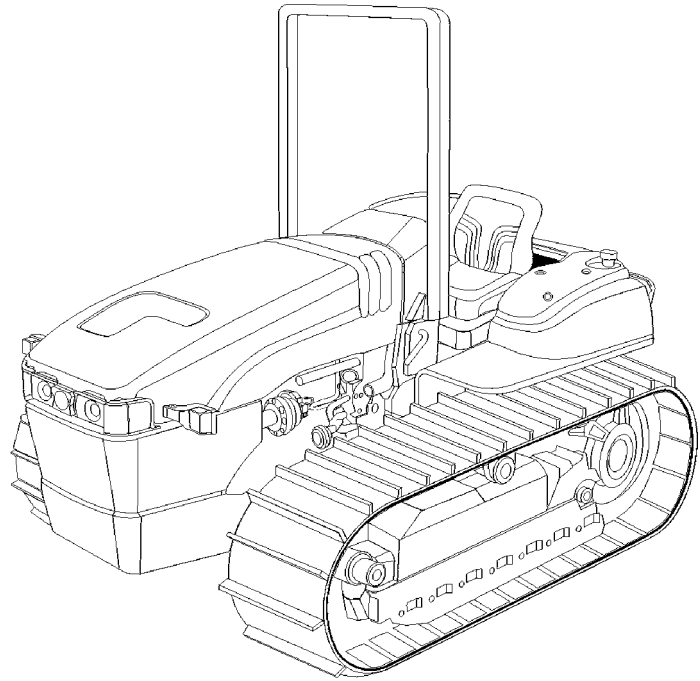




NEW HOLLAND



TK65 - TK75 - TK76 - TK85 - TK95 TRACTORS SERVICE MANUAL

SECTIONS

GENERAL GUIDELINES	00
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S E R V I C E

6035438100

Op.10 001 10
ENGINE
Removal-Installation



DANGER



Lift and handle all heavy parts using suitable lifting equipment.

Make sure that assemblies or parts are supported by means of suitable slings and hooks. Make sure that no one is standing in the vicinity of the load to be lifted.



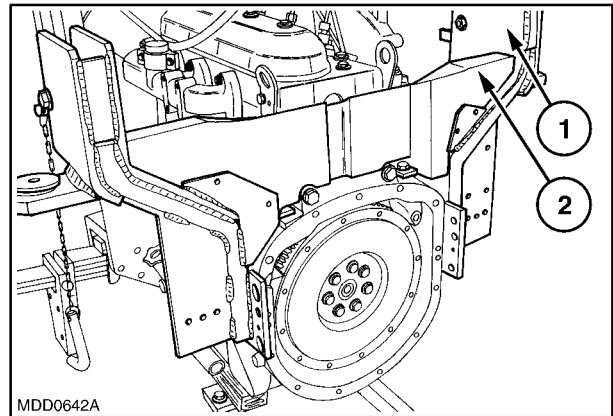
CAUTION



Always use appropriate tools to align fixing holes. NEVER USE YOUR FINGERS OR HANDS.

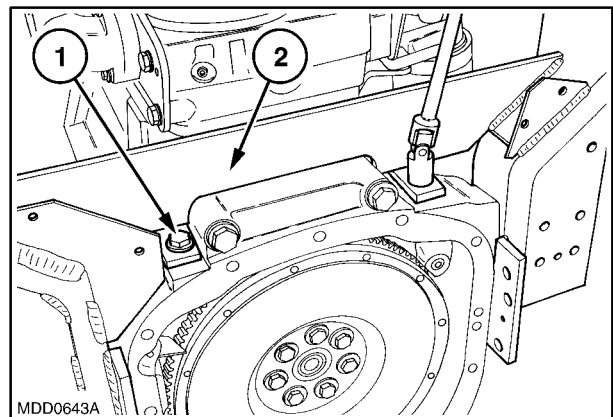
Carry out operations 1 to 32 relative to clutch removal (Op. **18 110 10** page 11, Section 18) proceeding as follows:

7. For 4-cylinder engines, remove the rubber heat guard (2) from the roll bar support (1).



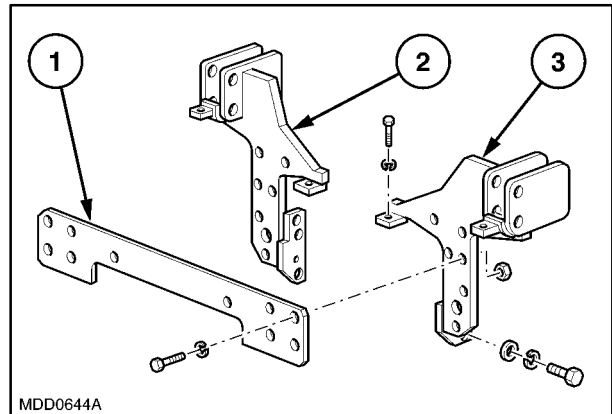
10

8. For 4-cylinder engines, remove the retaining bolts (1) and the roll bar support (2).



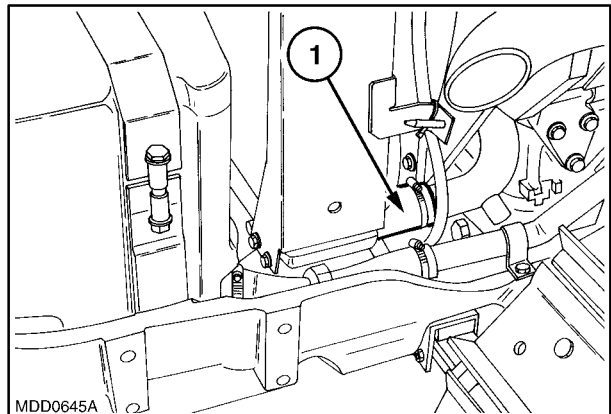
11

9. For 3-cylinder engines, remove the retaining bolts, the crosspiece (1) and the right (2) and left-hand (3) roll bar supports.



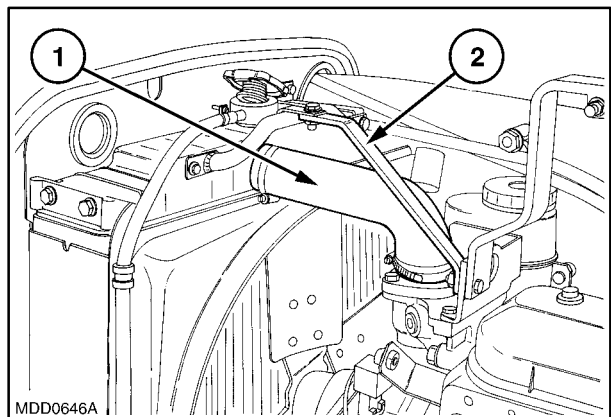
12

10. Remove the retaining bolts and the right and left-hand engine lateral guards.
 11. Place a container for the coolant under the sleeve (1).
 12. Detach the sleeve (1) on the lower piping and drain off the coolant.



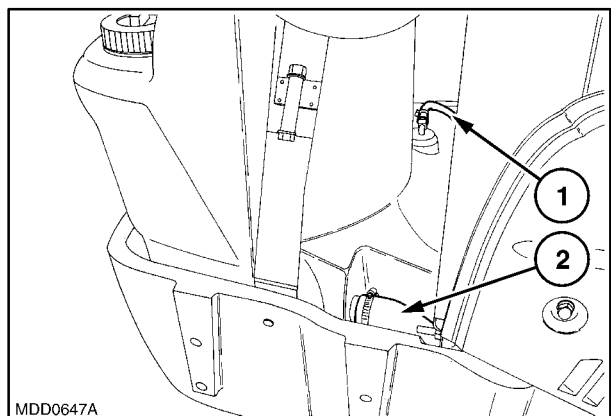
13

13. Detach the sleeve (1) on the radiator upper piping.
 14. For 4-cylinder engines, remove the retaining bolts and the radiator upper tie rod (2).



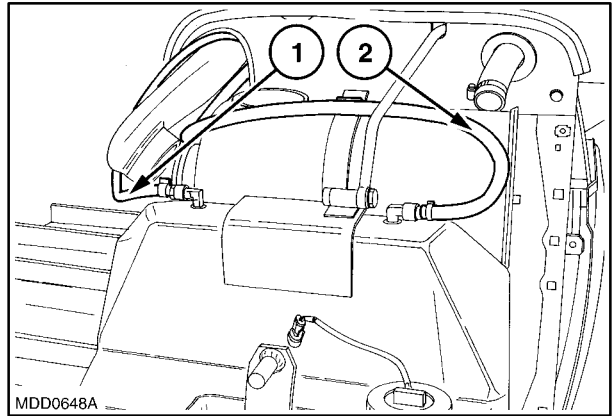
14

15. Remove the piping (1) and the sleeve (2) located on the lower part of the tank.



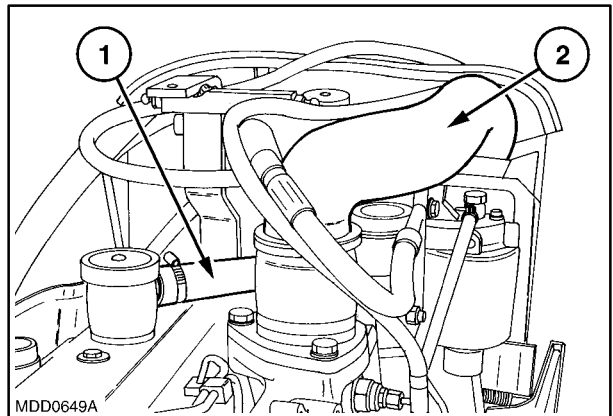
15

16. Remove the piping (1) and (2) located on the upper part of the tank.



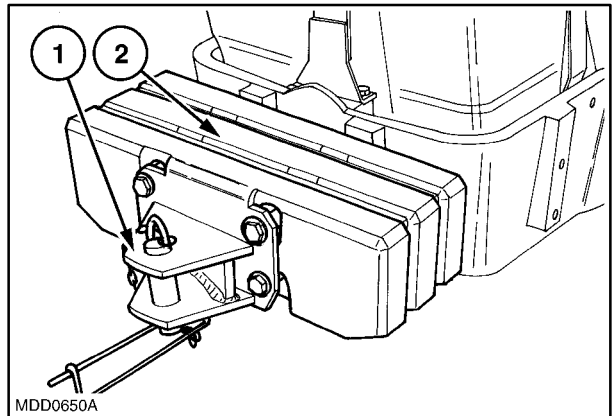
16

17. Detach the oil vapor breather pipes (1) and the turbocharger feed piping (2).



17

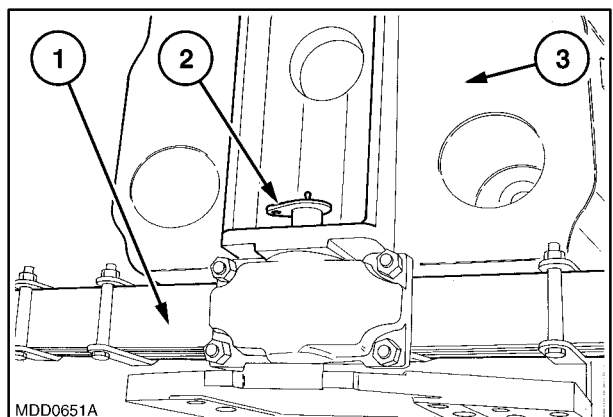
18. Remove the tow bar hook (1) and the front ballast (2).



18

19. Hitch the front suspension (1) to a hoist, remove the suspension retaining pin (2) on the support (3) and remove the front suspension.

20. Hitch the front suspension support (3) to a hoist, remove the sump retaining bolts and remove the support.



19

21. To refit the engine, proceed as follows:

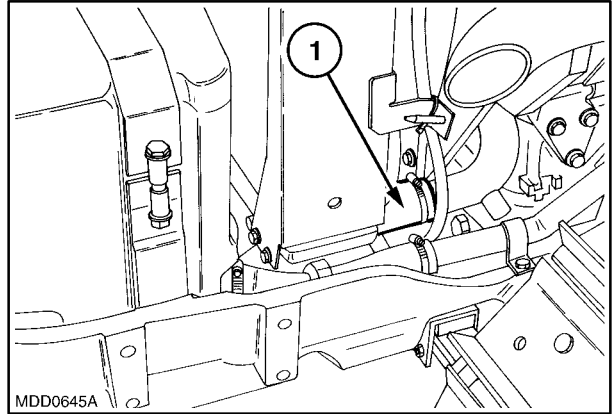


CAUTION



Always use appropriate tools to align fixing holes.
NEVER USE YOUR FINGERS OR HANDS.

- Apply the torque settings listed on page 24.
- Hitch the front suspension support to a hoist and refit to the sump, securing in position with the retaining bolts.
- Hitch the front suspension to a hoist, fit on the support and assemble the suspension retaining pin.
- Refit the front ballast and tow bar.
- Refit the oil vapour recovery piping and the turbo-charger feed piping.
- Refit the piping on the upper part of the tank.
- Detach the piping and sleeve located on the lower part of the tank.
- For 4-cylinder engines, fit the upper tank retaining tie rod and tighten the retaining bolts.
- Refit the radiator upper piping sleeve.
- Refit the radiator lower piping sleeve.
- Fill up with coolant.



20

- Assemble the engine lateral guards and retaining bolts.
- For 3-cylinder engines, fit the right and left-hand supports, the roll bar crosspiece and the retaining bolts.
- For 4-cylinder engines, assemble the roll bar support and retaining bolts.
- For 4-cylinder engines, fit the rubber heat guard on the roll bar support.
- Carry out the relative clutch assembly operations as described in operation **18 110 10** page 19, Section 18)
- Loosen the injector unions and rev the engine with the starter motor; when fuel comes out without air bubbles, tighten the injector unions and carry out the engine start-up test.

Op. 10 001 30 COMPRESSION TEST

In case of poor engine performance, in addition to checking the fuel injection system (injection nozzles and injection pump), also test the compression on each cylinder.



DANGER



Do not use matches, lighters, blowtorches or any form of naked flame as a source of light when inspecting the engine due to the presence of inflammable fluids and vapour.

Compression ratio

The compression ratio is a measure of the quantity of air drawn into the cylinder, and provides an indication of the efficiency of the sealing elements in the cylinder (piston rings and valves).

Uniform compression in all the cylinders ensures that they all perform an equal amount of work, provided that each cylinder is injected with the same quantity of fuel at the right time.

Low compression not only reduces engine performance, it also causes incomplete fuel combustion due to the lack of available combustion air.

The engine therefore gives poor performance with excessive fuel consumption and, consequently, exhaust smoke and restriction of the exhaust passages.

As the compression ratio **also varies with the temperature of the engine** (cold engines produce lower compression values than hot engines), the compression should only be tested when the engine is at normal operating temperature.

Compression should be tested using the compression test kit **291309**, as follows:

- 1) run the engine until it reaches normal operating temperature;
- 2) switch off the engine;
- 3) disconnect the lead from the engine stop electromagnet on the injection pump in order to close the valve, and block the flow of fuel to the injectors;
- 4) remove the injector from the cylinder to be tested;
- 5) turn the engine over a few times with the starter motor in order to expel any carbon residue;

6) fit the dummy injector **293862** in place of the injector removed previously, interposing the copper sealing washer;

7) connect the compression test instrument **291309** and take readings while turning the engine over with the starter motor.

On engines in perfect working order, with the sump oil at approx. 40 °C (104 °F) at sea level (760 mm, 29.9212 in., mercury) and at an engine speed of 200 to 280 rpm, the compression should be 25.5 to 27.5 bar (369.8 to 398.8 psi).

8) Test the compression on the other cylinders, repeating steps 4-5-6-7, bearing in mind that:

The minimum permissible compression on a used engine is 21.6 bar (313.2 psi).

The maximum permissible compression difference between cylinders is 3 bar (43.5 psi).

Every 100 meters (109.36 yards) above sea level corresponds to a reduction in compression by approx. 1%.

CONSIDERATIONS:

Uniform compression

Although high compression is important, it is more important for smooth engine running that compression is uniform in all cylinders.

Low compression readings

If extremely low pressure readings are obtained on one cylinder it is advisable to repeat the test.

Before testing this time, pour approx. one spoonful of engine oil into the cylinder through the injector bore.

Turn over the engine a few times to distribute the oil evenly over the cylinder walls, and then repeat the test.

If the second test readings are significantly higher, suspect worn piston rings, out-of-round or damaged pistons or liners.

If the second test readings are not higher, the problem will be the valves.

On the other hand, if the second test reading shows only a slight improvement, the problem will be due to both the valves and the rings.

Op. 10 001 54
ENGINE
Disassembly-Assembly



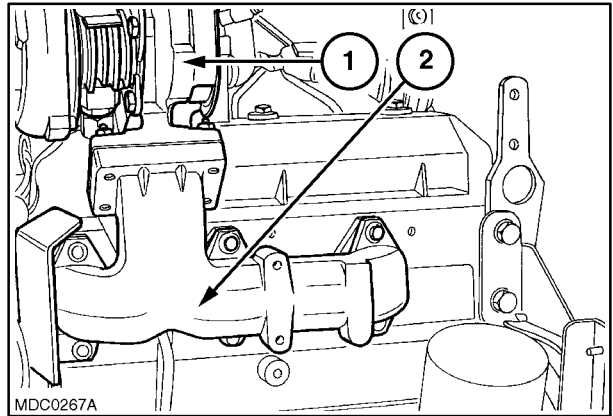
CAUTION



Handle all parts carefully.
 Do not put your hands or fingers between parts.
 Wear suitable safety clothing - safety goggles,
 gloves and shoes.

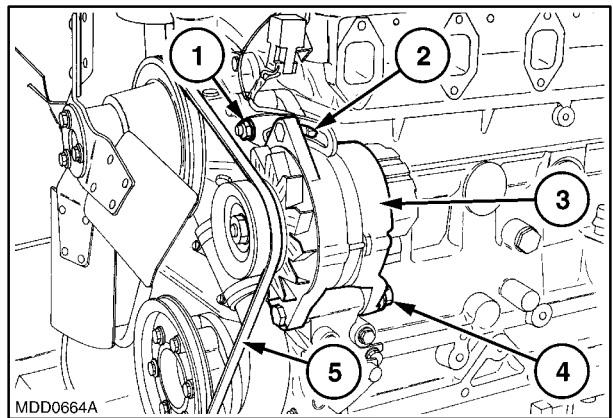
Using series **293860** brackets, position and secure the engine on the rotating stand **290090**, proceeding as follows:

1. Disconnect the turbocharger lubrication piping (1).
2. Remove the retaining bolts and the exhaust manifold (2) together with the turbocharger (1).



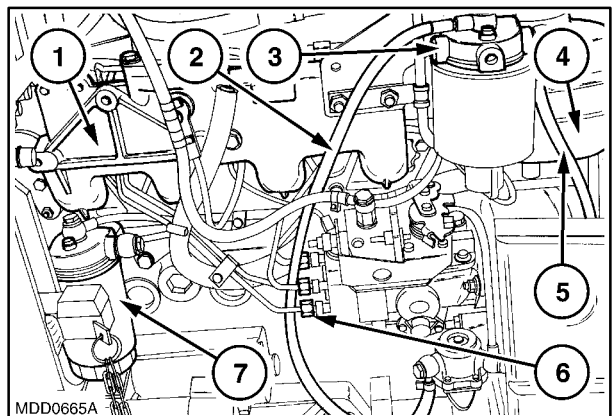
21

3. Remove retaining nuts (1) and (2) and the belt tension adjustment bracket.
4. Remove the alternator fulcrum lower bolt (4).
5. Recover the alternator (3) and the belt (5).



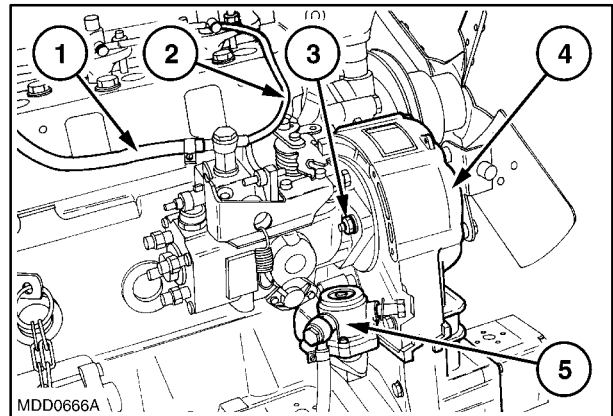
22

6. Disconnect piping (2) and (5) on the sediment filter.
7. Remove the intake manifold (1) and sediment filter (3).
8. Disconnect the piping and remove the manipulator oil tank (4) and bracket.
9. Remove the injection pump/injectors unions (6) and piping.
10. Remove the fuel filter (7) connections and piping.



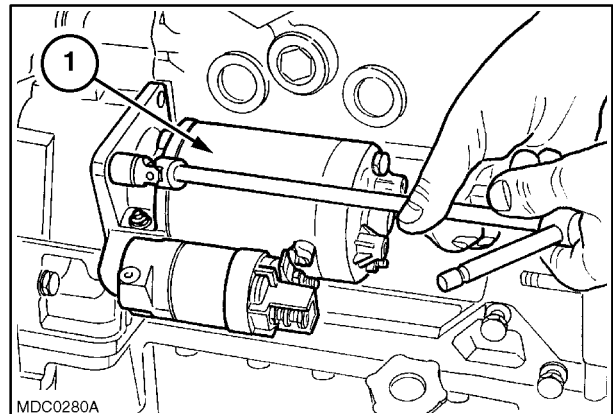
23

11. Disconnect piping (1) and (2) on the injection pump.
12. Remove the retaining nuts (3) that secure the pump to the timing casing and the access cover (4) to the gear unit.
13. Remove the pump retaining nuts and gear unit, extracting the gear unit with tool **295042**; recover the pump and the Woodruff key.
14. Disconnect the piping and remove the fuel pump (5).



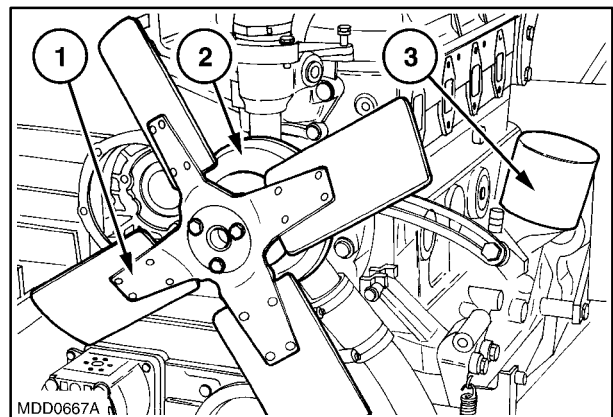
24

15. Remove the retaining bolts and the starter motor (1).



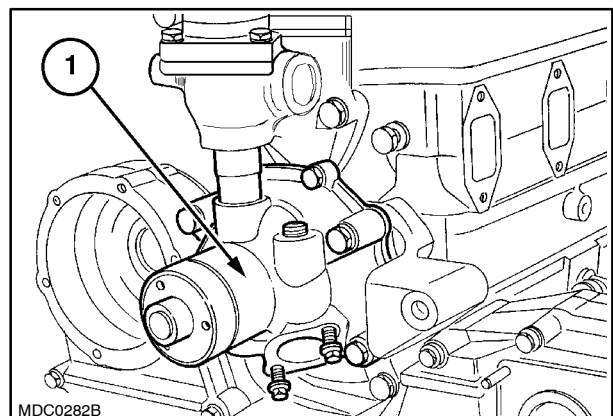
25

16. Remove the retaining bolts, detach the fan (1) and relative pulley (2).
17. Remove the oil filter (3).



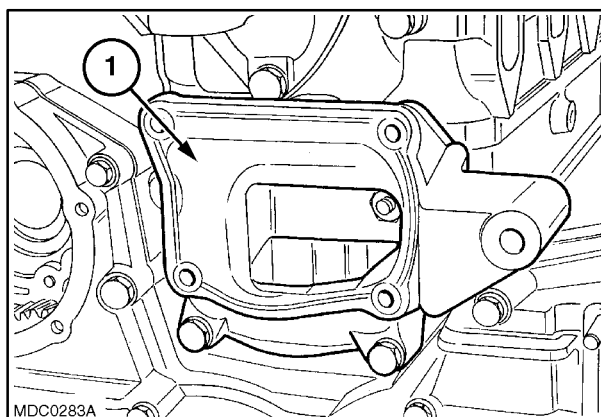
26

18. Detach the piping and remove the coolant pump (1).



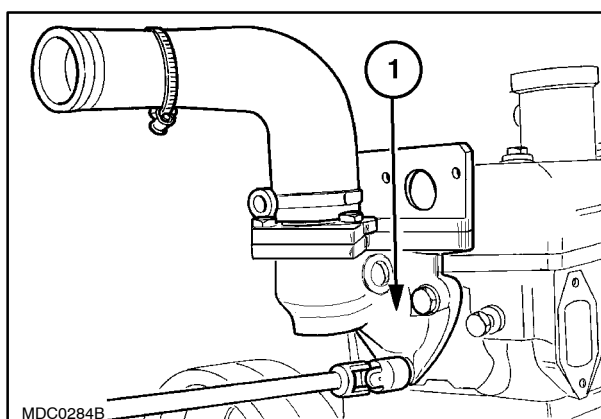
27

19. Remove the retaining bolts and the coolant pump support (1).



28

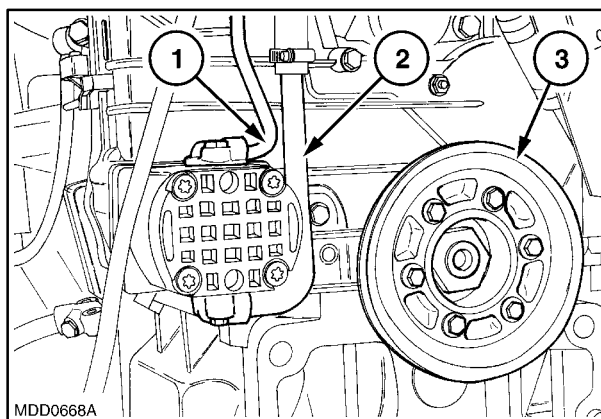
20. Remove the retaining bolts and the thermostat (1), together with the support.



29

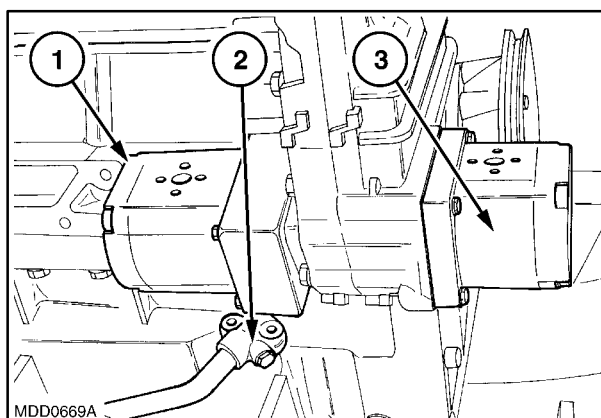
21. Detach the manipulator circuit fuel pump piping (1) and (2).

22. Remove the shaft pulley (3) and hub.



30

23. Disassemble the intake (1) and delivery pipes (2), the lift pump (1) and the manipulator circuit fuel pump (3).



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