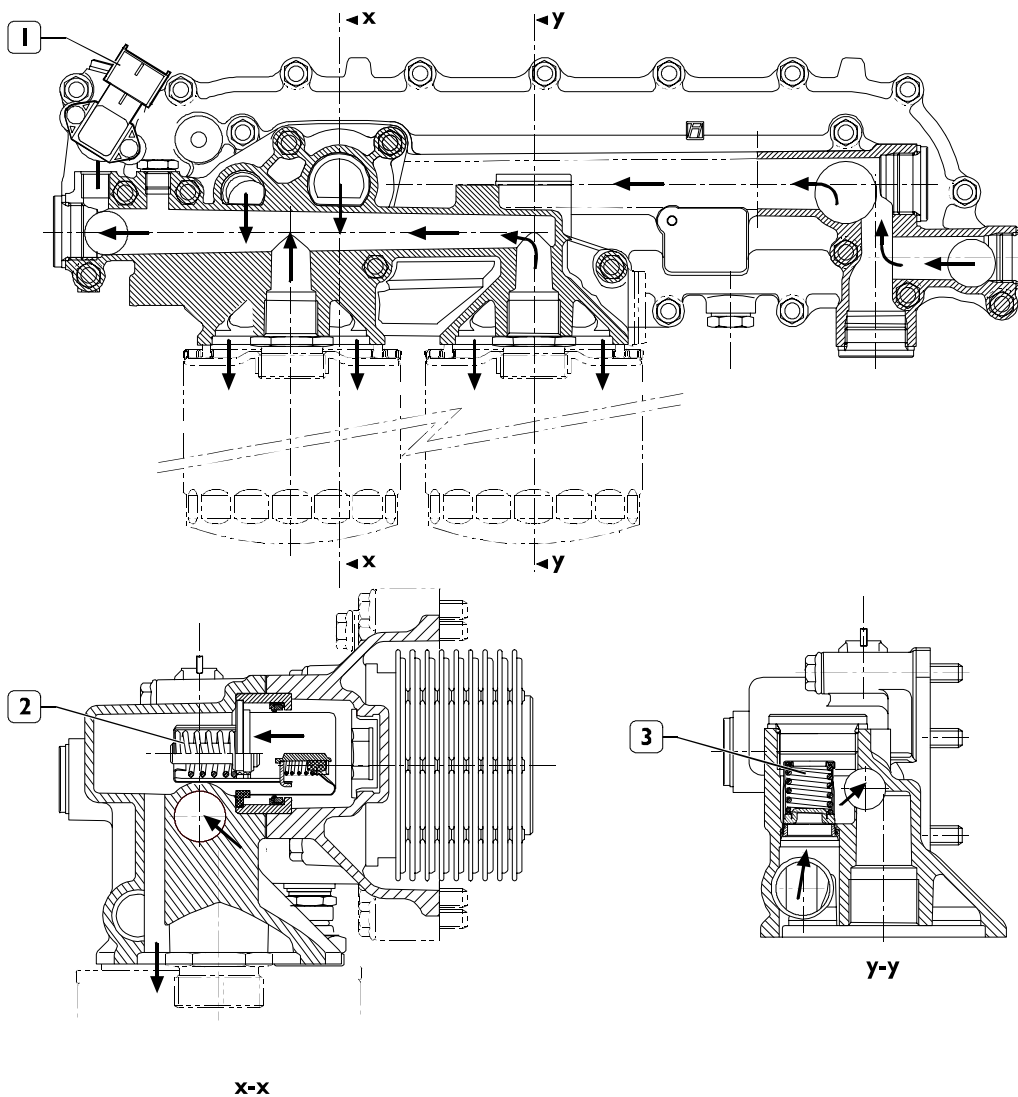
The oil pressure control valve is located on the left-hand side of the crankcase.
Start of opening pressure 5 bars.

Figure 11



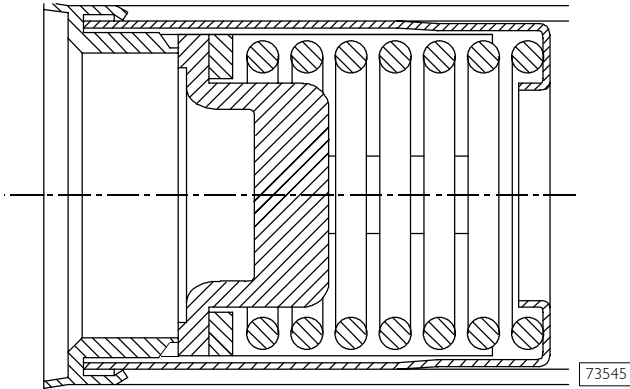
Heat exchanger

Figure 12

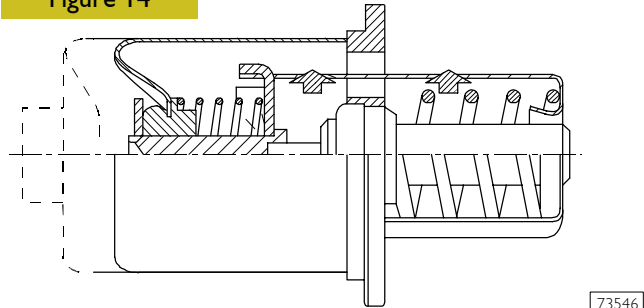


HEAT EXCHANGER

The heat exchanger is fitted with: 1. Oil pressure/temperature sensor - 2. By-pass valve - 3. Heat valve.

By-pass valve**Figure 13**

The valve quickly opens at a pressure of: 3 bars.

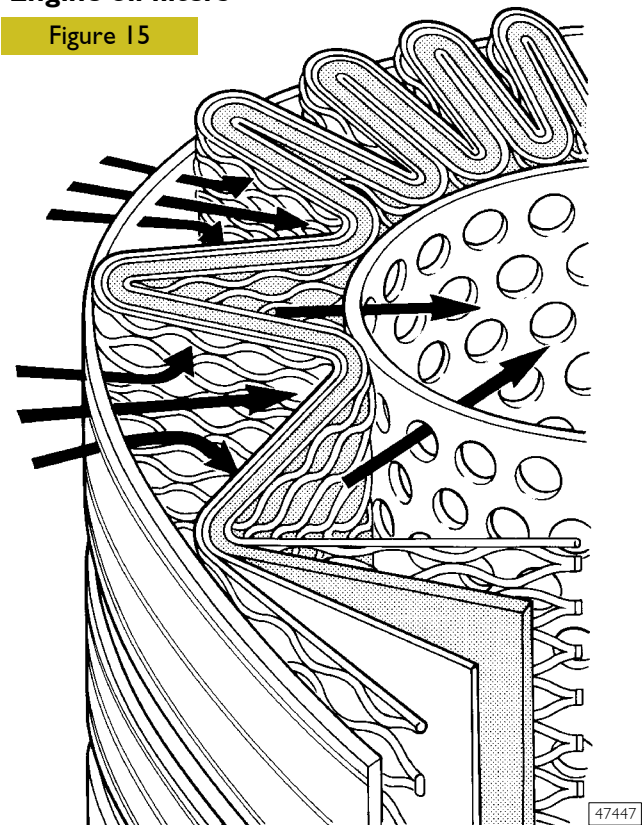
Thermostatic valve**Figure 14**

Start of opening:

- travel 0.1 mm at a temperature of $82 \pm 2^\circ\text{C}$.

End of opening:

- travel 8 mm at a temperature of 97°C .

Engine oil filters**Figure 15**

This is a new generation of filters that permit much more thorough filtration as they are able to hold back a greater amount of particles of smaller dimensions than those held back by conventional filters with a paper filtering element.

These high-filtration devices, to date used only in industrial processes, make it possible to:

- reduce the wear of engine components over time;
- maintain the performance/specifications of the oil and thereby lengthen the time intervals between changes.

External spiral winding

The filtering elements are closely wound by a spiral so that each fold is firmly anchored to the spiral with respect to the others. This produces a uniform use of the element even in the worst conditions such as cold starting with fluids with a high viscosity and peaks of flow. In addition, it ensures uniform distribution of the flow over the entire length of the filtering element, with consequent optimization of the loss of load and of its working life.

Mount upstream

To optimize flow distribution and the rigidity of the filtering element, this has an exclusive mount composed of a strong mesh made of nylon and an extremely strong synthetic material.

Filtering element

Composed of inert inorganic fibres bound with an exclusive resin to a structure with graded holes, the element is manufactured exclusively to precise procedures and strict quality control.

Mount downstream

A mount for the filtering element and a strong nylon mesh make it even stronger, which is especially helpful during cold starts and long periods of use. The performance of the filter remains constant and reliable throughout its working life and from one element to another, irrespective of the changes in working conditions.

Structural parts

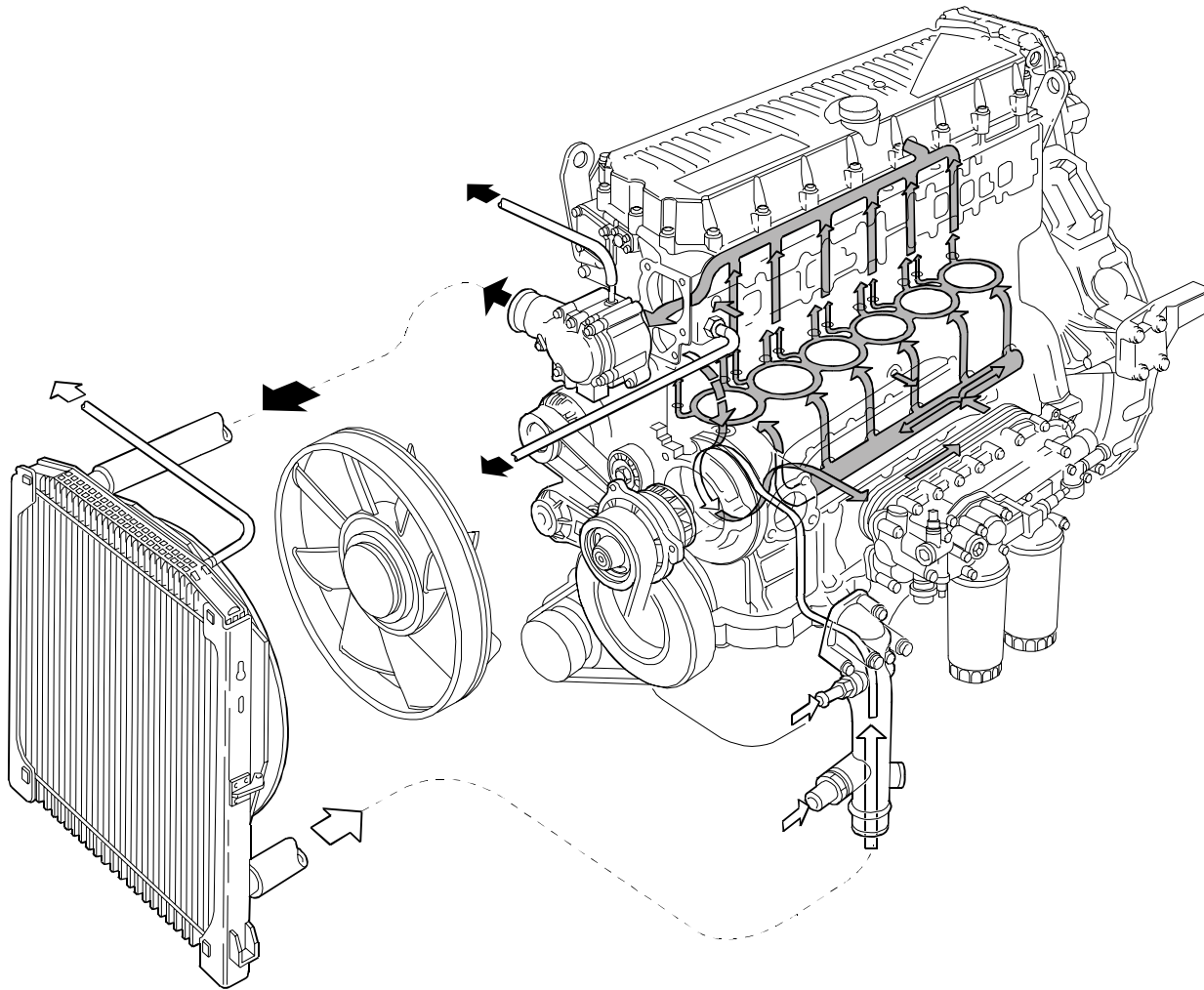
The o-rings equipping the filtering element ensure a perfect seal between it and the container, eliminating by-pass risks and keeping filter performance constant. Strong corrosion-proof bottoms and a sturdy internal metal core complete the structure of the filtering element.




When mounting the filters, keep to the following rules:

- Oil and fit new seals.
- Screw down the filters to bring the seals into contact with the supporting bases.
- Tighten the filter to a torque of 35-40 Nm.

COOLING

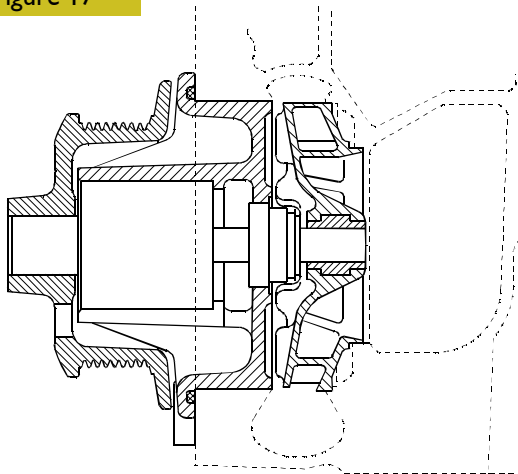
Figure 16



-  Water flowing out of the thermostat
-  Water circulating in the engine
-  Water flowing into the pump

Water pump

Figure 17



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CROSS-SECTION OF THE WATER PUMP

The water pump comprises: rotor, shaft with bearing, T-gasket and drive pulley.

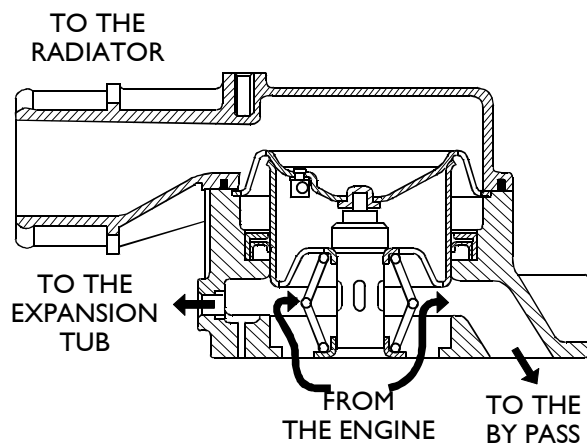


Check that the pump body has no cracks or water leakage; if it does, replace the entire water pump.

Thermostat

View of thermostat operation

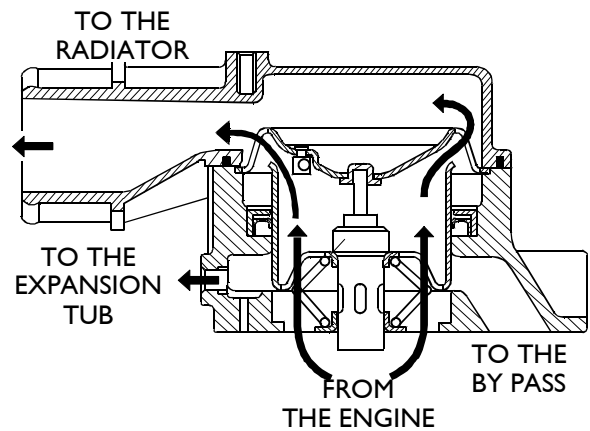
Figure 18



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 Water circulating in the engine

Figure 19



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 Water leaving the thermostat

Check the thermostat works properly; replace it if in doubt.

Temperature of start of travel $84^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

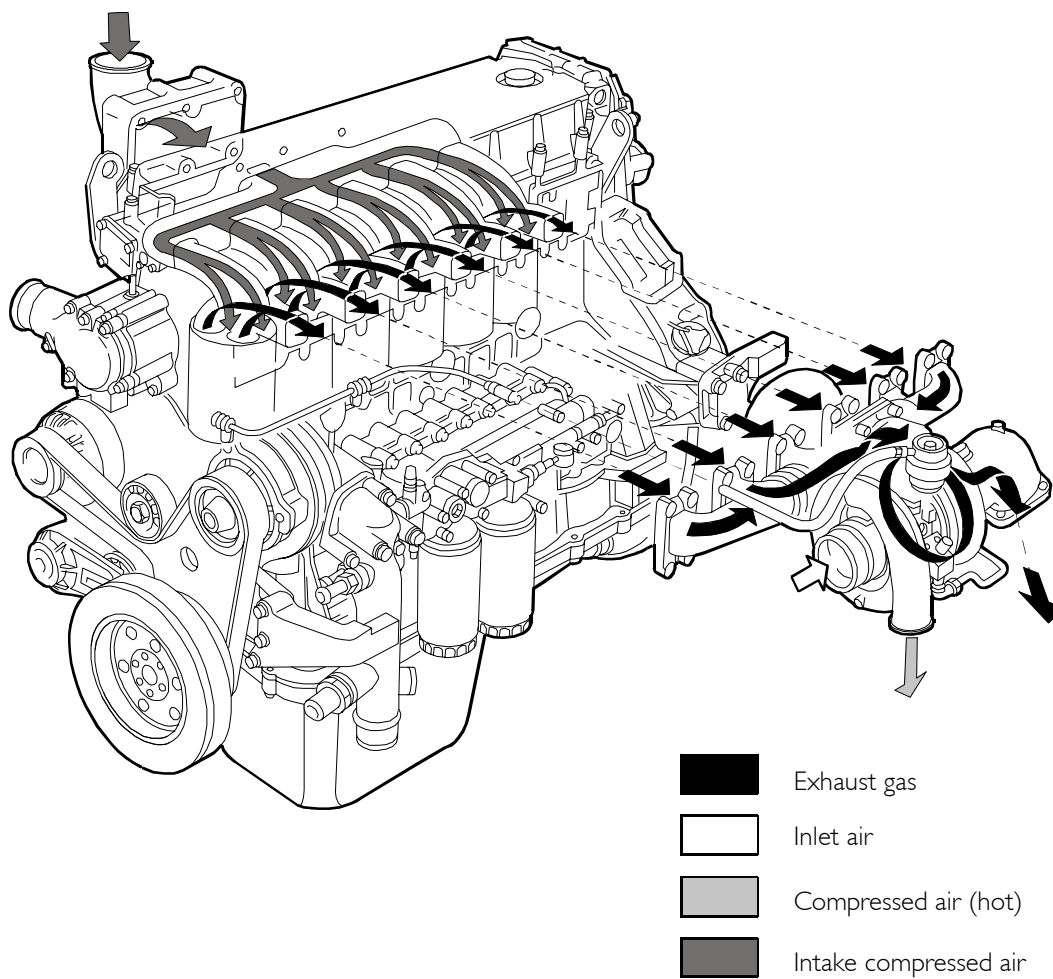
Minimum travel 15 mm at $94^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

TURBOCHARGING

The turbocharging system consists of:

- air filter;
- turbocharger.

Figure 20



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TURBOCHARGER HX55

SECTION 2**Fuel**

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<input type="checkbox"/> Injector-pump	5

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