

ELIOS 240-210

Repair manual

Original repair manual

Using this repair manual

This repair manual will help ensure the tractor is always in full working order. Regular maintenance and upkeep, carried out by the after-sales technical department, will preserve the high value of this CLAAS tractor.

All of the expertise our after-sales technicians and the manufacturer can offer is summarised in this repair manual.

The sequence of illustrations shows the breakdown of a repair process. The text gives the instructions required for setting, for using the special tools and much more.

The repair manual, as a reference document, is kept up to date with supplements and changes to meet any technical developments made to the tractor.

To ensure the highest level of safety, it is essential to compare the setting values and filling volumes with those in the current operator's manual for the corresponding tractor.

Text and illustrations

References can be easily distinguished from each other by the symbols. The different symbols are as follows:

Symbol	Meaning	Description
	Consult the index.	The symbol  indicates that additional information on this subject is available in another part of this manual.
	Consult the index of the corresponding user manual.	The symbol  indicates that additional information on this subject is available in the tractor's user manual.
	Consult the technical system index.	The symbol  indicates that additional information on this subject is available in the tractor's technical system manual.

Section classification

The different parts of this repair manual are classed by chapter and section, whenever the content allows this. The document's structure is identical in each chapter and section.

CLAAS tries to retain this chapter structure in each document.

Search and find

The chapter structure, the table of contents and the document title make the subjects easier to find.

The index is also a useful tool for finding the required subjects. The index appears at the end of each document.

Direction indications

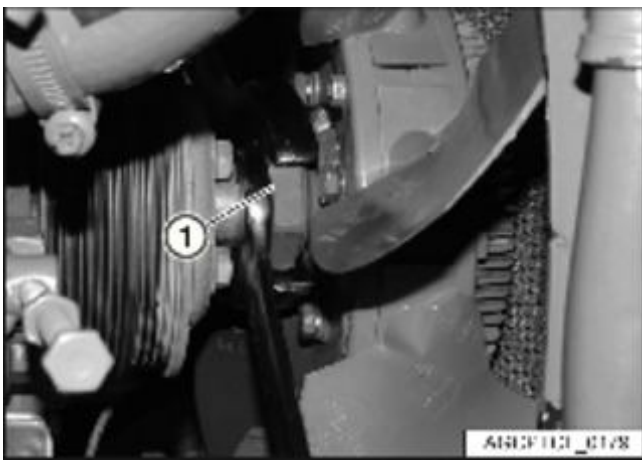
Indications in the text such as front, rear, right and left apply as taken in the direction of travel. In the illustrations, the direction of travel may be indicated by a direction arrow.

Your CLAAS After-Sales Service

Scope of the repair manual

This repair manual applies to the tractor:

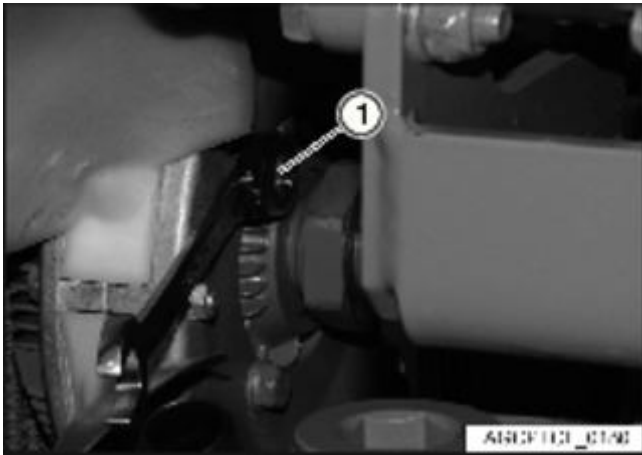
Description	Type	Tractor number	
		from	to
ELIOS 240-210	A48	A4800002	—



⤵

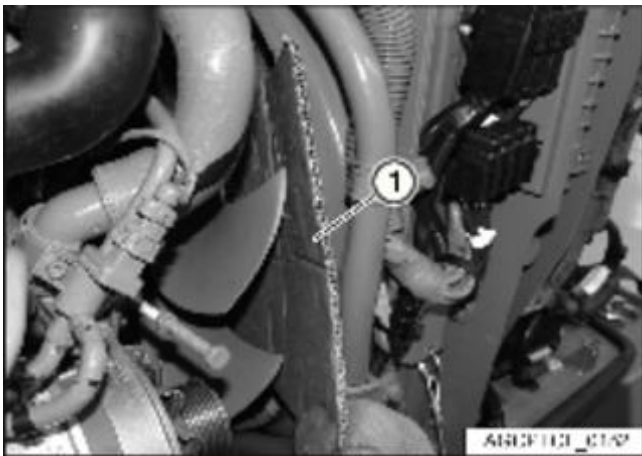
- Undo the main nut (1) from the viscous fan drive.

Undo by turning clockwise.



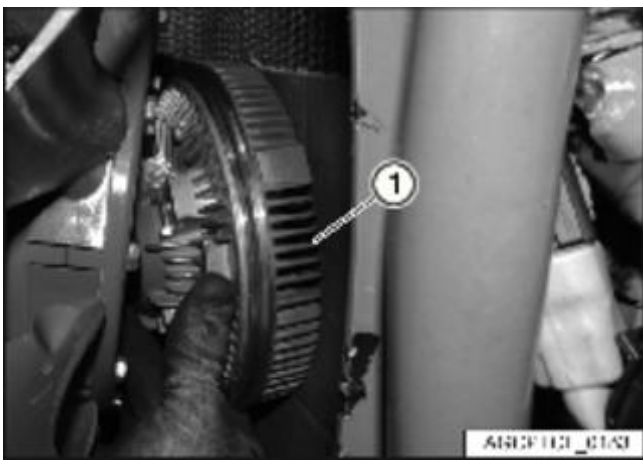
⤵

- Remove all the bolts (1) which secure the fan to the hub.



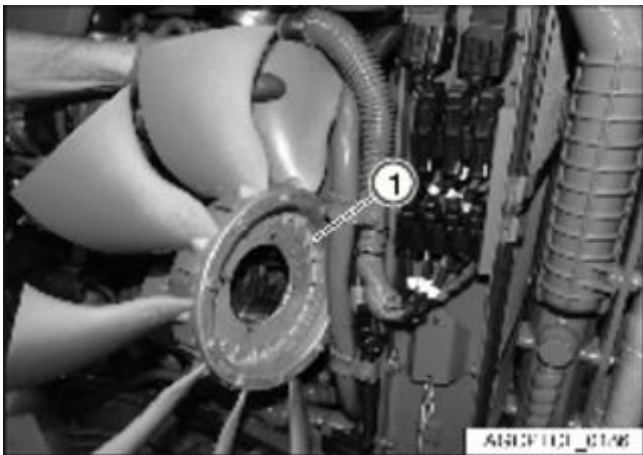
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- Fit a protective screen (1) between the fan and the radiator to avoid any material damage.



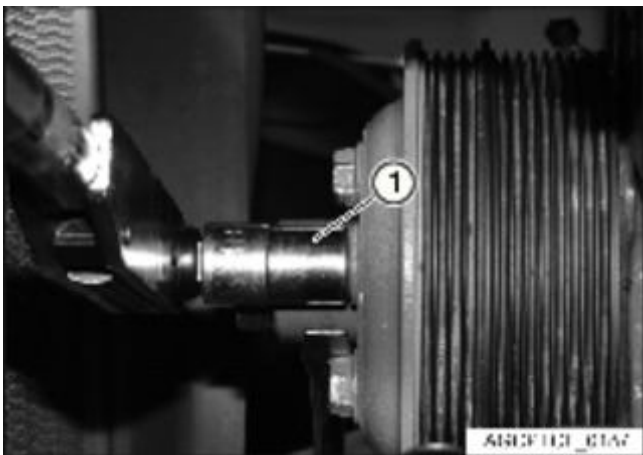
⌘

- Remove the viscous fan drive (1) via the right-hand side of the tractor.



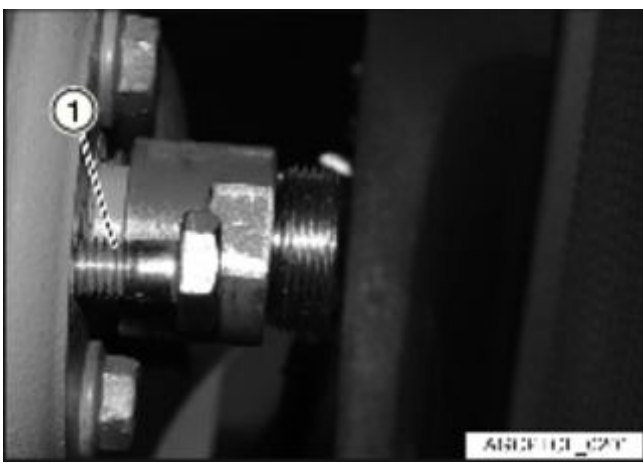
⌘

- Remove the fan (1) via the right-hand side of the tractor.



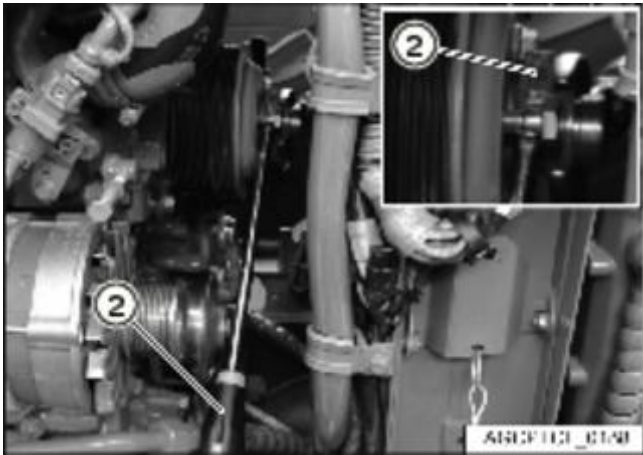
⌘

- Remove a mounting bolt (1) from the pulley using an open-ended spanner to prevent it rotating.

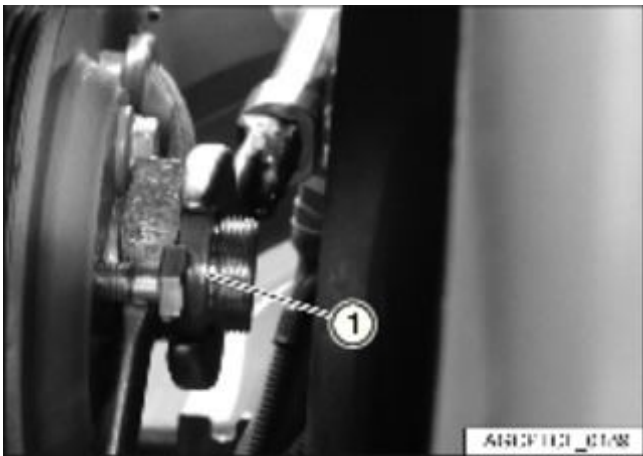


- Fit a H M8x35 bolt (1), tightening it by hand only.

This bolt must be considered to be a consumable and must be tightened by hand.

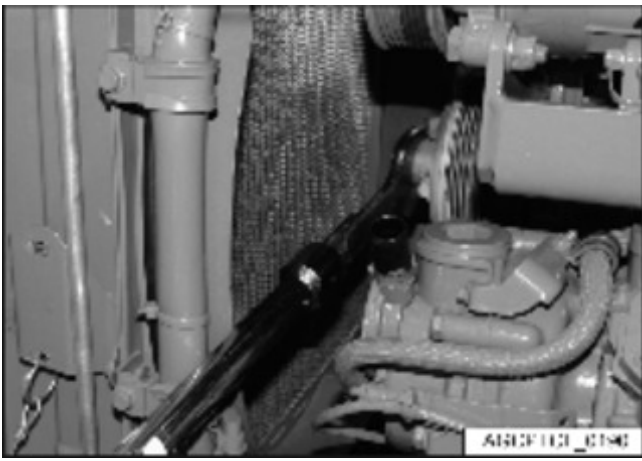


- Lock the pulley using a suitable screwdriver (2) jamming it between the bolt and the ring.



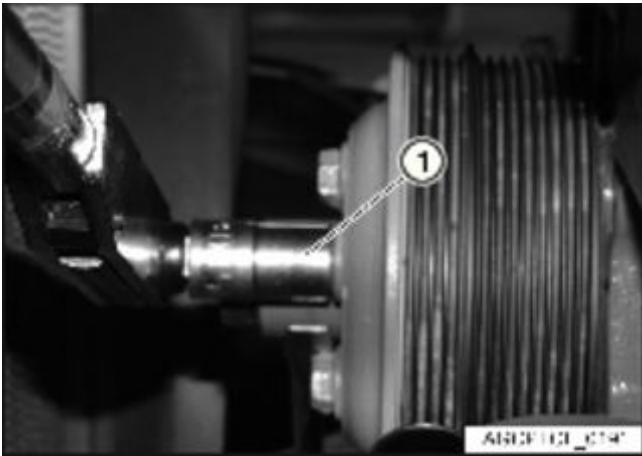
- Remove the nut (1).

Refitting



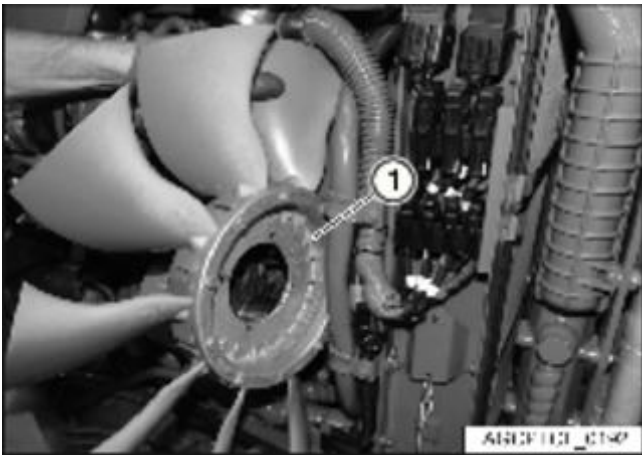
⤵

- Refit and tighten the nut to a torque of 150 Nm.



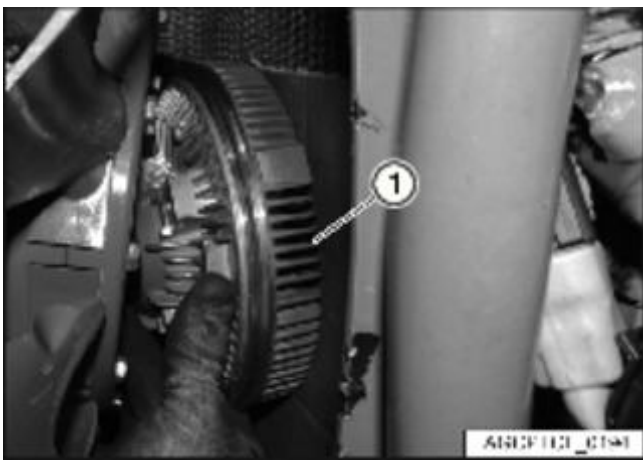
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- Remove the bolt (1) then refit the original bolt on the pulley.



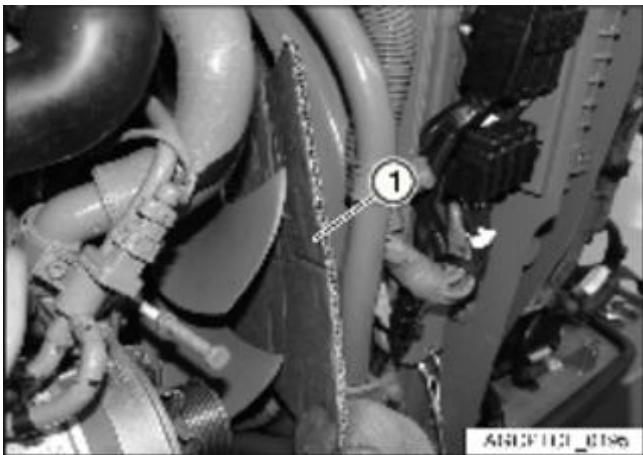
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- Insert the fan (1) (via the right-hand side).



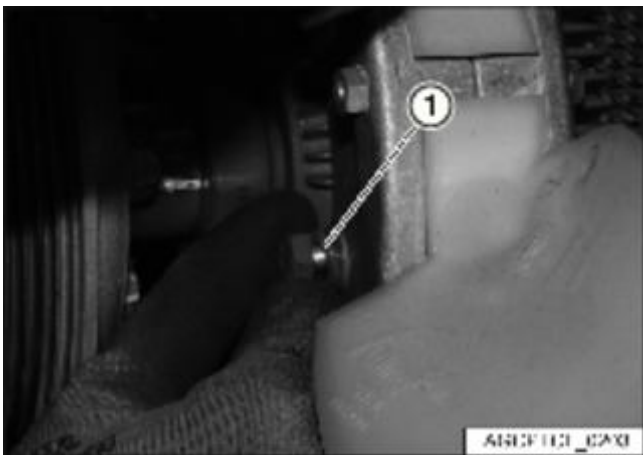
⌂

- Insert the viscous fan drive (1) (via the right-hand side) and secure it onto the pulley ring.



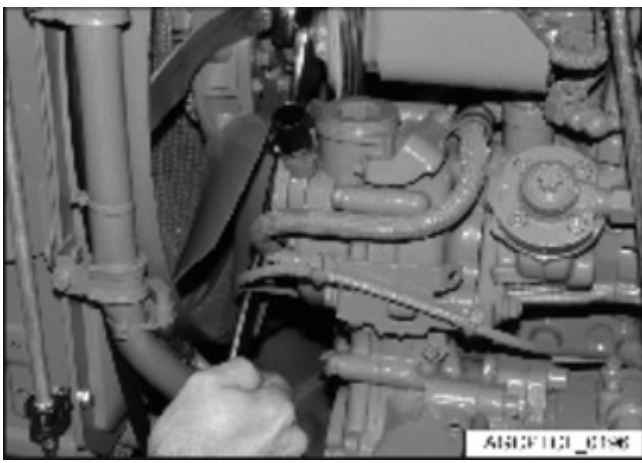
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- Remove the protective screen (1).



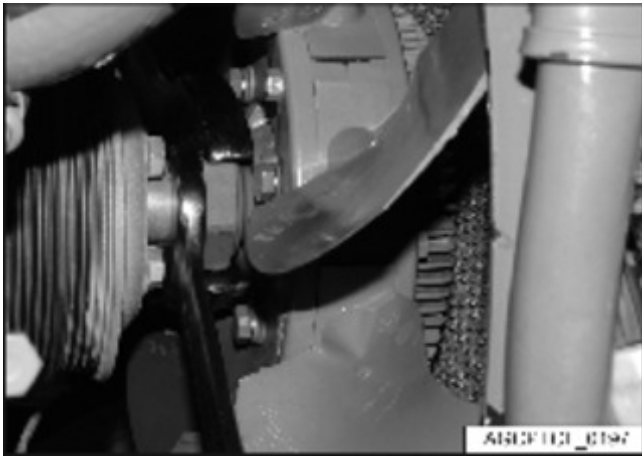
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- Fit the bolts (1) to secure the fan on the viscous fan drive.



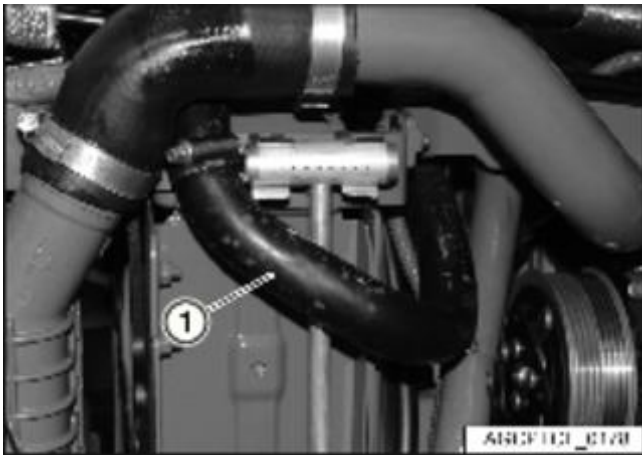
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- ▶ Tighten the viscous fan drive bolts to a torque of 150 Nm.



⤵

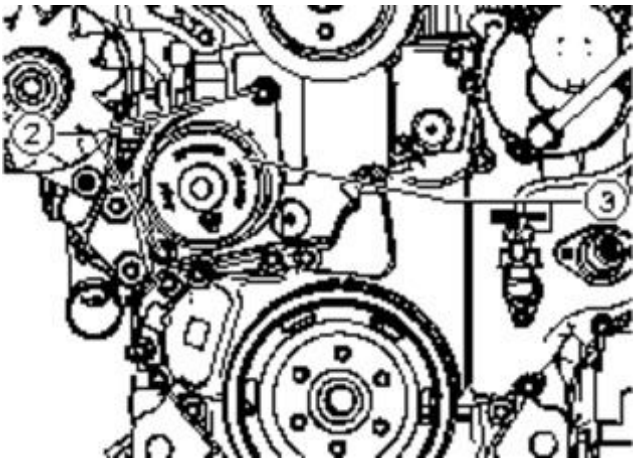
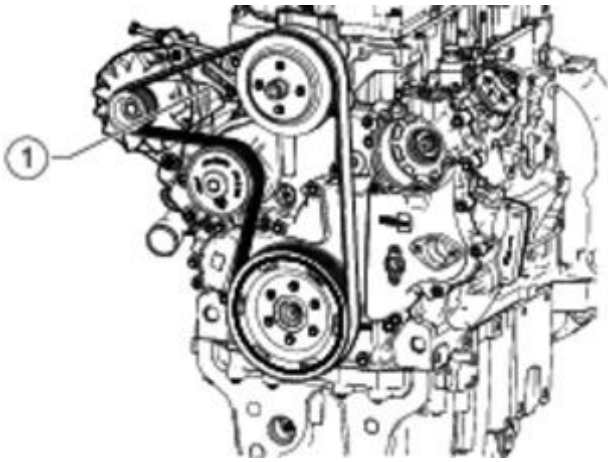
- ▶ Tighten the fan bolts to a torque of 25 Nm.



⤵

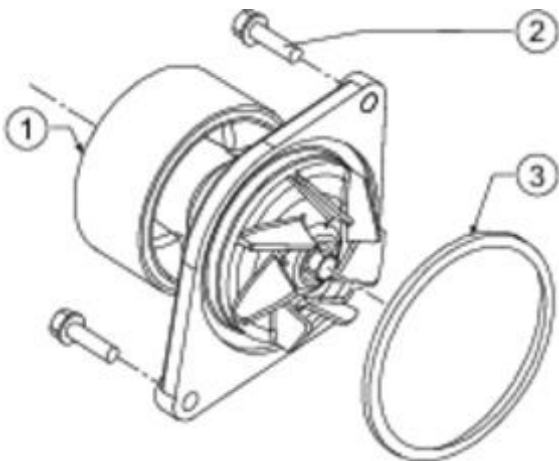
- ▶ Refit the discharge pipe (1).

Water pump



Removal

- ▶ Remove the belt.
Drive belt
- ▶ Remove the belt tensioning adjustment quadrant (1).
- ▶ Undo the bolts (2).
- ▶ Remove the water pump (3).

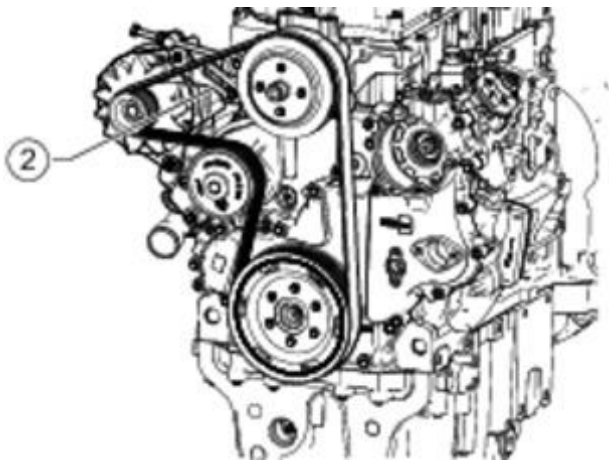
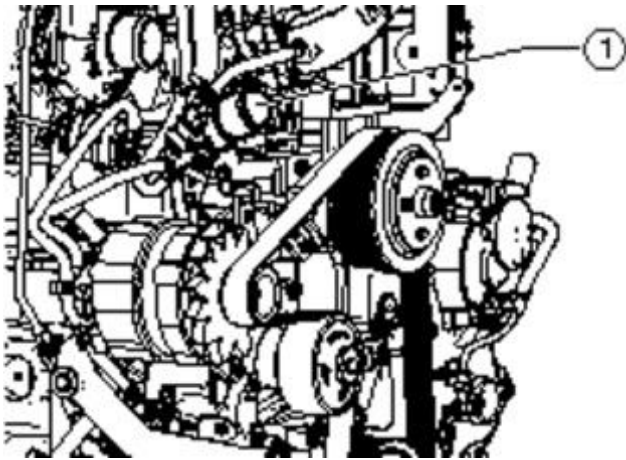


Refitting

- ▶ Fit a new seal (3) on the water pump (1).

- ▶ Fit the water pump (1).
- ▶ Tighten the 2 M8 x 1.25 bolts (2) to 25 ± 2.5 Nm.
- ▶ Refit the belt.
Drive belt

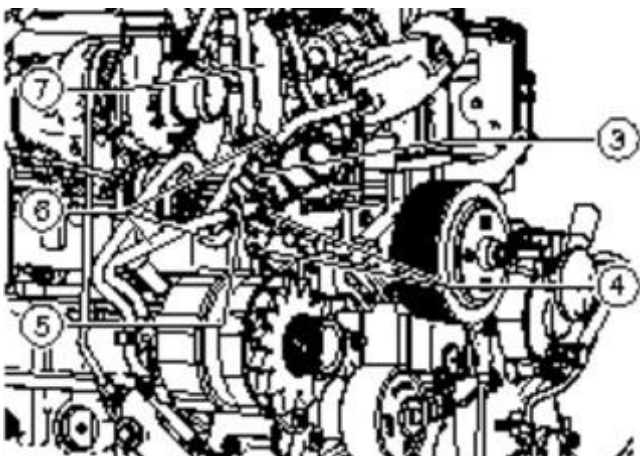
Thermostat

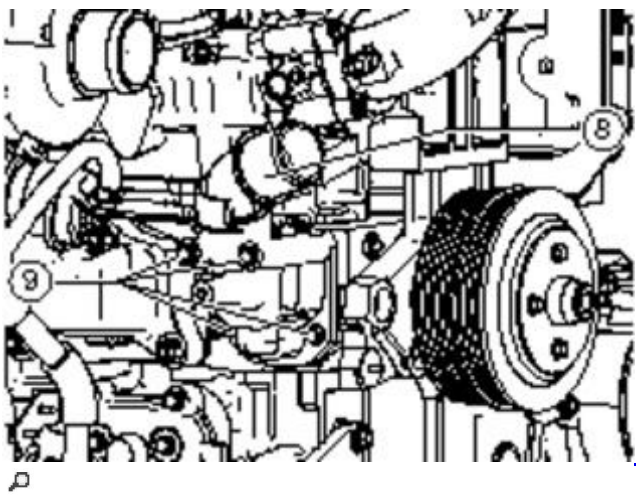


Removal

To remove the thermostat (1):

- ▶ Remove the belt.
Drive belt
- ▶ Remove the belt tensioning adjustment quadrant (2).
- ▶ Remove the alternator.
Alternator





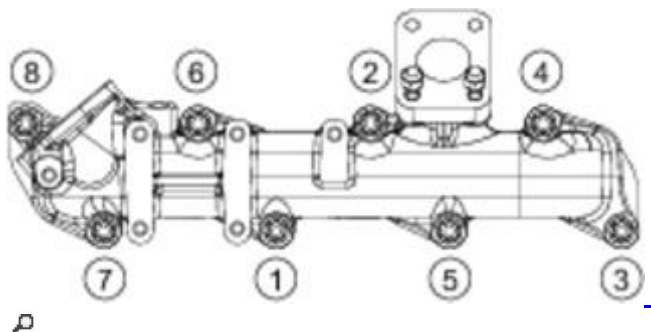
- ▶ Disconnect the connector (3).
- ▶ Disconnect and remove the air ducts (6).
- ▶ Disconnect and remove the coolant return pipe (7).
- ▶ Undo the bolts (4) and remove the pressure regulation valve (5).
- ▶ Undo the bolts (9) and remove the thermostat (8) with its seal.

Refitting

- ▶ Fit the thermostat (8).
- ▶ Tighten the M8 bolts (9) to the recommended torque.
- ▶ Connect the ducts (6) and the coolant return pipe (7).
- ▶ Connect the connector (3).
- ▶ Fit the pressure regulation valve (5) and tighten the bolts (4).
- ▶ Refit the alternator.
 - Alternator
- ▶ Refit the belt.
 - Drive belt

Tightening torques

Description	Hardware	Tightening torque or angular tightening		
		Nm	(°)	kg/m
Turbocharger				
- Turbocharger/oil return, shoulder bolt	M8x1.25 6g x 18	25 ± 2,5		2,5 ± 0,25
- Turbocharger/manifold, nut	M8x1.25 6H	28 ± 1.4		2.8 ± 0.14
- Turbocharger/oil supply pipe	M12x1.5 6g x 11	22 ± 2,2		2,2 ± 0,22
- Turbocharger/oil return, shoulder bolt	M6x1 6g x 16	10 ± 1.0		1.0 ± 0.1
- Nut	M14x1.5 6H	30 ± 3.0		3.0 ± 0.3
Exhaust manifold				
- Exhaust manifold/Turbocharger, stud	M8x1.25 6g x 25	28 ± 1.4		2.8 ± 0.14
- Exhaust manifold, cylinder head bolts	M8x1.25 6H	28 ± 1.4		2.8 ± 0.14
- Exhaust manifold/Turbocharger, nut	M8x1.25 6H	28 ± 1.4		2.8 ± 0.14



Tightening order for the exhaust manifold mounting bolts:

- Pre-tightening: 10 Nm
- Tightening: 27 to 30 Nm

Vertical exhaust pipe

Disassembling the vertical exhaust pipe



- ▶ Disconnect the negative battery terminal.
- ▶ Undo and remove the bolts (1).



- ▶ Loosen the nuts (2).
- ▶ Loosen the clamp (3) without removing it.



- ▶ Remove the vertical exhaust pipe (4).

Turbocharger

Environment!

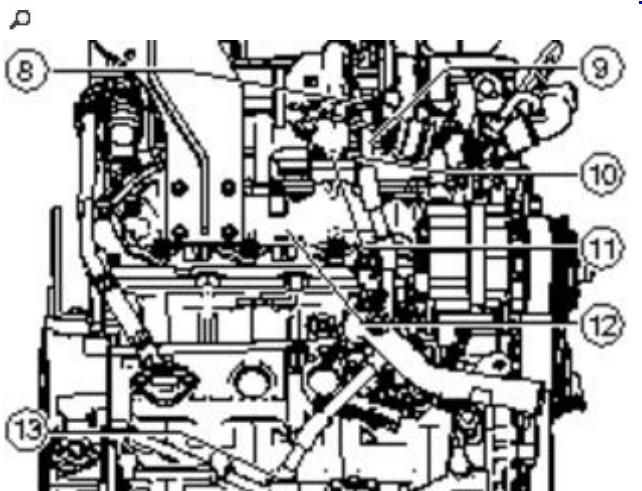
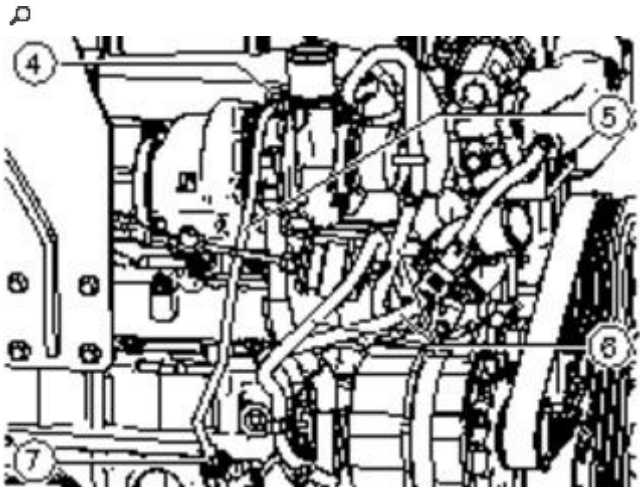
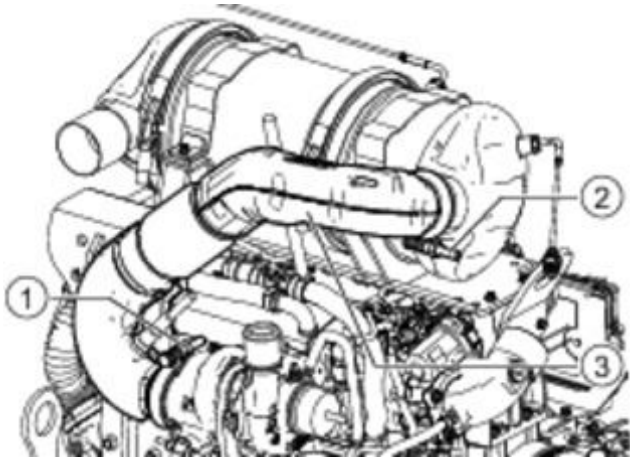
Pollution.

Environmental pollution.

- Dispose of any fluid collected according to currently enforced regulations.

Preliminary operations

- Position a suitable container to recover the fuel.
- Disconnect the engine wiring harness from the engine management module electrical connections.
Engine management module (ECU)



Removal

- ▶ Undo the bolts (1) and (2).
- ▶ Remove the pipe (3).
- ▶ Undo the connector (4) on the turbocharger and the connector (7) on the engine block.
- ▶ Disconnect the oil supply pipe (5) which is connected to the turbocharger.
- ▶ Disconnect the pipes (6).
- ▶ Undo the bolts (8).
- ▶ Undo the connector (13) on the engine block.
- ▶ Disconnect the oil return pipe (9) from the turbocharger.
- ▶ Undo the mounting bolts (10) on the exhaust manifold and remove the turbocharger.

Refitting

- ▶ Fit the turbocharger (11) onto the exhaust manifold (12) with a new seal.
- ▶ Fit the mounting nuts (10) and tighten to the recommended torque.
Tightening torques
- ▶ Fit the oil supply pipe (9) onto the turbocharger with a new seal.
- ▶ Tighten the connectors on the engine block and on the turbocharger to the recommended torque.
Tightening torques
- ▶ Reconnect the pipes (6).
- ▶ Fit the oil supply pipe (5) and tighten the connectors.
- ▶ Fit the pipe (3) on the engine block with a new seal and tighten the mounting bolts (7) to the recommended torque.
Tightening torques
- ▶ Fit the pipe (3) and tighten the clamps (1) and (2).
- ▶ Connect the engine wiring harness to the engine management module electrical connections.
Engine management module (ECU)

Exhaust manifold

Environment!

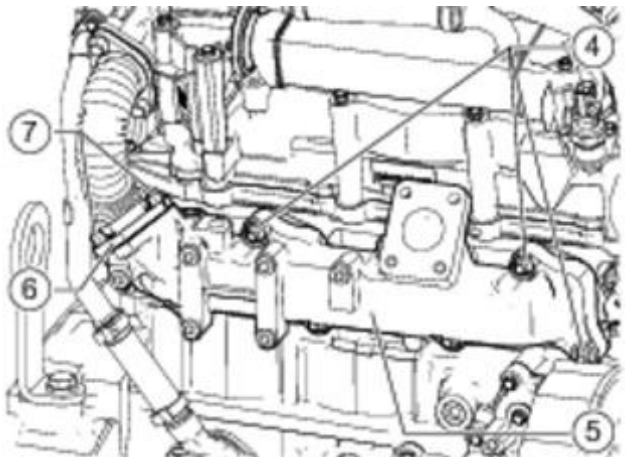
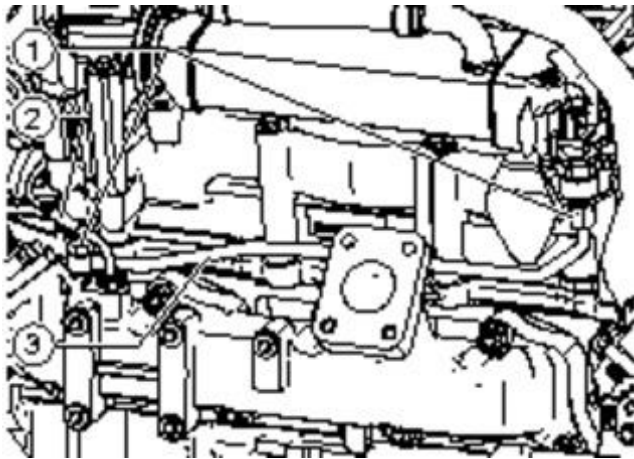
Pollution.

Environmental pollution.

- ▶ Dispose of any fluid collected according to currently enforced regulations.

Preliminary operations

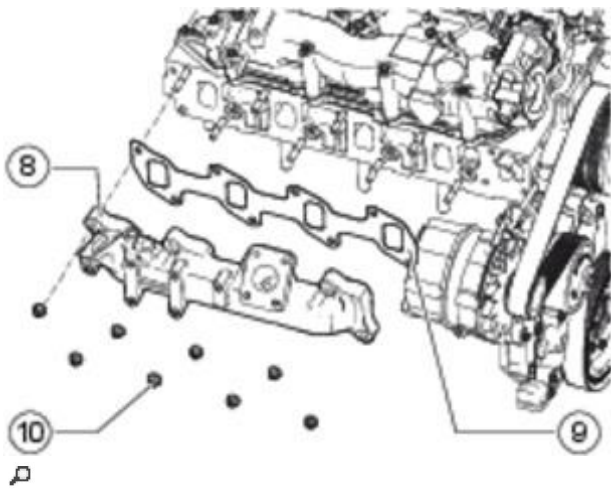
- ▶ Position a suitable container to recover the fuel.
- ▶ Disconnect the engine wiring harness from the engine management module electrical connections.
Engine harness
- ▶ Remove the turbocharger.
Turbocharger
- ▶ Remove the particulate filter assembly and its support.
Air filter



Removal

- ▶ Loosen the connectors (1).
- ▶ Disconnect the pipe (3).
- ▶ Disconnect the sensor (2).
- ▶ Undo the bolts (7) and remove the pipe (6) connecting to the EGR valve.

- ▶ Undo the mounting bolts (4) and remove the exhaust manifold (5) from the cylinder head.



Refitting

- ▶ Mount the exhaust manifold (8) equipped with a new seal (9).
- ▶ Fit the nuts (10) and tighten to the recommended torque.
Tightening torques
- ▶ Fit the pipe (6) connecting to the EGR valve and tighten the bolts (7) to the recommended torque.
Tightening torques
- ▶ Refit the pipe (3) and tighten the connectors (1) to the recommended torque.
Tightening torques
- ▶ Connect the sensor (2).
- ▶ Fit the turbocharger.
- ▶ Carry out final assembly.
Cylinder head

Tightening torques

Description	Hardware	Tightening torque or angular tightening		
		Nm	(°)	kg/m
Intake manifold				
- Intake manifold, bolt	M8x1.25 6g x 30	25 ± 2,5		2,5 ± 0,25
- Intake manifold, bolt	M8x1.25 6g x 50	25 ± 2,5		2,5 ± 0,25
- Intake manifold, bolt	M8x1.25 6g x 110	25 ± 2,5		2,5 ± 0,25
- EGR cooler, clamp	M8x1.25 6g x 70	25 ± 2,5		2,5 ± 0,25
- Air intake flap actuator clamp	M6x1 6g x 60	10 ± 1,0		1,0 ± 0,1
Air inlet connection				
- Air inlet pipe, nut	M6x1 6H	10 ± 1,0		1,0 ± 0,1
- Air inlet pipe, bolt	M6x1 6g x 65	10 ± 1,0		1,0 ± 0,1
- Conical threaded plug	M22x1.5 6g	50 ± 5,0		5,0 ± 0,5
- Pressure controller pipe, nut	M10x1.25 6g	35 ± 3,5		3,5 ± 0,35

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