



CLAAS CERES
316 326 336 346 2+4WD
(Type A17) Tractor
Service Repair Manual

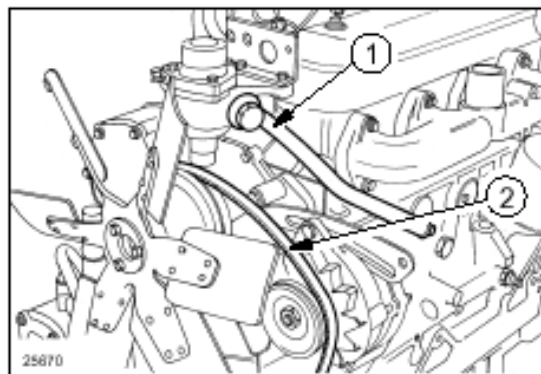


Engine disassembling & assembling

Engine disassembling

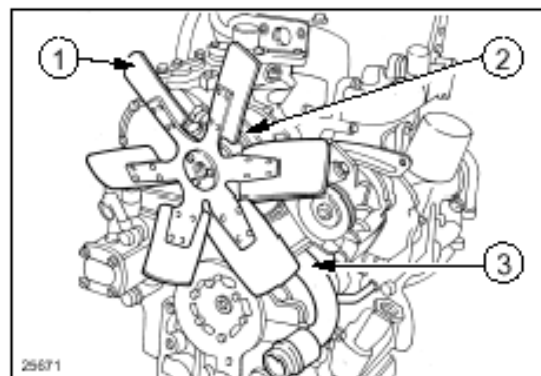
Step 1

Remove the pipe (1) from the thermostatic valve sat, loosen the alternator retaining bolts and remove the fan drive belt (2).



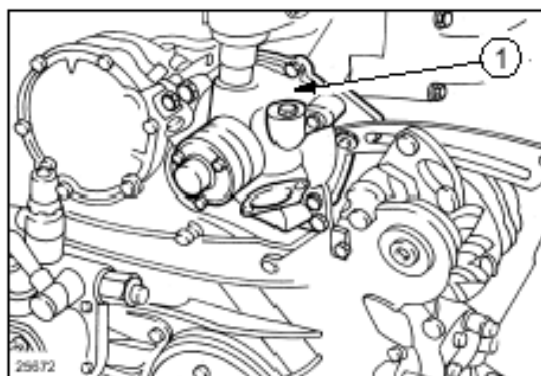
Step 2

Remove the retaining bolts, fan (1) spacer and drive pulley (2), detach the return pipe (3) from the coolant pump.



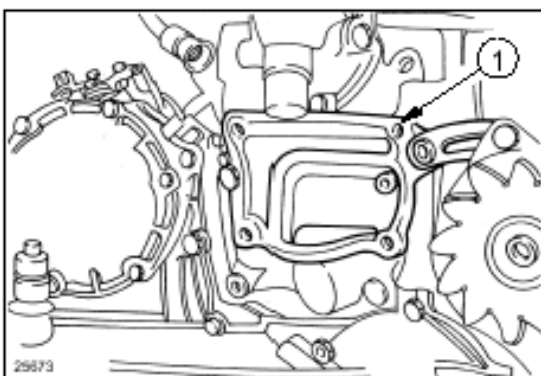
Step 3

Remove the retaining bolts and detach the coolant pump (1).



Step 4

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



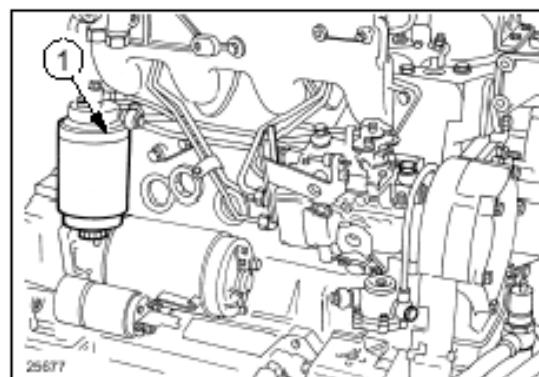


Engine disassembling & assembling

Engine disassembling

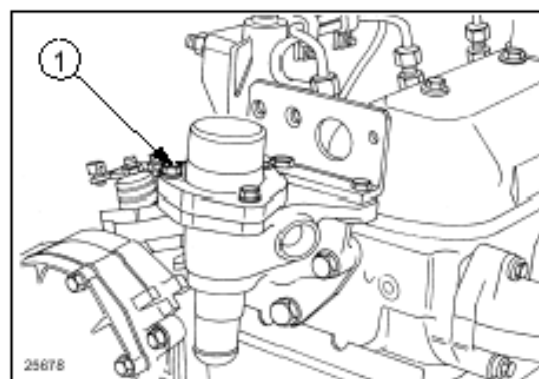
Step 5

Unscrew the unions (2 and 3) on the injection pump and fuel pump, remove the retaining bolts and extract the fuel pump, complete with support lines.



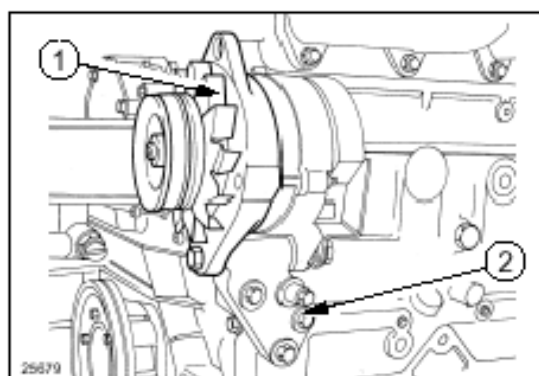
Step 6

Remove the retaining bolts and disconnect the complete thermostatic valve unit (1).



Step 7

Remove the retaining bolts and remove the alternator (1), complete with support (2).

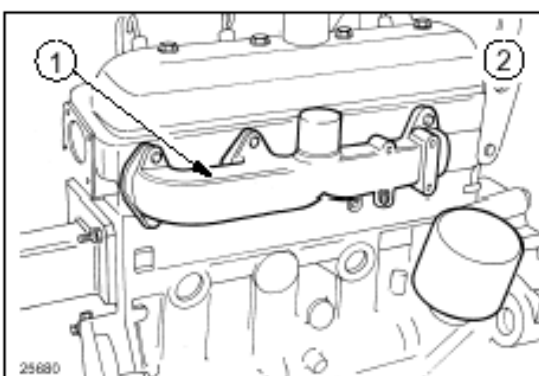


Step 8

Unscrew the retaining bolts and disconnect the exhaust manifold (1).

Step 9

Remove the engine oil filter (2).



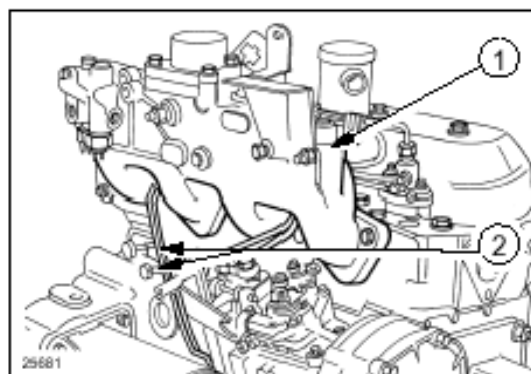


Engine disassembling & assembling

Engine disassembling

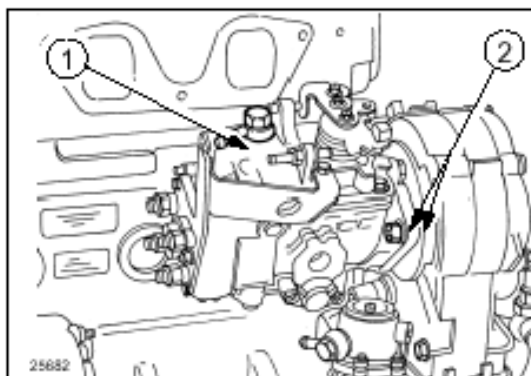
Step 10

Disconnect the injection pump and injection line (2).



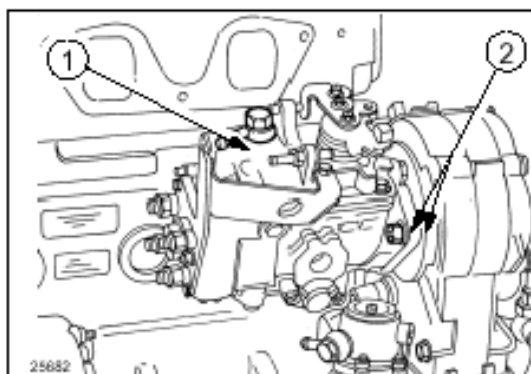
Step 11

Remove the retaining bolts and remove the inlet manifold (1).



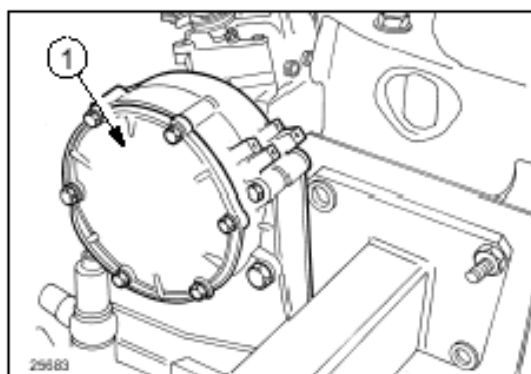
Step 12

Make sure that there is references marks (2) for injection pump timing operations and remove the pump retaining bolts (1).



Step 13

Remove the access cover (1) of the injection pump drive gearbox.





Engine disassembling & assembling

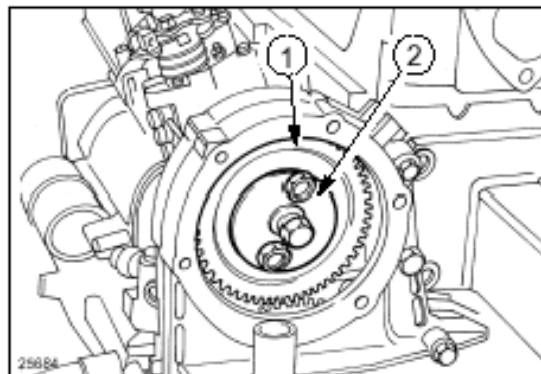
Engine disassembling

Step 14

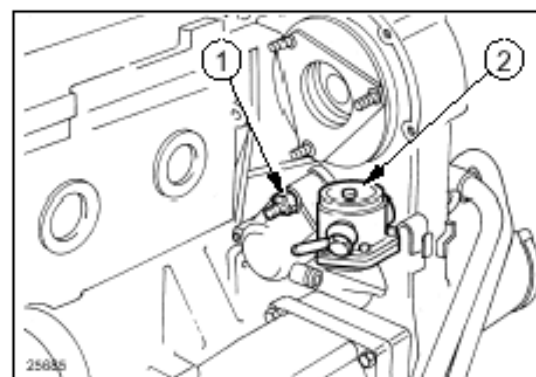
Unscrew the nut securing the injection pump to the drive gear (1).

Step 15

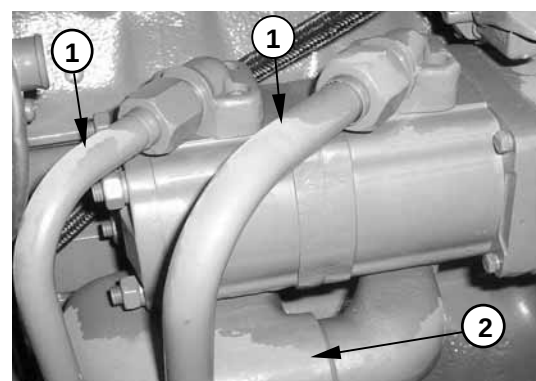
Extract the injection pump drive gear-using tool **1035170097** (2) and recover the injection pump and the woodruff key.

**Step 16**

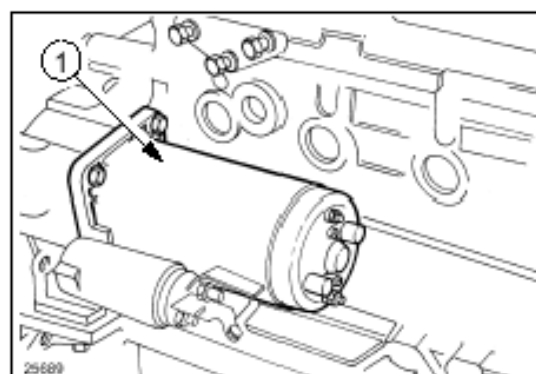
Unscrew the retaining nuts (1) and recover the fuel pump support (2).

**Step 17**

Disconnect the hydraulic delivery & suction pipe (1 & 2 respectively) by loosening their Allen key bolts and disconnect the hydraulic filters.

**Step 18**

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





Engine disassembling & assembling

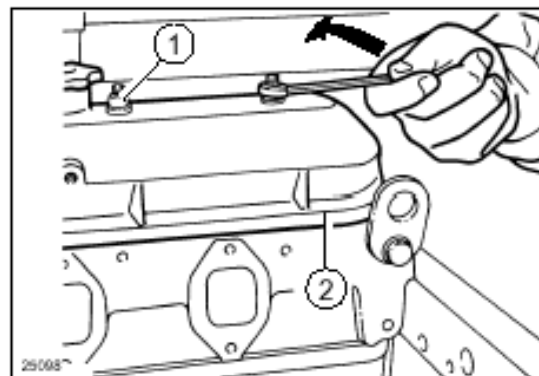
Engine disassembling

Step 19

Remove the injector mounting nuts, the underlying spherical washers, then the supports and the injectors themselves.

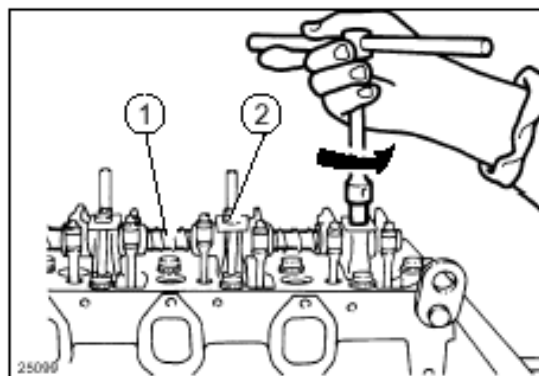
Step 20

20. Remove the rocker cover bolts (1), washers and seals, and then the rocker cover (2) and its gasket.



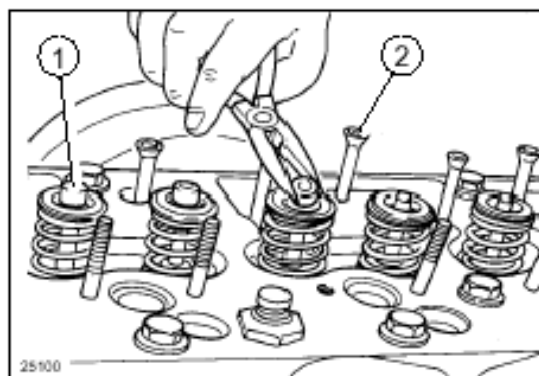
Step 21

Remove the rocker shaft retaining bolts (2), and then remove the entire rocker shaft assembly (1).



Step 22

Remove the valve collets (1) and extract the pushrods (2).

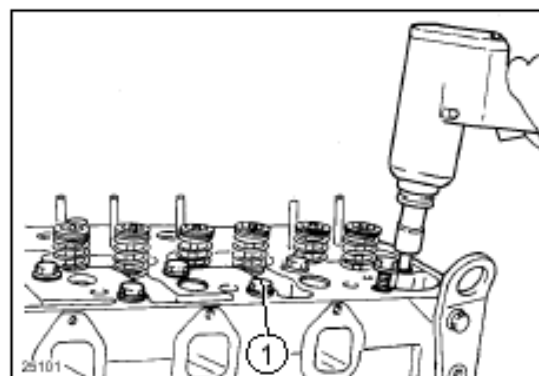


Step 23

Unscrew the cylinder head bolts (1) and remove the head using a hoist and lifting hook.

Step 24

Remove the cylinder head gasket.



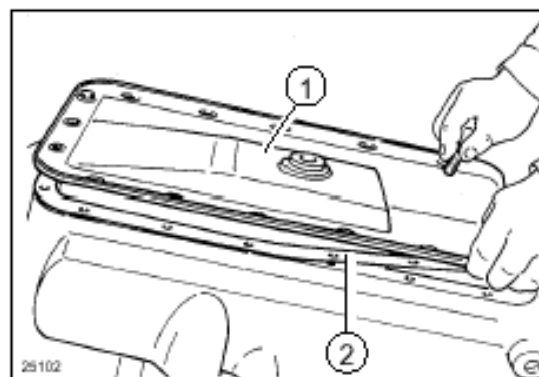


Engine disassembling & assembling

Engine disassembling

Step 25

Turn the engine upside down on the rotary stand, remove the sump pan bolts, the sump pan (1) and its gasket (2).

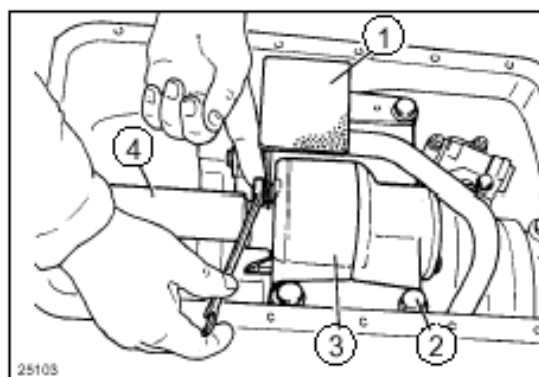


Step 26

Unscrew the retaining bolts and remove the oil pick-up pipe (1) complete with the strain filter and seal.

Step 27

Unscrew the retaining bolts (2) and detach the counter weight housing (3) by moving it outward, remove the sleeve coupling (4) and the housing (3).

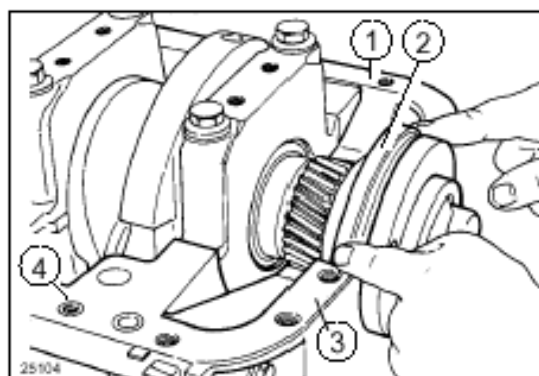


Step 28

Unscrew the sump pan retaining bolts (4) and remove the sump pan using a hoist, lifting hook and lifting chain with eyeholes.

Step 29

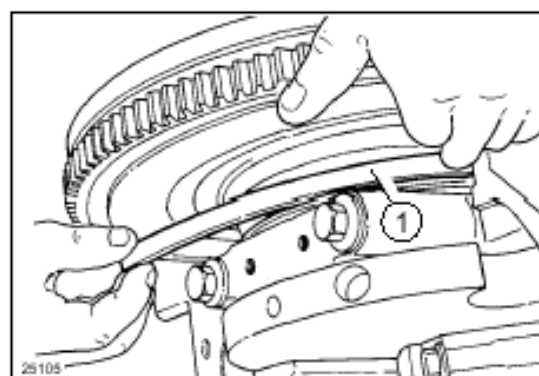
Remove the half-gaskets (1) and (3) between the crankcase and sump pan and the gasket (2) between the timing gear carrier and sump pan.



Step 30

Remove the gasket (1) between the flywheel carrier and sump pan.

NOTE: When relocating gaskets (1), in this figure and (2), in previous figure, apply **RHODORSIL CAF 1** silicone sealing compound to the mating surfaces.



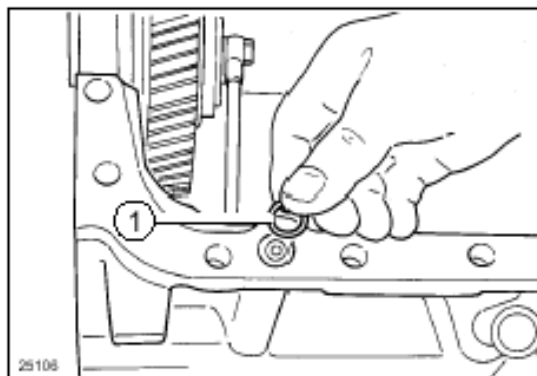


Engine disassembling & assembling

Engine disassembling

Step 31

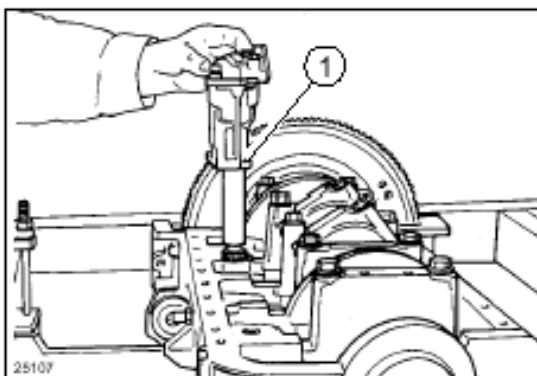
Remove the rotating counterweight oil seal O-ring (1) installed on the crankcase-mating surface.



Step 32

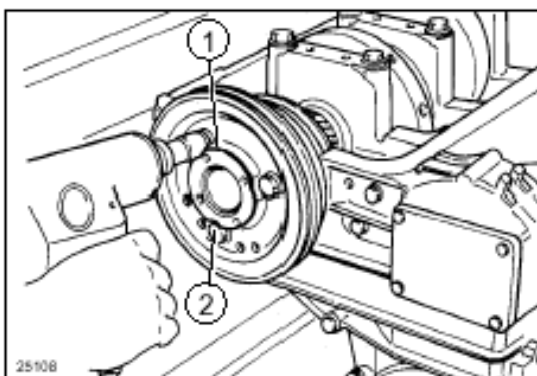
Unscrew retaining bolts (1) and remove the complete oil pump.

NOTE: For model 8045.25.785 refer to point 54.



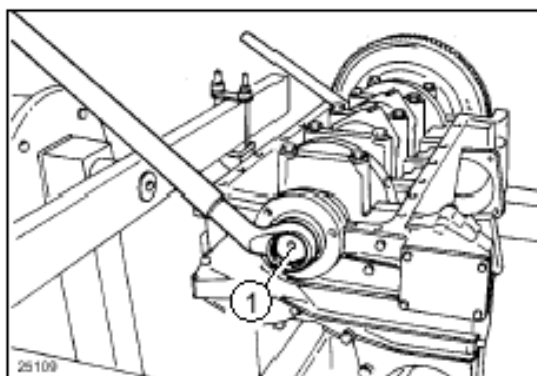
Step 33

Unscrew the retaining bolts (2) and remove the crankshaft pulley (1).



Step 34

Straighten the lock tab, hold the crankshaft against rotation and unscrew nut.



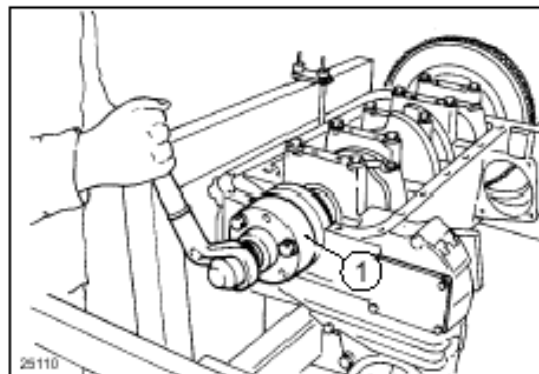


Engine disassembling & assembling

Engine disassembling

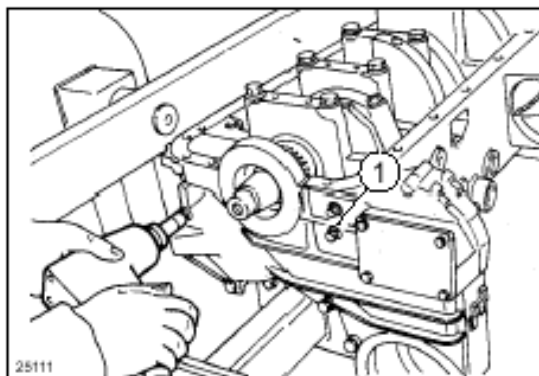
Step 35

Pull the pulley hub off the crankshaft using (1) and recover the woodruff key.



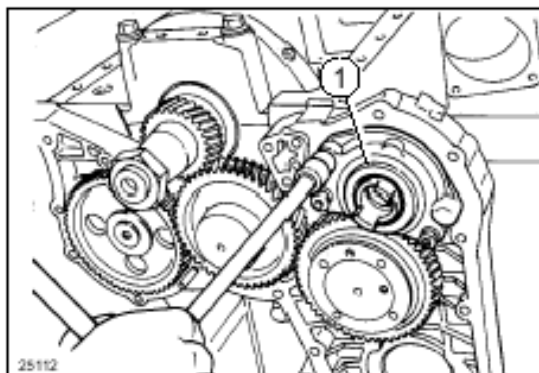
Step 36

Unscrew the retaining bolt (1) and remove the timing cover and its gasket.



Step 37

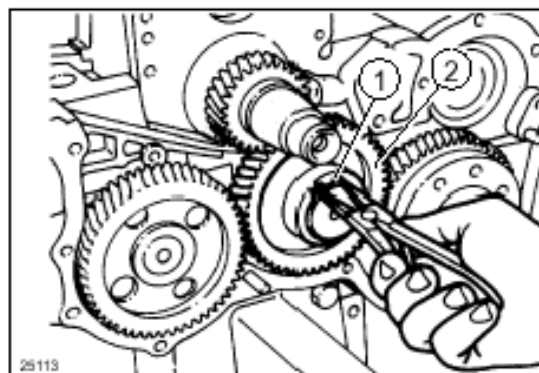
Unscrew the retaining bolts and remove the lift pump gear carrier (1).



Step 38

Remove the spring ring (1) and remove the thrust washer and the intermediate gear (2).

NOTE: When refitting the intermediate gear see engine timing instructions.



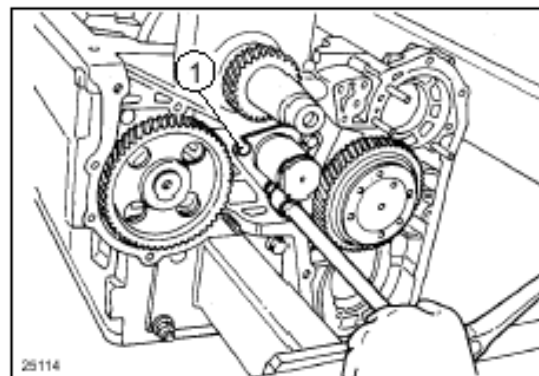


Engine disassembling & assembling

Engine disassembling

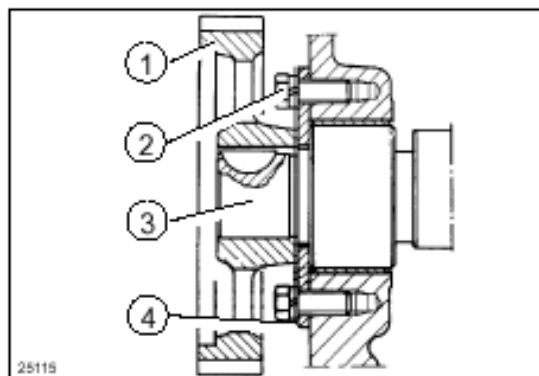
Step 39

Unscrew the retaining bolts (1) and remove the intermediate gear journal.



Step 40

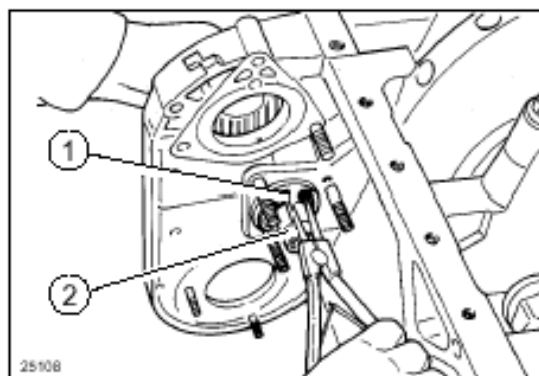
Unscrew the retaining bolts (2) and withdraw the camshaft (3) complete with the crankshaft gear (1) and the end plate (4).



Step 41

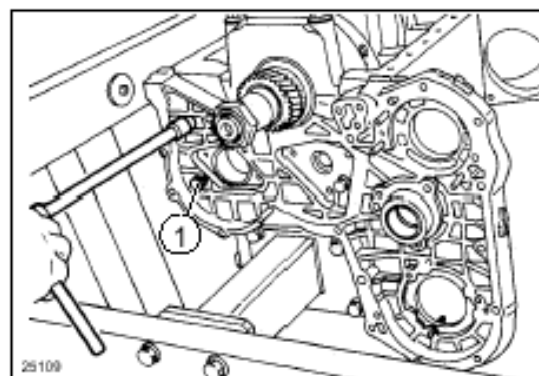
Remove the spring ring (1) and the thrust washer, and withdraw the gear with fuel supply pump camshaft (2) from the opposite side.

NOTE: This gear transmits drive to the injection pump. On re-assembly see timing instructions.



Step 42

Unscrew the retaining bolts (1) and remove the timing gear case.





Engine disassembling & assembling

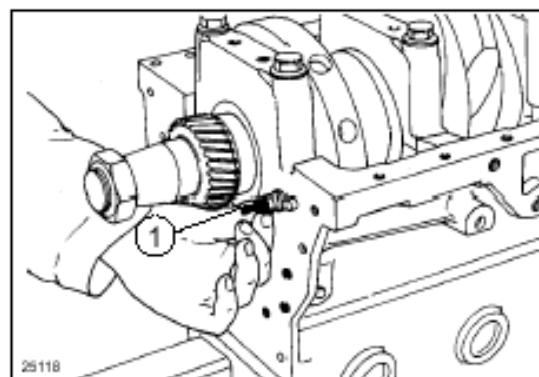
Engine disassembling

Step 43

Remove the O-ring seal (1) installed in the lift pump drive shaft lubrication line.

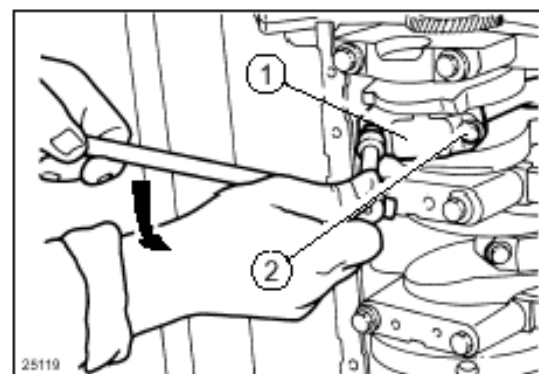
Step 44

Remove the crankcase - timing gear case gasket.



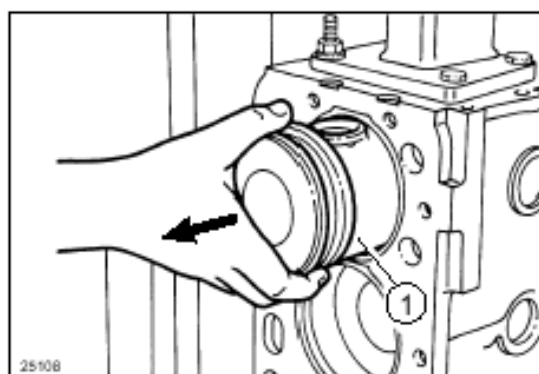
Step 45

Rotate the engine on the stand. Unscrew the big-end cap bolts (2) and recover the big-end caps with their shell bearings.



Step 46

Slide the pistons (1), complete with rings, gudgeon pins and connecting rods, out of the cylinder linings.

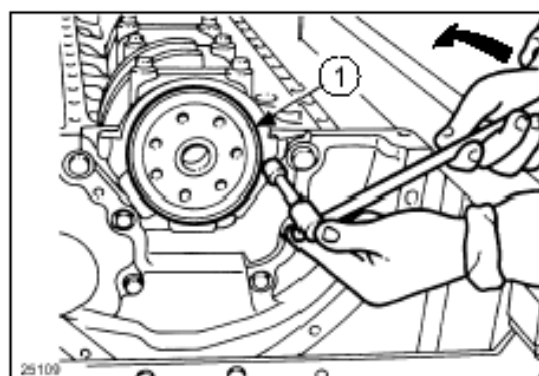


Step 47

Rotate the engine on the stand through 90 ° back to the horizontal position. Unscrew the flywheel bolts and remove the flywheel with the aid of a hoist and hook.

Step 48

Unscrew the retaining bolts and remove the rear oil seal carrier (1) complete with gasket





Engine disassembling & assembling

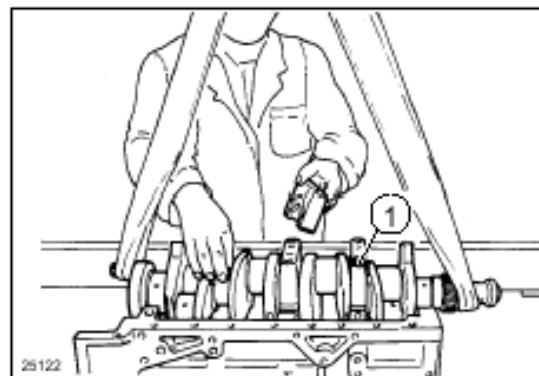
Engine disassembling

Step 49

Unscrew the main bearing cap bolts (1), and remove the main bearing caps with relative bearing shells, and recover the thrust washer located on the penultimate main bearing, as shown in the figure.

Step 50

Lift the crankshaft clear of the crankcase using a hoist and nylon sling. Recover the bearing shells, thrust washers and tappets.



Step 51

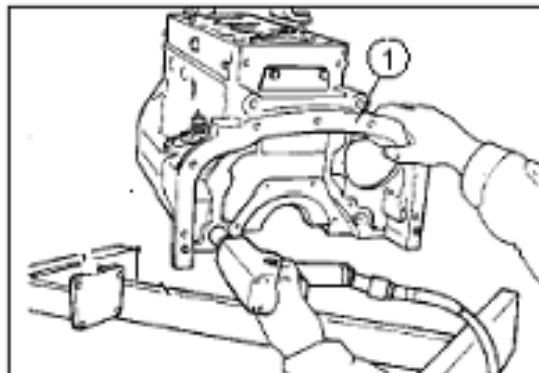
Turn the engine on the stand through 180 °; attach the lifting chain with eyeholes to the crankcase, as shown in the figure.

Step 52

Lift the engine clear of the stand.

Step 53

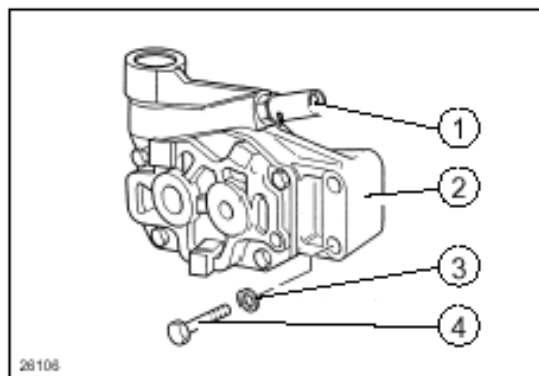
Unscrew the retaining bolts and remove the rear crankcase housing (1) and its gasket.



NOTE: Oil pump model 8045.25.785

Step 54

Remove the fixing screws (4), and take off the washers (3) and the engine lubrication oil pump (2) complete with pressure relief valve (1).



Step 55

Remove the lubricating oil pipe (3), as shown in the next figure.

Step 56

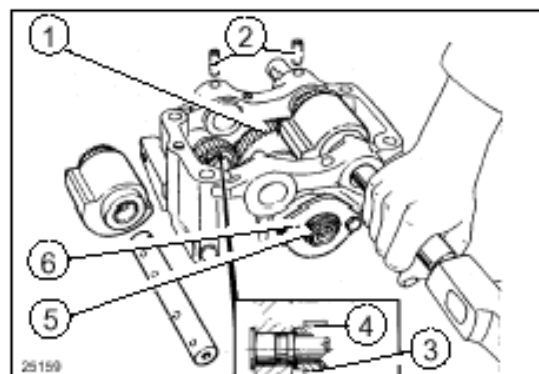
Remove spring ring (18)

Step 57

Remove spring ring (25) and cover (23) with relative O- ring seal (24).

Step 58

Withdraw gear (22) from sump.





Engine disassembling & assembling

Engine disassembling

Step 59

Remove spring ring (2), gear (26) and the thrust washers (1).

Step 60

Inspect the shaft (27). If signs of scoring or wear are evident, the shaft must be replaced.

Step 61

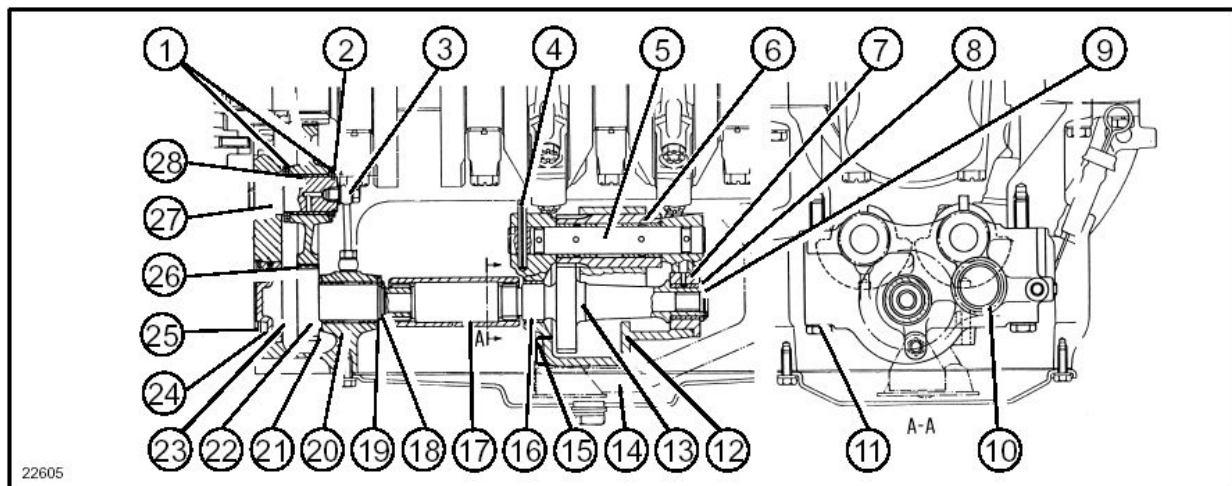
Withdraw the spring pins (4) and dismantle the counter weight shaft using a suitable drift.

Step 62

Remove the counterweight drive gear (13) by removing the spring ring (9) and the carrier retaining bolts (6).

Step 63

Remove spring ring (4) and intermediate gear (3).



- | | |
|---|----------------------------------|
| 1. Thrust washers. | 15. Screen filter retaining bolt |
| 2. Spring ring. | 16. Bushing. |
| 3. Lubricating oil pipe for bushing (28). | 17. Rigid coupling sleeve. |
| 4. Shaft retaining spring pin (5). | 18. Spring ring. |
| 5. Counterweight rotation shaft. | 19. Thrust washer. |
| 6. Counterweight. | 20. Carrier for gear (22). |
| 7. Carrier for counterweight drives gear (13). | 21. Thrust washer. |
| 8. Thrust washer. | 22. Counterweight drives gear. |
| 9. Circlip. | 23. Cover. |
| 10. Counterweight intermediate gear. | 24. O-ring seal. |
| 11. Bolts securing counterweight housing to sump. | 25. Spring ring. |
| 12. Counterweight housing. | 26. Intermediate gear. |
| 13. Counterweight drives gear. | 27. Shaft for gear (26). |
| 14. Screen filter. | 28. Bushing. |



Engine disassembling & assembling

Engine assembling

General notes and information

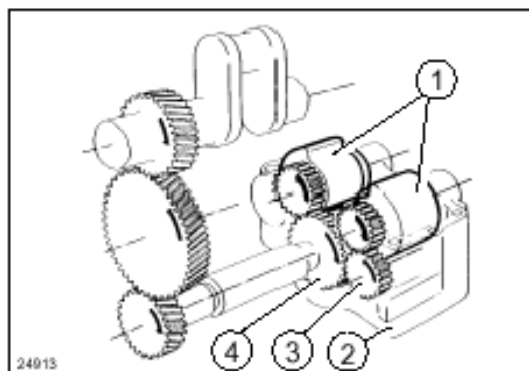
- *After dismantling the engine, clean all parts carefully.*
- *To reassemble the engine, carry out the dismantling operations in reverse order mentioned above.*
- *Tight the nut/bolt on specified torque.*
- In addition, make sure to:*
 - *Replace all seals and gaskets at each complete or partial engine rebuild.*
 - *Lubricate all rotating parts and oil seals with engine oil prior to installation.*
 - *Lubricate the oil filter mounting seal prior to filling the filter.*

Mounting the balancing device with counter-rotating weight

Disassembling operation 58 to 66

Step 1

Assemble counterweight parts in the housing (2), carrying out dismantling operations 64 to 66 in reverse order. Align the positioning marks on the gear (4) and counterweights (1) (indicated by the arrows in fig.)



Step 2

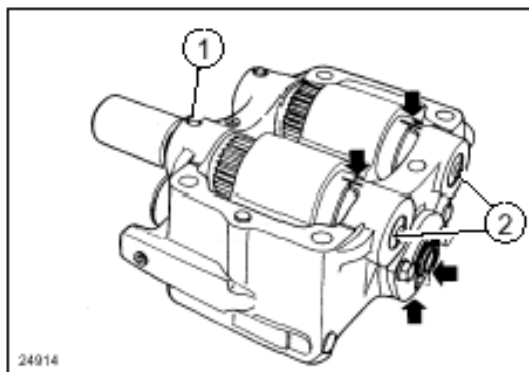
The intermediate gear (3) must be installed with the longer side of its hub towards the casing side.

Step 3

The holes for the lock pins (1) in the counterweight shafts (2) must be aligned with the corresponding holes in the casing.

Step 4

Install the counterweight assembly on the sump, carrying out the operations 58 to 62 in reverse order.



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