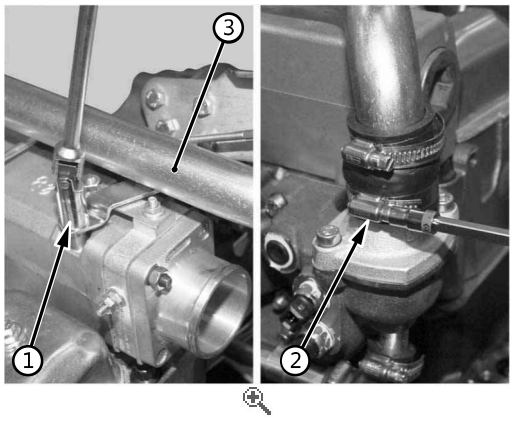
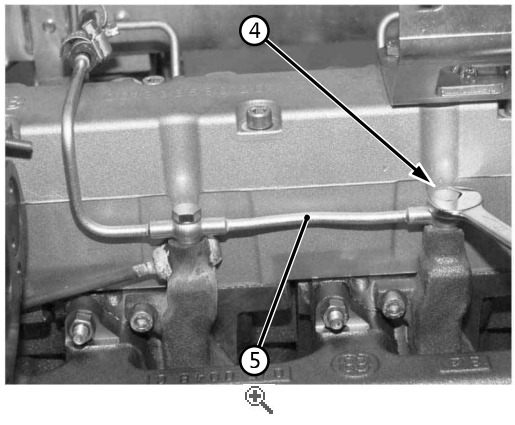
Cooling and intake ducts

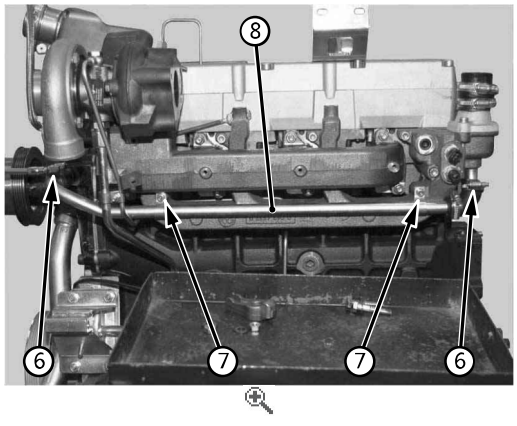
1. Loosen screw (1) and clamp (2); remove radiator connection pipe (3).



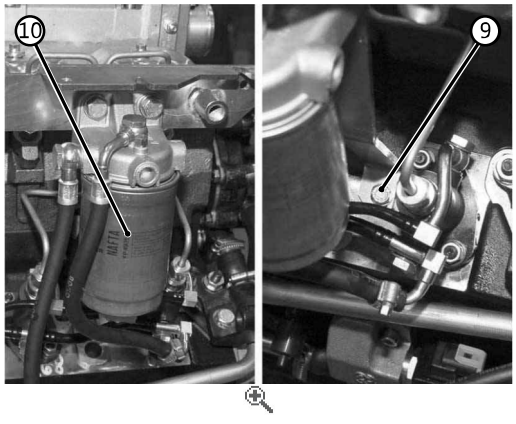
2. Loosen and remove unions (4) and remove pipe (5).



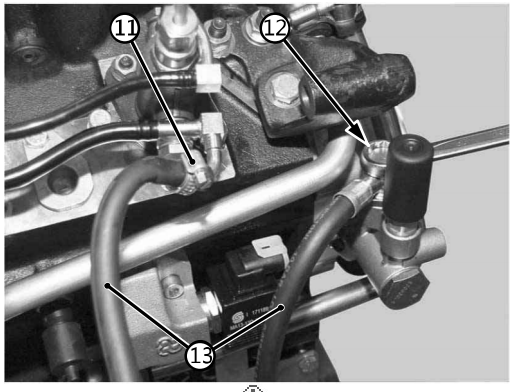
3. Loosen clamps (6), undo screws (7) and remove pipe (8).



4. Undo screw (9) and slide out fuel filter (10) and relative supporting bracket.

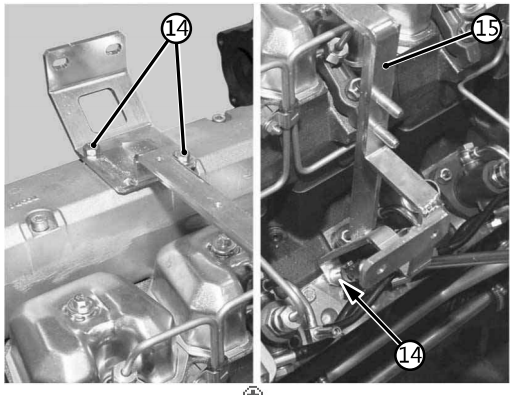


5. Loosen clamp (11), undo union (12), disconnect pipes (13) and remove fuel filter (10) complete with supporting bracket.



5.

Undo screws (14) and remove blow-by support bracket (15).



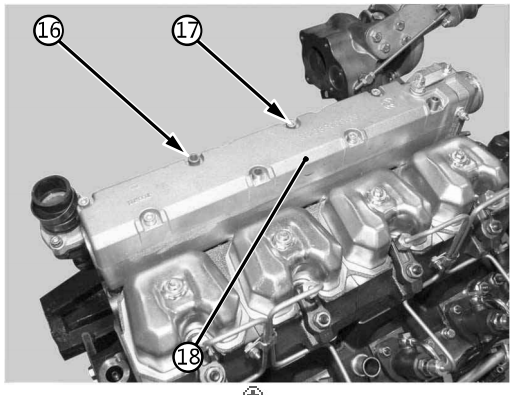
6.

Remove the three spacers (16) and undo the five fixing screws (17).

Remove intake manifold (18).

NOTE

Renew the gaskets on reassembly.

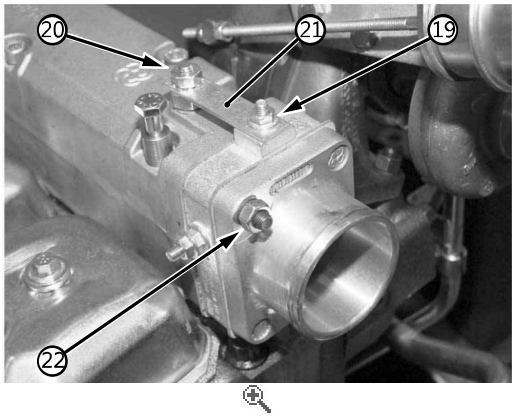


7.

Heating element

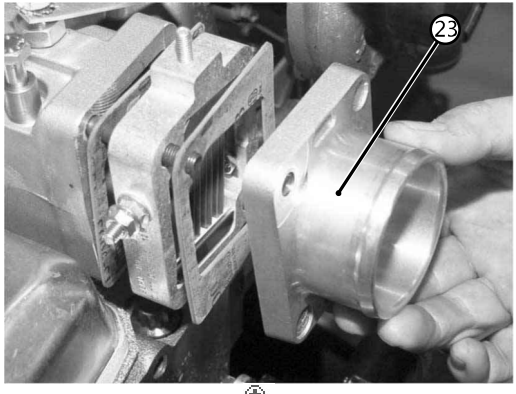
Undo nut (19), loosen nut (20) and move bracket (21) aside.

Unscrew the two flange fixing nuts (22).



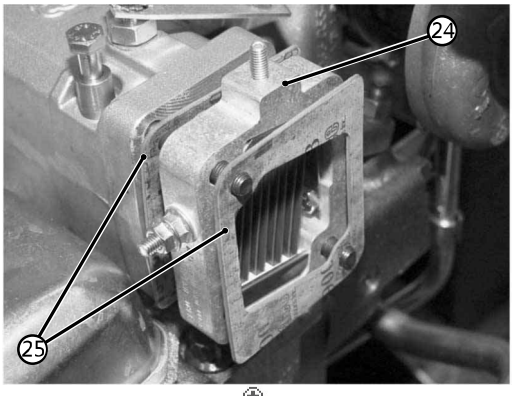
1.

Remove flange (23).



2.

Remove heating element (24) and gaskets (25).



3.

Final engine checks

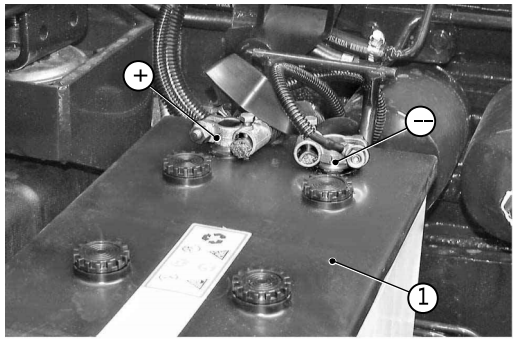
These checks are necessary for the final setup of the fuel injection system and to check the efficiency of the engine lubrication system. The tests are to be carried out after the engine has been installed on the tractor and after all the liquid levels have been restored (engine oil, coolant, fuel and recharging of the air conditioning system).

Initial start-up and oil pressure check

Check that the battery is fully charged and then connect the terminals.

NOTE

First connect the positive terminal (+) and then the negative (-).

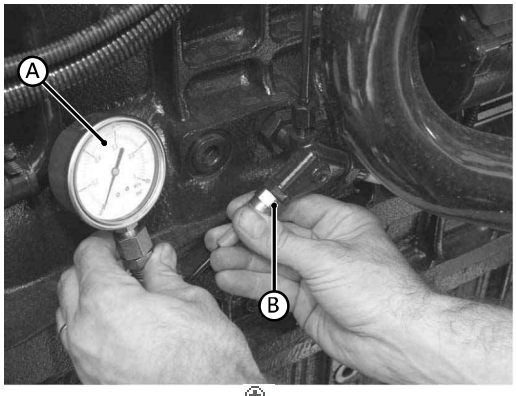


1.

Remove the engine oil pressure sensor and connect a 10 bar pressure gauge "A" to pressure test fitting "B".

NOTE

Note that in this condition, the oil pressure warning light will not illuminate when the electrical circuits are powered on.



2.

3. Loosen the drain plug on the fuel filter and operate the fuel lift pump until the fuel flowing out of the drain hole is free of air bubbles. Tighten the plug.

NOTE

If no resistance is encountered when operating the lever of the fuel lift pump and no fuel flow is obtained, turn the starter key briefly back and forth until the fuel starts to flow.

Run the engine at idle speed and check that pressure gauge (fitted in step 2) shows a reading of 0.5 ... 1.5 bar (7.25 ... 21.75 psi).

4. Leave the engine idling for about 5 minutes, and then, using the hand throttle, set an engine speed of about 1200 rpm to bring the engine up to its normal operating temperature (engine oil temperature above 65°C).

5. Return the engine to idle speed and check that the oil pressure indicated on the pressure gauge is greater than 0.5 bar.

6. Stop the engine, remove the pressure gauge and carry out the procedure to synchronize the injection pumps.

Synchronizing the injection pumps

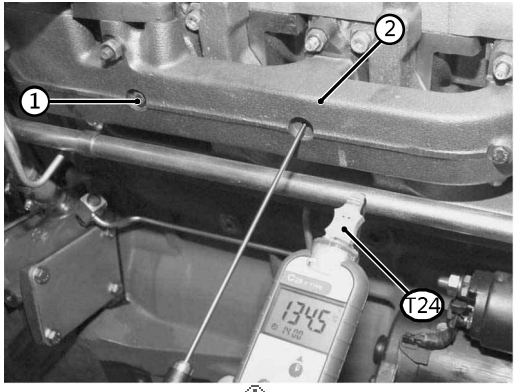
This procedure should be carried out:

- After the removal of one or more pumps for testing, overhaul or renewal.
- When the engine runs unevenly and the engine parameters have already been checked using the All Round Tester or (for industrial engines) the electronic control unit.

DANGER

All checks described below must be performed in a well-

ventilated area and with the exhaust pipe connected to a fumes extraction system.



1.

Inspection

1. Start the engine and leave it running at around 1200 rpm until it reaches normal operating temperature (engine oil temperature above 65°C).
2. When the engine oil temperature exceeds 65°C, unplug the wiring connector of the solenoid valve that controls the hydraulic tappets to ensure that the latter are not operated.
3. Remove plugs (1) on the exhaust manifold (2).
4. Insert digital temperature probe T24 (P/N 5.9030.667.4) in hole in the manifold corresponding to cylinder 1; allow the temperature reading to stabilise, then note down the temperature value.
5. Repeat these operations for all cylinders.
6. Check the temperature difference between all the cylinders; if the temperature difference is not within the optimum range of ±15°C (±59°F), it will be necessary to adjust the angular position of the injection pumps.

Pump adjustment

1. With the engine running at idle speed, slightly loosen retaining nuts (1) of injection pump (2) to be adjusted.

NOTE

The nuts should be loosened sufficiently to eliminate the tightening torque but so that the pump is still held firmly.

2. Rotate the pump.

NOTE

Rotate the pump CLOCKWISE to INCREASE the temperature of the exhaust gases. Rotate the pump COUNTER-CLOCKWISE to DECREASE the temperature of the exhaust gases.

IMPORTANT

Adjust the pump corresponding to the cylinder with the lowest temperature reading by rotating it clockwise.

NOTE

After adjusting the angular position of one pump. it will be necessary to re-check the exhaust gas temperature for all the cylinders.

3. Using a torque wrench, gradually tighten retaining nuts (1) of pump (2) alternately to the prescribed final torque.

   Nuts: 16...20 Nm (11.8...12.1 lb.ft.)

Changing the coolant and flushing the circuit

Flush the cooling circuit using a specific detergent.

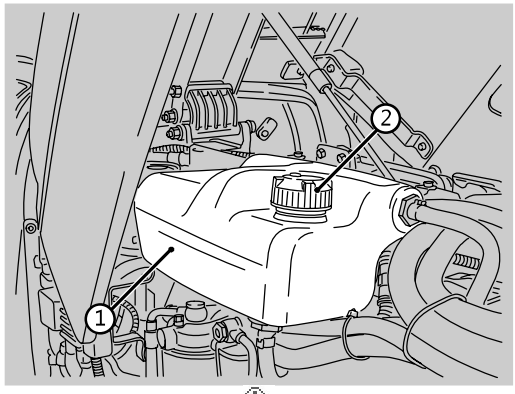
WARNING
Do not remove the radiator cap when the engine is still hot. The radiator is under pressure when hot, and if opened, boiling liquid and steam can escape and cause serious injury to yourself and anyone else in the vicinity. Before removing the radiator cap, stop the engine and wait for the circuit to cool down.

Procedure for changing the coolant and flushing the circuit

1. Park the tractor on level ground.

   The engine must be switched off and the coolant cold.

   Open the cap (2) of the expansion chamber (1).

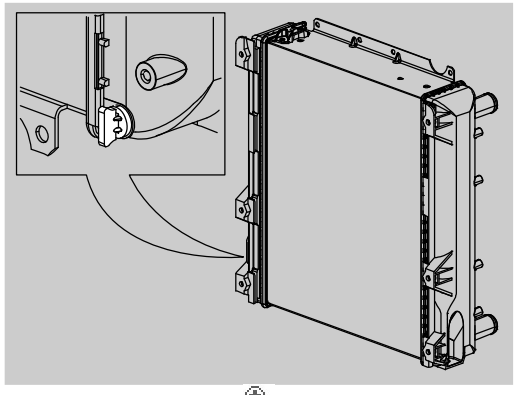


2.

   Place a suitable receptacle under the coolant radiator.

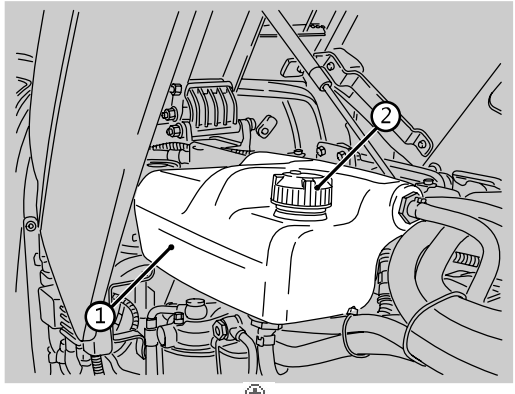
   Drain the radiator by removing the plug at the bottom right-hand side.

CAUTION
Always respect environmental protection regulations. Any fluid (oil, diesel, coolant) or filters and batteries must be disposed of in accordance with the applicable regulations.



3.

   Refit the drain plug and fill the circuit with detergent mixture via filler neck (2) located on expansion tank (1).



4.

5. Turn on the engine and let it run on idle for around one and a half hours; if the tractor is equipped with a cab heating system, this must be set to maximum to ensure that the detergent mix also circulates in this circuit.

IMPORTANT:

When the engine is running, check that the detergent mixture does not drop under the minimum level in the reservoir.

6. Switch off the engine, drain the system and then fill it with water; then start the engine again bring it up to a speed of approx. 1000 rpm. and leave it running for 5 minutes;

7. Drain the system once again;

8. Refill the circuit with coolant, run the engine for a few minutes and then top up the system if necessary.

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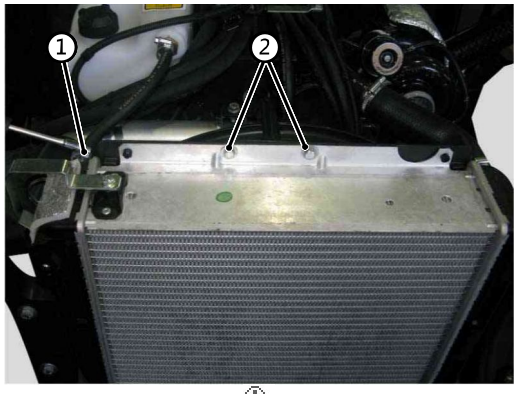
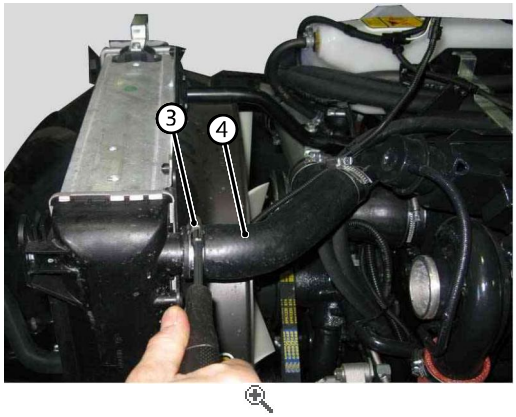
Radiator

Removal

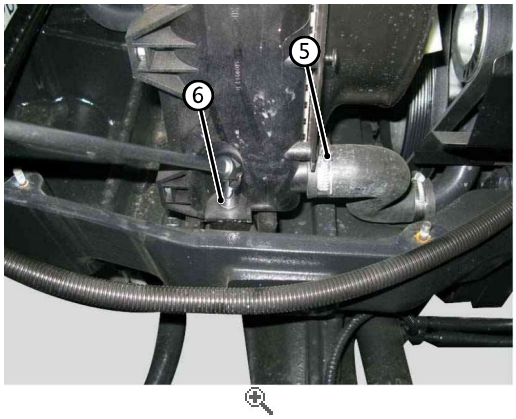
1. Loosen the clamp securing expansion tank hose (1) and the two screws (2).



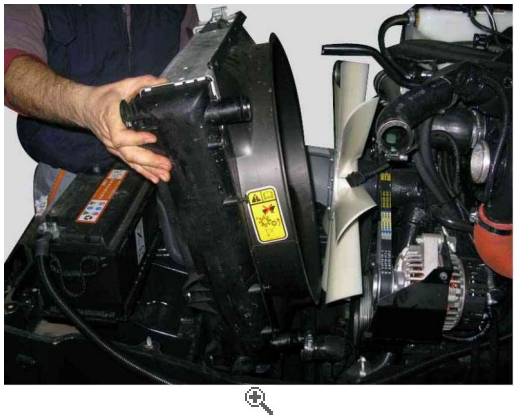
2. Loosen clamp (3) securing radiator hose (4)..



3. Loosen clamp (5) securing the bottom radiator hose and remove screws (6) on both sides.



4. Remove the radiator.



Refitting

Refitting is the reverse of removal.

Fuel tank

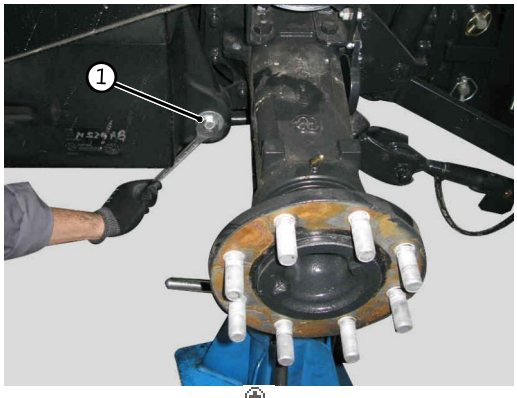
Removal

1. **DANGER**

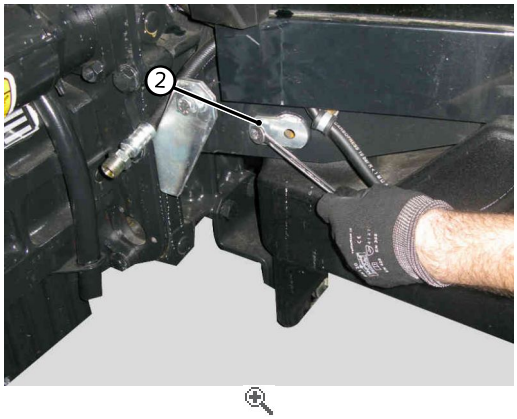
   Do not smoke or allow naked flames in the vicinity during the removal, refitting and filling of the fuel tank. Wipe up any spilt fuel immediately before someone slips on it. Disconnect the lead from the battery negative terminal (-) and apply the parking brake.

   Drain all the fluid from the main tank and the supplementary tank prior to removal.

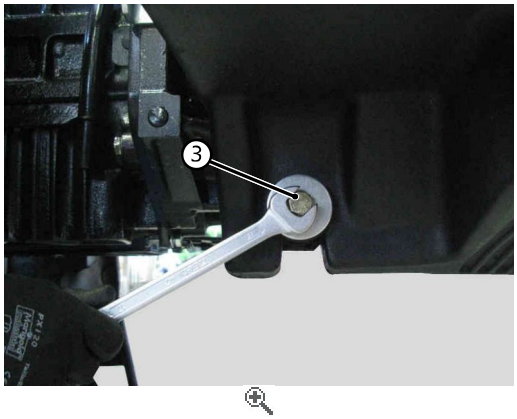
   Remove support screws (1).



2. Remove support screws (2).



3. Remove support screws (3).



4. When removing the support screws, remove also the rubber part (4).

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