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CCN (CLAAS Component Number)

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Formatting	Meaning	Description
Description	Descriptive text	Further information on the subject.
– Procedure instructions	Process	Operations which must be carried out one after the other.
<i>Result</i>	Result	Result of the processes carried out.

References can be easily identified by corresponding symbols. The following symbols are distinguished:

Symbol	Meaning	Description
	See index	The  symbol indicates that further information on this subject is available in other sections of this manual.
	See the index of the Operator's Manual in question	The  symbol indicates that further information on this subject is available in the Operator's Manual of the machine or of the implement in question.

Document structure based on the assembly structure

The chapters of the present manual are subdivided into assemblies as far as contents permit. The structure of these assemblies is the same in all chapters.

Different product groups have different assembly structures. CLAAS makes every effort to keep this assembly structures identical in any document.

Search and find

Due to the constantly recurring assembly structure, the subject in question can be quickly found using the table of contents or the header of this manual.

In addition, the index provided in this manual is a useful tool for locating a subject. The index can be found on the last pages of this manual.

Directions

Front, rear, right and left refer to the direction of forward travel. If necessary, a direction arrow is used for indicating the direction of travel in figures.

General repair instructions

123153-002

Technical specifications

Technical specifications, dimensions and weights are non-binding. Technical specifications are subject to modification in the course of technical development, and all errors and omissions are excepted.

123192-003

Information on proper repairs

- ▶ Mark rotating machine components before removing or dismantling them in order to ensure well-balanced component seating on the correct side after refitting.
- ▶ The slots of expansion pins must always point to the loaded side.
When they are installed with a **90°** twist, they come loose, fall out or shear off.
- ▶ Replace cotter pins, locking wires, sheet retention devices, lock washers and spring washers in the repair process.
- ▶ Align sprockets and V-belt pulleys with one another.
- ▶ Observe the information in the hydraulic system chapter when working on the hydraulic system.
- ▶ Do not mix different oil grades.

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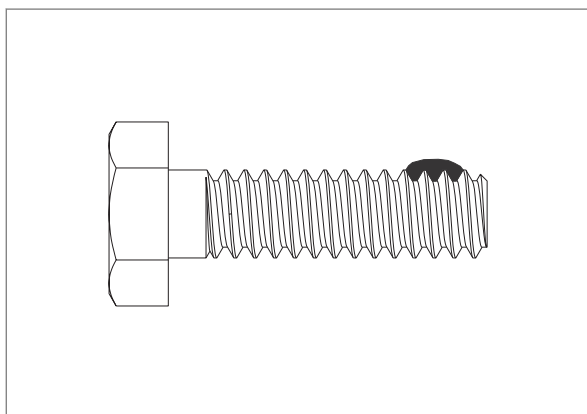
Self-locking bolts

Self-locking bolts must not come in contact with sealing compound.

- ▶ Tighten self-locking bolt speedily up to the specified torque.
 - ▶ The full hardening time can be reduced by heating-up, e.g. to **15 minutes** at **+ 70 °C**.
 - ▶ The full load capacity is achieved after **24 hours** at **+ 20 °C**.
- ▶ When unscrewing self-locking bolts, unscrew them quickly.

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Liquid locking compound

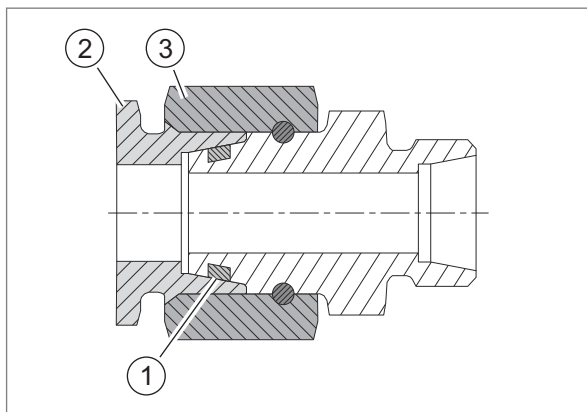


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1

- ▶ Use liquid locking compound (glue) only at the spots described in the Repair Manual.
- ▶ The surfaces to be joined must be absolutely clean and free of grease.
 - ▶ A suitable cleaner and an activator possibly delivered along with the glue can be used for cleaning.
- ▶ No cleaner residues may remain on the surfaces to be joined.
This applies in particular to tapped holes with a bottom.
 - ▶ Let the surfaces dry well before applying the glue.

Sealing cone fittings



154527-001

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- ▶ Apply seal (1) on the sealing cone (2).
- ▶ Tighten the union nut (3) a third of a turn beyond the point where resistance is felt.
 - ▶ Observe the tightening torques! 👁 Page 24

Hydraulic hoses

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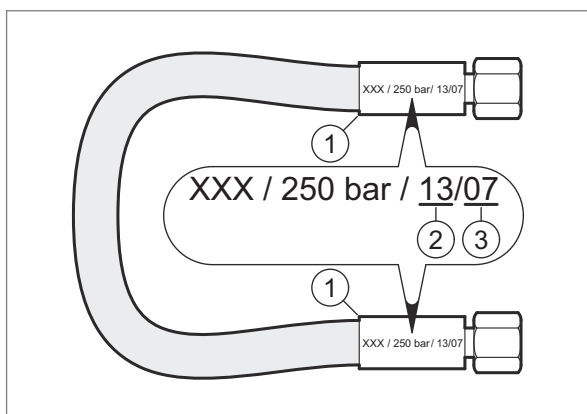
NOTICE

Failure of hydraulic hose lines due to ageing.

Uncontrolled lowering of machine parts.

- ▶ Replace hydraulic hose lines 6 years after manufacture at the latest.

To facilitate identifying of hydraulic hoses, each hose has the CLAAS part number printed on it.



40202-004

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- ▶ Check hydraulic hoses before initial commissioning and thereafter at least once a year.
- ▶ In the case of damage and ageing, replace hydraulic hoses.

The date of manufacture can be seen on the hose fittings (1).

(2) = year (e.g. 12 = 2012)

(3) = month (e.g. 07 = July)

Tightening torques for hydraulic swivel fittings

Dimensions	Tightening torque (light series) in Nm	Tightening torque (heavy series) in Nm
M10 x 1	20	30
M12 x 1.5	35	40
M14 x 1.5	45	50
M16 x 1.5	60	70
M18 x 1.5	75	80
M20 x 1.5	-	100
M22 x 1.5	125	130
M26 x 1.5	130	-
M27 x 2	130	140
M33 x 2	300	300
M42 x 2	500	500
M48 x 2	600	600
G 1/8 A	20	-
G 1/4 A	40	40
G 3/8 A	65	70
G 1/2 A	90	100
G 3/4 A	130	130
G 1 A	270	380
G 1-1/4 A	500	600
G 1-1/2 A	600	700

- ▶ Incorrect polarity of the control units may cause their destruction.
- ▶ Always tighten the connections on the injection system to the specified tightening torques.
- ▶ When temperatures above 80 °C must be expected, the control units must be removed.
- ▶ Use only suitable testing lines for measurements on connectors.
- ▶ Observe the manufacturer's regulations for batteries.
- ▶ Wear protective clothing when handling batteries.
- ▶ Do not tilt the batteries, acid might escape.
- ▶ Measure the voltage only with a suitable measuring device.
- ▶ Electrolytic gas may form in closed battery boxes.
 - ▶ Be particularly careful after the engine has run for an extended period and after charging the battery with a charger.
- ▶ When disconnecting the batteries, non-disconnected continuous consumers may generate sparks that ignite the gas.
 - ▶ Vent the battery box sufficiently prior to disconnecting.
- ▶ Avoid short-circuits by wrong polarity or placing metal objects on the battery terminals.
- ▶ Disconnect batteries when the engine has been shut down and recharge every four weeks.

Working on the hydraulic system

64831-003

WARNING

Residual oil pressure in hoses / hydraulic components.

Serious injury of eyes / of skin.

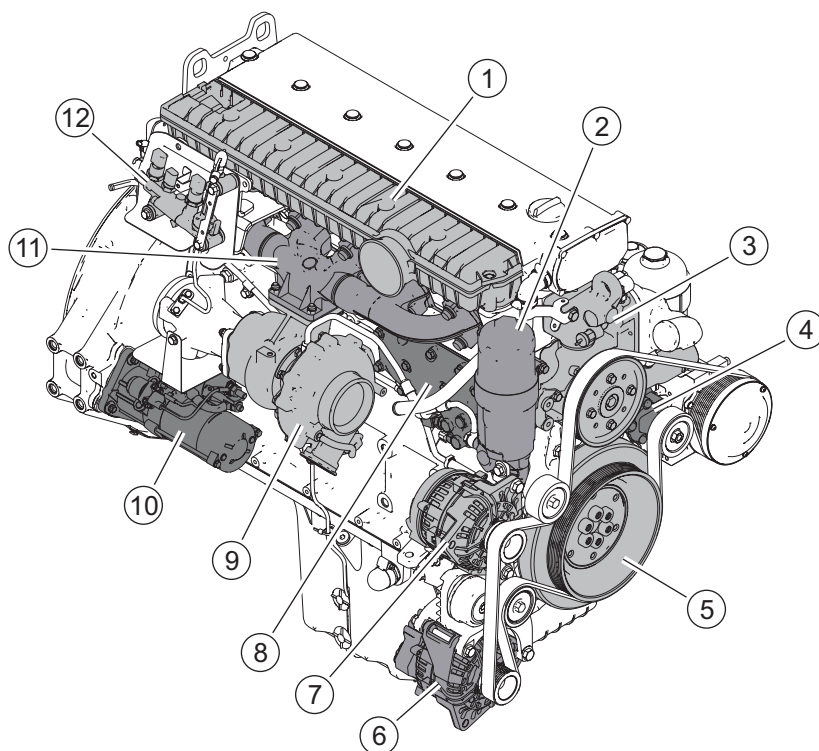
- ▶ Relieve the residual oil pressure in the hydraulic system.

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NOTICE

Serious damage to hydraulic circuit components.

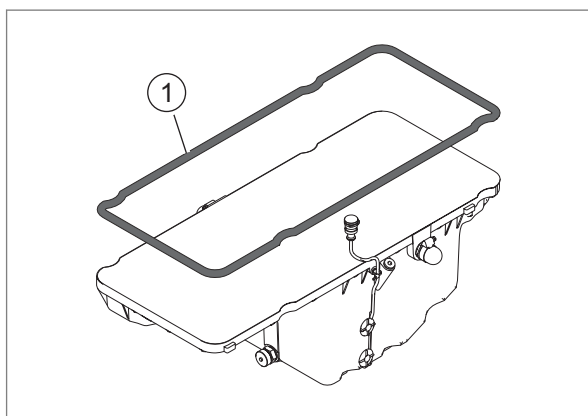
- ▶ Before installing hydraulic system components, the entire hydraulic circuit and the hydraulic system components remaining on the machine must be flushed.
- ▶ The entire hydraulic system must be free of dirt and foreign objects.
- ▶ Replace the hydraulic oil filter.



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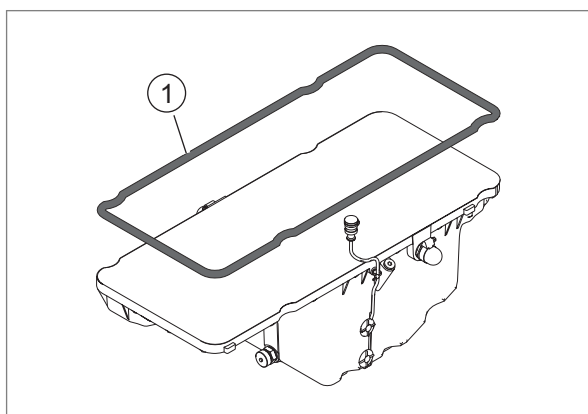
	Designation	
1	Intake housing	Page 232
2	Oil filter housing	Page 184
3	Coolant pump	Page 201
4	Fuel pump	Page 172
5	Oscillation damper	Page 109
6	Alternator 24 V Applies to: Type designs 926.959 and 926.970	Page 245
7	Alternator 12 V	Page 240
8	Oil cooler	Page 189
9	Exhaust turbo charger	Page 218
10	Electric starting motor	
11	Exhaust manifold	Page 213
12	Urea dosing unit Applies to: Type designs 926.959 and 926.970	Page 277



188498-001

- ▶ Remove seal (1) from the oil pan.

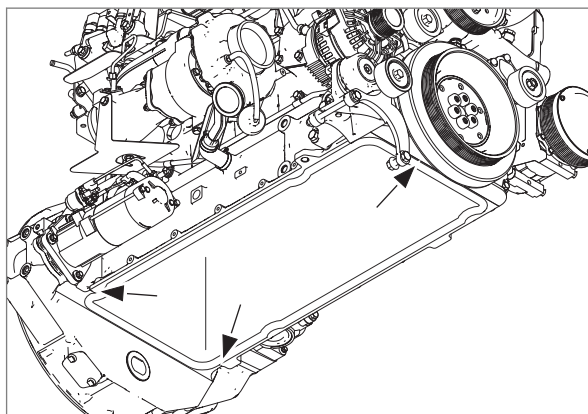
51



188498-001

- Installation**
- ▶ Clean all sealing faces. [👁 Page 19](#)
 - ▶ Place a new seal (1) on the oil pan.

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188499-001

Use special tool (I). [👁 Page 62](#)

- ▶ Clean all sealing faces. [👁 Page 19](#)
- ▶ Apply special tool (I) at the separating points (arrows) with the timing housing and the front housing cover.

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Piston



251089-001

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Special tool

	Special tool (II)	Pcs.
1	Piston ring expander 00 1995 646 0	1



181552-001

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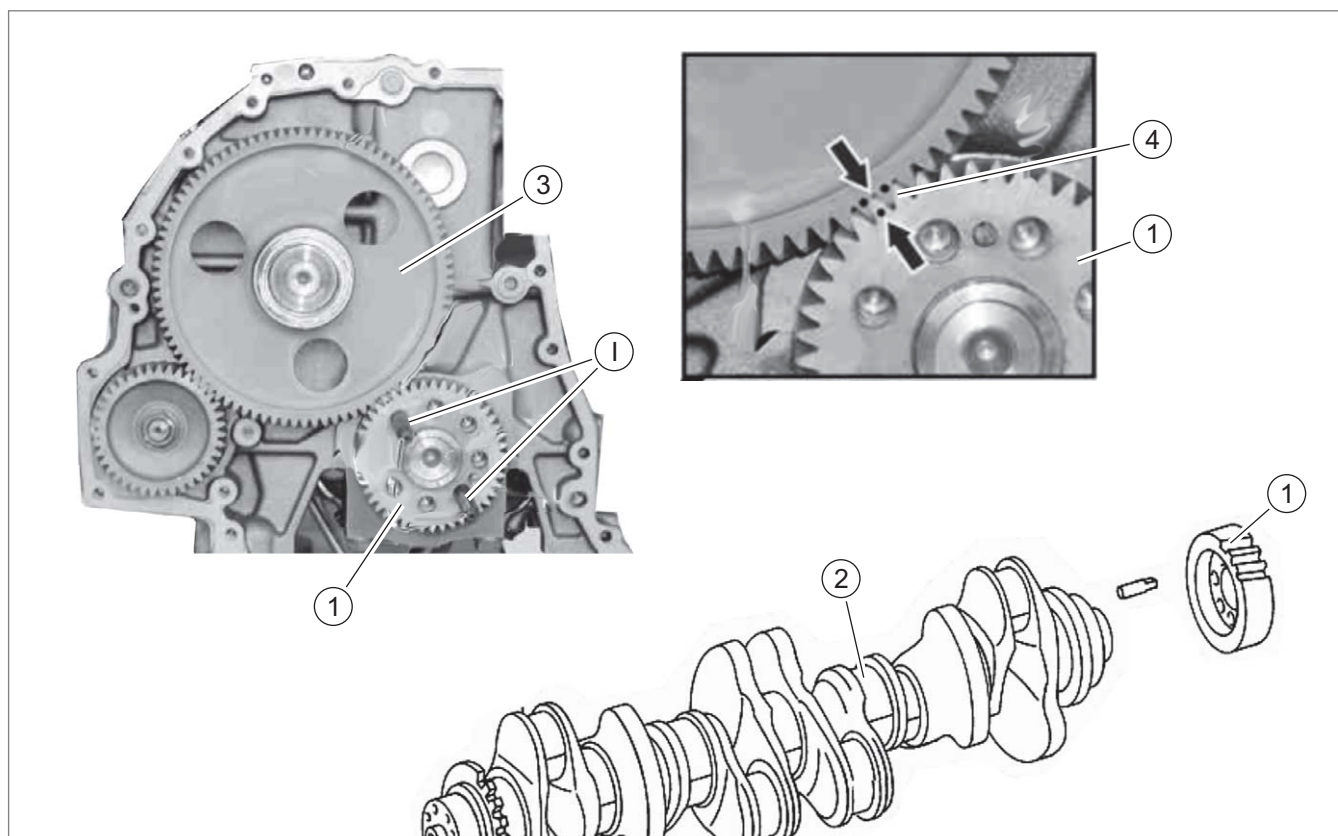
	Special tool (III)	Pcs.
1	Piston ring compressor 00 0147 999 0	1



39240-002

80

	Special tool (IV)	Pcs.
	Clock gauge 60 0500 530 3	1



188707-001

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	Value	CCN	Remark / designation	
1			Gear of crankshaft	
2			Crankshaft	Page 98
3			Camshaft gear	
4			Markings	
Tightening torques not specified, see "Introduction / Tightening torques" chapter				

Installation instructions

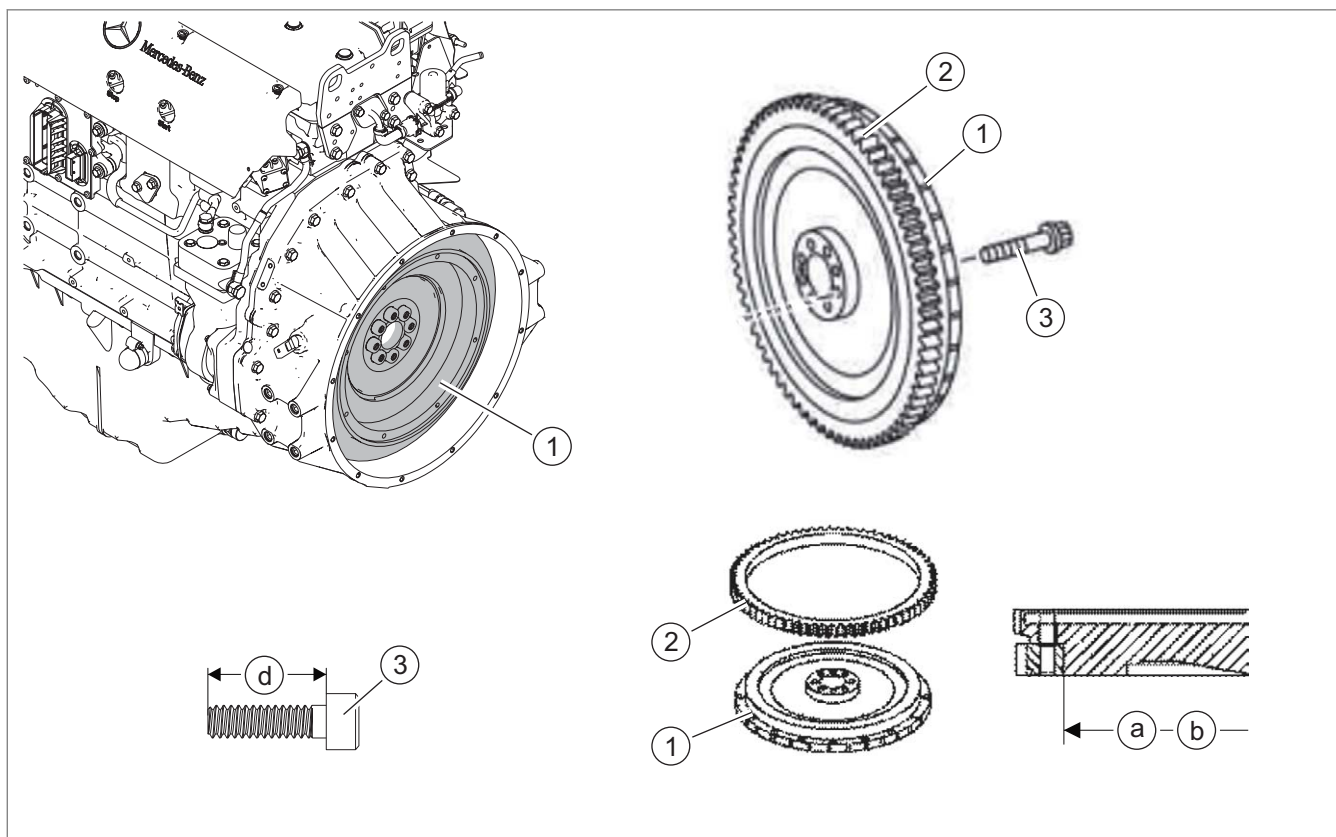
Removal:

- Remove the timing housing. [Page 77](#)
- Rotate the crankshaft until markings (4) of the crankshaft gear (1) and of the camshaft gear (3) face one another.
- Pull off the crankshaft gear (1) with special tool (I).

Installation:

- Slide on crankshaft gear (1) with special tool (I). Observe markings (4).
Check if dowel pins are tightly seated, replace dowel pins if required.
- Install the timing housing. [Page 78](#)

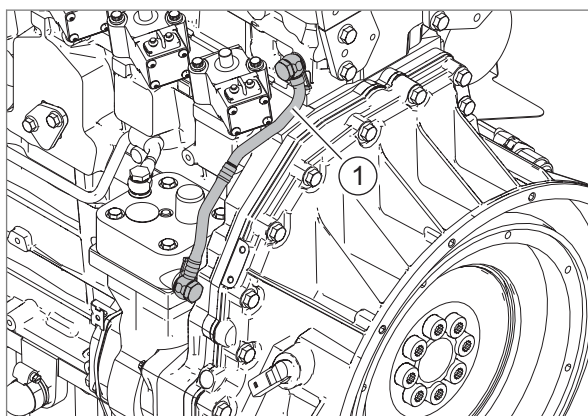
Technical specifications



188838-001

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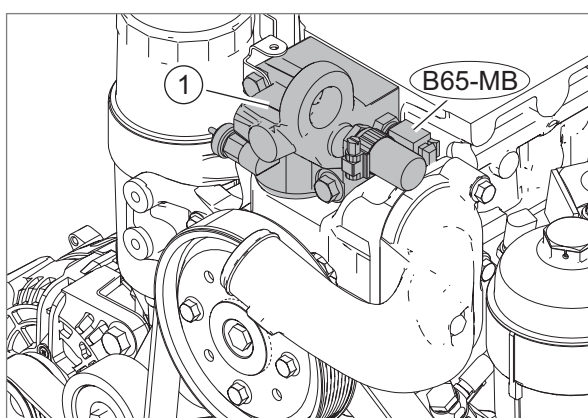
	Value	CCN	Remark / designation	
1	30 kg		Flywheel	
2	4 kg		Flywheel ring gear	
3			Flywheel mounting bolts – Observe the shaft length (d). – Tighten bolts in 3 steps as per tightening specification. Tightening specification: 1 50 Nm 2 125 Nm 3 90°	
a	392.435 to 392.575 mm		Flange diameter on the flywheel	
b	392.000 to 392.140 mm		Ring gear inner diameter	
c	15.6 to 16.0 mm		Ring gear width	
d	up to 61 mm		Shaft length of bolts (3)	
Tightening torques not specified, see section on tightening torques				



189034-001

- ▶ Unscrew coolant line (1).

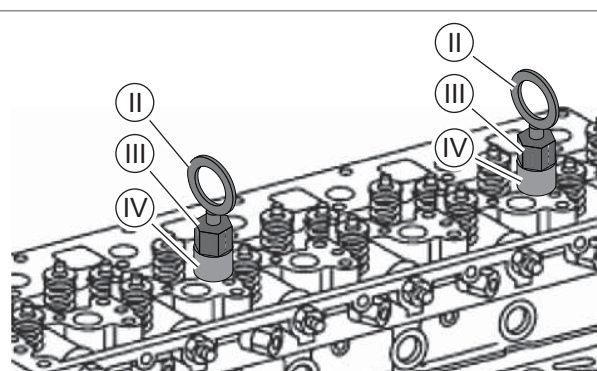
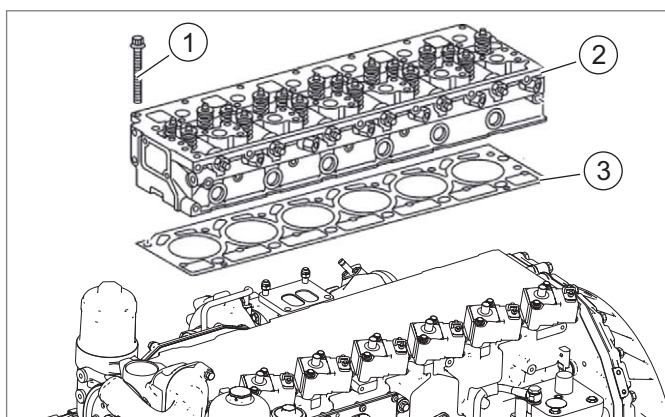
146



189035-001

- ▶ Disconnect connector from sensor (B65-MB).
- ▶ Unscrew top section (1) of coolant pump.

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189036-001

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Use special tools (I) to (IV). [Page 121](#)

- ▶ Unscrew cylinder head bolts (1).
 - ▶ Screw on special tools (II) to (IV) to 25 Nm.
 - ▶ Remove cylinder head (2) with a suitable lifting tool.
 - ▶ Remove cylinder head gasket (3).
-
- ▶ Close all bores in the separating face of the crankcase and the cylinder bore dust-tight.
 - ▶ Clean the cylinder head.
 - ▶ Clean the sealing faces. [Page 19](#)

Valve springs and valve stem seals



147544-001

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Special tool

	Special tool (I)	Pcs.
1	Installation tool 00 1992 951 0	1



32852-001

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	Special tool (II)	Pcs.
1	Magnetic rod 00 0181 842 0	1



147404-001

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	Special tool (III)	Pcs.
1	Tongs 00 1992 947 0	1

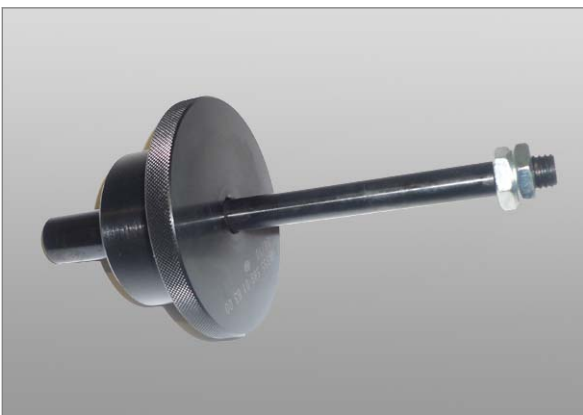
Nozzle holder combination

Work preparation

Utilities:

- ▶ Assembly pastes:
Anti-Seize - 00 0136 571 0

Special tool



147517-001

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	Special tool (I)	Pcs.
	Slide hammer puller 00 1992 873 0	1



147490-001

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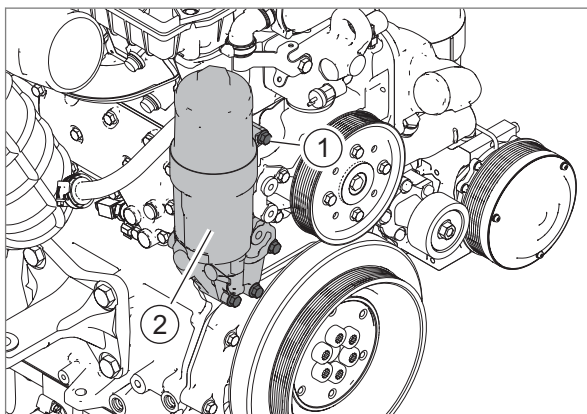
	Special tool (II)	Pcs.
	Threaded insert 00 1992 897 0	1



147427-001

200

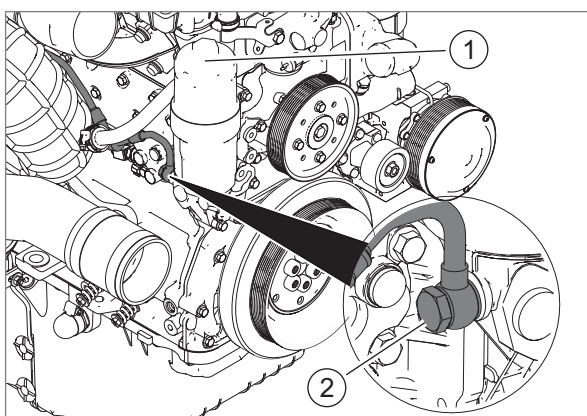
	Special tool (III)	Pcs.
	Puller 00 1992 904 0	1



235484-001

245

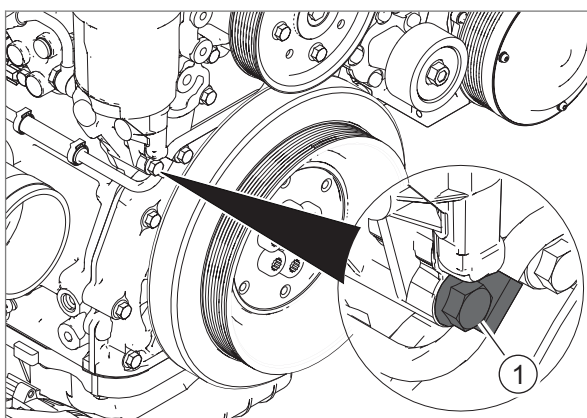
- ▶ Insert a new seal into the oil filter housing.
- ▶ Insert oil filter housing (2).
- ▶ Screw in bolts (1).
Tightening torque: [Page 19](#)



235483-001

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- ▶ Screw on oil filter lid (1).
Tightening torque: [Page 184](#)
- ▶ Screw on oil line at (2).



235482-001

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Applies to type designs: 926.959 and 926.970

- ▶ Install bracket of coolant line (1).

- ▶ Install alternator (G002). [Page 242](#)
- ▶ Install the alternator drive belt tensioner. [Page 245](#)