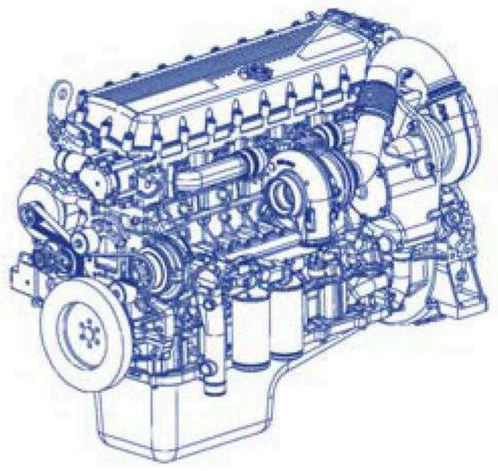


NEW HOLLAND 12.9L Turbo Compound Engine

REPAIR MANUAL

NEW HOLLAND

SERVICE

87737594 Issued 10/07

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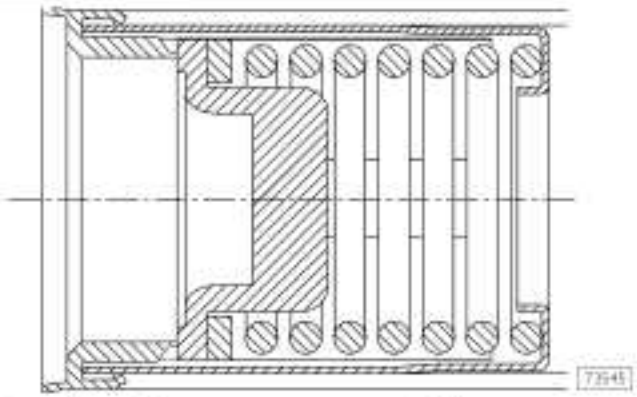
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By-pass valve

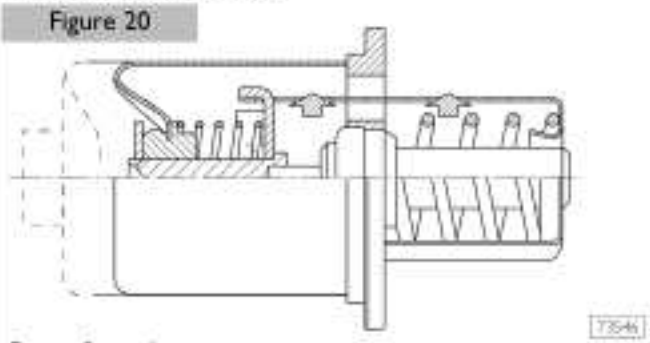
Figure 19



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

Thermostatic valve

Figure 20



Start of opening:

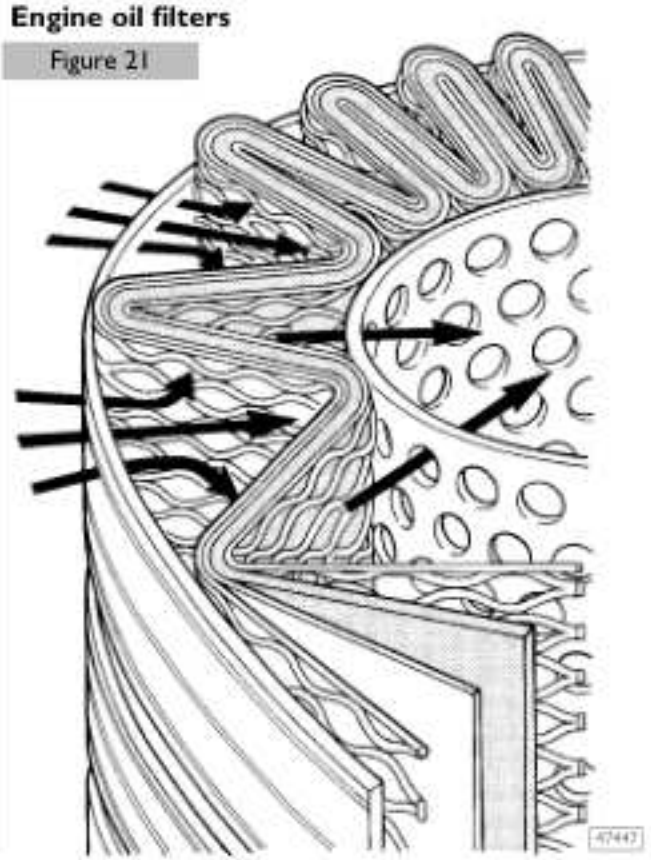
- travel 0.1 mm at a temperature of 82 ±2°C.

End of opening:

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

Engine oil filters

Figure 21



This is a new generation of filters that permit much more thorough filtration as they are able to holder 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

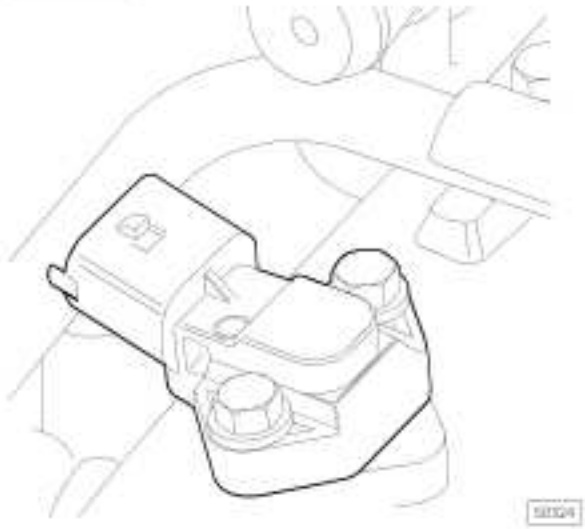
The o-rings equipping the filtering element ensure a perfect seal between it and the container, eliminating by-pass risks and keeping filter performance constant. Strong corrosion-proof bottoms and a sturdy internal metal core complete the structure of the filtering element.

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.

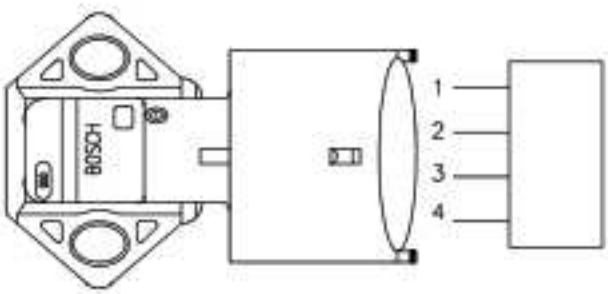
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Figure 16



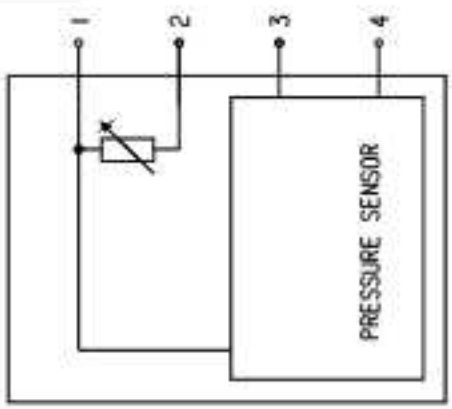
Sensor external view

Figure 17



Linking connector

Figure 18



Wiring diagram

Air pressure/temperature sensor (85156).

This component incorporates a temperature sensor and a pressure sensor.

It replaces the temperature sensors (85155) and pressure sensors (85154) available in the preceding systems.

It is fitted onto the intake manifold and measures the maximum supplied air flow rate used to accurately calculate the amount of fuel to be injected at every cycle.

The sensor is powered with 5 V.

The output voltage is proportional to the pressure or temperature measured by the sensor.

Pin (EDC)	25/C - 33/C	Power supply
Pin (EDC)	36/C	Temperature
Pin (EDC)	34/C	Pressure

Oil temperature/pressure sensor (42030 / 47032)

This component is identical to the air pressure/temperature sensor and replaced single sensors 47032 / 42030.

It is fitted onto the engine oil filter, in a horizontal position.

It measures the engine oil temperature and pressure.

The measured signal is sent to the EDC control unit which controls, in turn, the indicator instrument on the dashboard (low pressure warning lights / gauge).

Pin (EDC)	24/C - 32/C	Power supply
Pin (EDC)	27/C	Temperature
Pin (EDC)	28/C	Pressure

The engine oil temperature is used only by the EDC control unit.

Ref.	Description	Control unit pin	
		Oil	Air
1	Ground	24C	25C
2	Temp. Sign.	27C	36C
3	+5	32C	33C
4	Press. Sign.	28C	34C

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PREFACE

A successful troubleshooting is carried out with the competence acquired by years of experience and attending training courses.

When the user complains for bad efficiency or working anomaly, his indications must be kept into proper consideration using them to acquire any useful information to focus the intervention.

After the detection of the existing anomaly, it is recommended to proceed with the operations of troubleshooting by decoding the auto-troubleshooting data provided by the EDC system electronic central unit.

The continuous efficiency tests of the components connected to, and the check of working conditions of the entire system carried out during working, can offer an important diagnosis indication, available through the decoding of the "failure/anomaly" codes issued by blinking of the failure led: the "blink-code" (whether programmed).

Please consider that the interpretation of the indications provided by the blink-code is not sufficient to guarantee the solution to the existing anomalies.

Use of appropriate diagnostic tools allows to decode the error codes, to exploit the internal database and to obtain other information for identifying the origin of the fault.

Every time there is a breakdown claim and this breakdown is actually detected, it is necessary to proceed inquiring the electronic unit in one of the ways indicated and then proceed with the diagnostic research making trials and tests in order to have a picture of the working conditions and identify the root causes of the anomaly.

In case the electronic device is not providing any indication, it will be necessary to proceed relying on the experience, adopting traditional diagnosis procedures.

In order to compensate the operators' lack of experience in this new system, we are hereby providing the USER's GUIDELINE FOR TROUBLESHOOTING in the following pages.



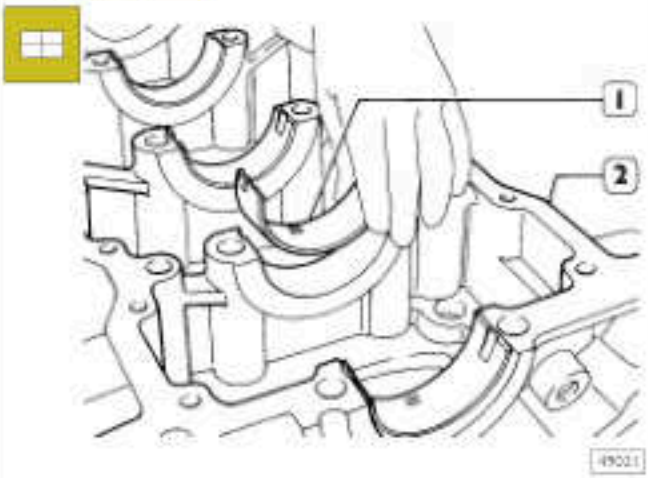
Any kind of operation on the electronic center unit must be executed by qualified personnel, duly authorized.

Any unauthorized tamper will involve decay of after-sales service in warranty.

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ASSEMBLING THE ENGINE ON THE BENCH

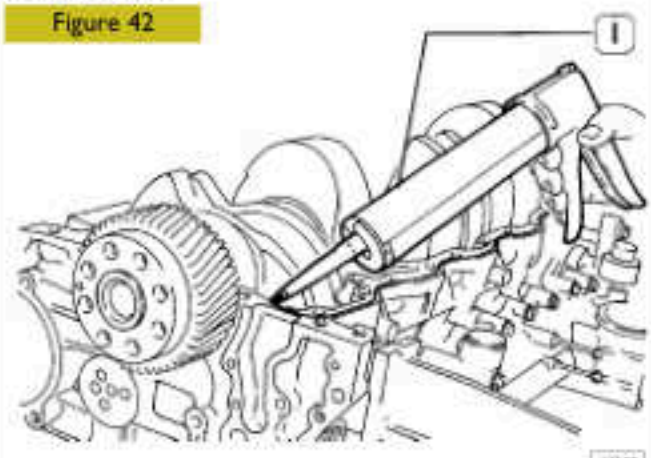
Figure 41



49021

Place the half-bearings (1) on the main bearings in the underblock (2).

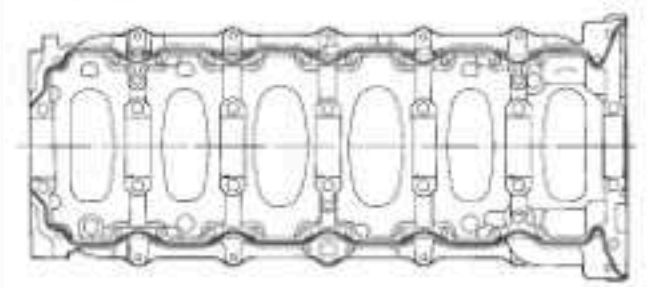
Figure 42



47595

By means of suitable equipment (1) apply silicone LOCTITE 5970 IVECO No. 2992644 to the block, as shown in the figure.

Figure 43



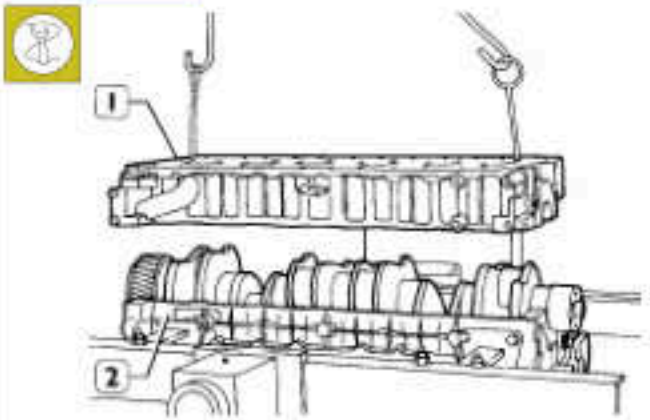
47596

Sealant application diagram

NOTE Fit the underblock within 10' of the application of the sealant.

NOTE Use new screws whenever the crankcase is refitted.

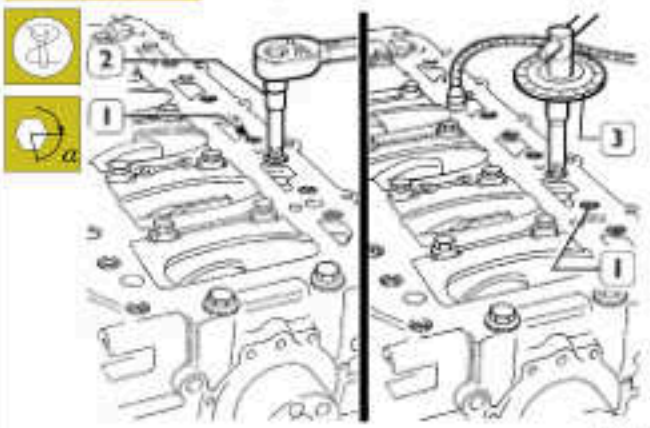
Figure 44



49022

Fit the underblock by means of a suitable hoist and hooks (1).

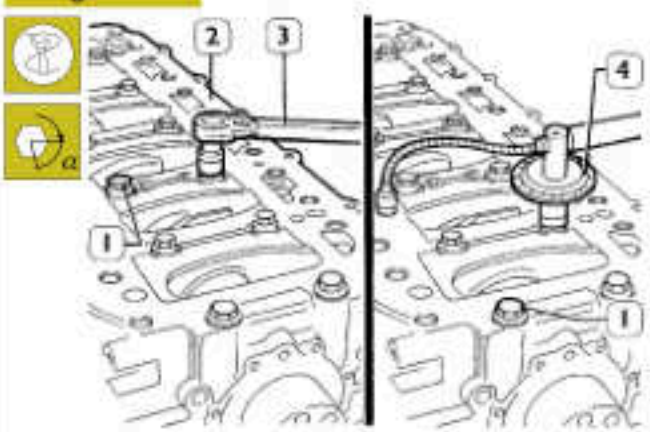
Figure 45



47581

Fit the sub-engine block and use a dynamometric wrench (2) to tighten the outer hexagonal-grooved screws (1) to 30 Nm according to the diagrams on the following page.

Figure 46



47579

Close the inner screws (1) to 120 Nm torque by means of a dynamometric wrench (3), then with two further angular phases 60° + 55°, using tool 99395216 (4). Tighten again the outer screws (1, Figure 45) with 60° angular closing, using tool 99395216 (3, Figure 45).

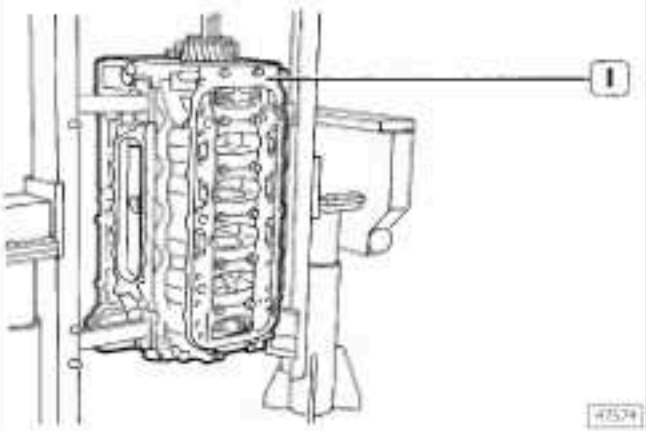
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ENGINE OVERHAUL
ENGINE REMOVAL AT THE BENCH

The following instructions are prescribed on the understanding that the engine has previously been placed on the rotating bench and that removal of all specific components of the equipment have been already removed as well. (See Section 3 of the manual herein).

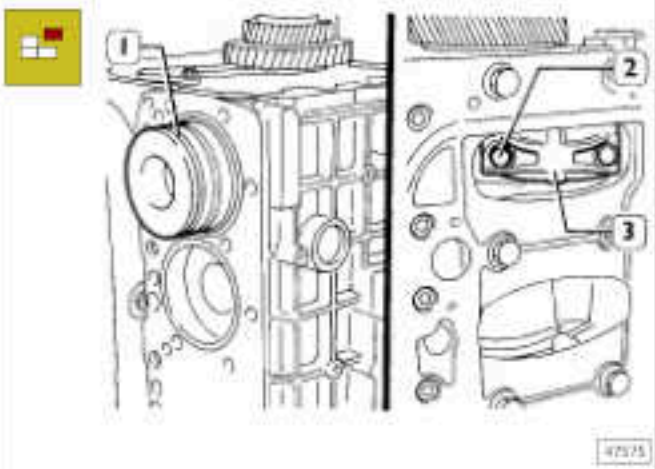
The section illustrates therefore all the most important engine overhaul procedures.

Figure 1



Rotate the block (1) to the vertical position.

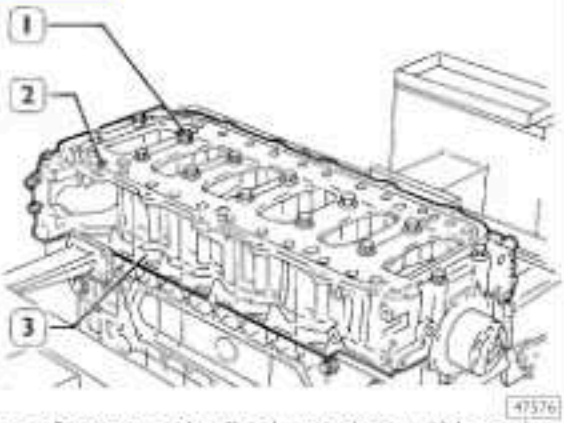
Figure 2



Untighten screws (2) fixing the connecting rod cap (3) and remove it. Remove the connecting rod-piston assembly from the upper side. Repeat these operations for the other pistons.

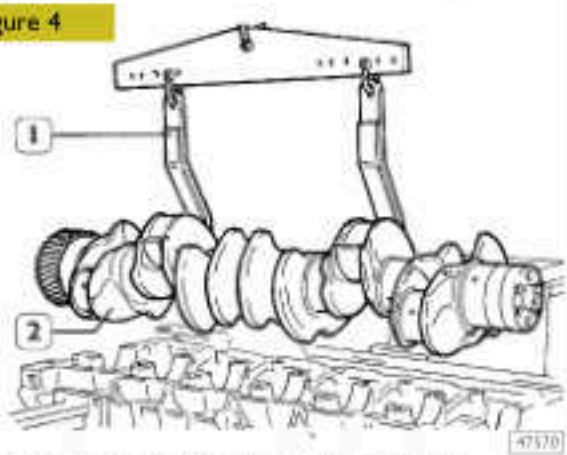
NOTE Keep the connecting rod half bearings in the corresponding housings and/or take note of their assembly position because they must need to be refitted in the original position if they are reused.

Figure 3



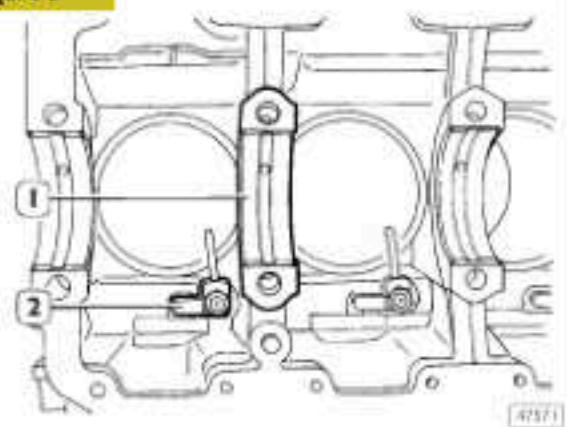
By means of proper and splined wrenches, untighten the screws (1) and (2) and remove the under-block (3).

Figure 4



Remove the crankshaft (2) with tool 99360500 (1).

Figure 5



Remove the crankshaft half-bearings (1), untighten the screws and remove oil spray nozzles (2).
Take down cylinder liners as specified in the relative paragraph on page 14.

After disassembling the engine, thoroughly clean disassembled parts and check their integrity.
Instructions for main checks and measures are given in the following pages, in order to determine whether the parts can be re-used.

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