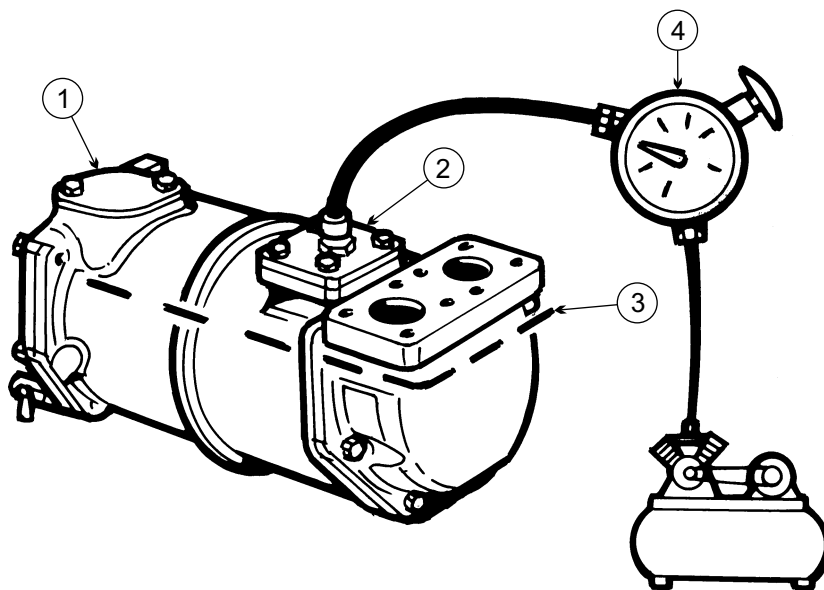


**To pressure test oil cooler assembly 19-5**

- 1 Make up a two bolt adaptor plate (A1) and a four bolt adaptor plate with air pipe fitting (A2).
- 2 Fit the four bolt adaptor plate using a new sealing joint.
- 3 Fill the oil cooler with clean water to the level indicated (A3).
- 4 Fit the two bolt adaptor plate using a new sealing joint.
- 5 Connect compressed air to the oil cooler using a pressure gauge regulator (A4) to give 3 bar (50 psi) maximum.
- 6 Pressure should hold without dropping for 3 minutes.



# 19

## Oil pump

### General description

The oil pump is mounted on the engine suspension plate and is driven by the crankshaft idler gear. It is a spur gear pump with internal none adjustable oil pressure relief valve. The oil pump is a none serviceable unit. In the event of failure or at major overhaul a new pump (supplied with drive gear fitted) can be obtained from your Perkins Distributor.

To remove and to fit

19-6

### Special tools

15 mm Socket ( $\frac{3}{8}$ "-10 mm drive) "Universally available"

12" (300 mm) x  $\frac{3}{8}$ " (10 mm) Extension bar  
"Universally available"

Crowfoot spanner "Universally available"

### To remove

1 Remove the oil pick-up pipe (A1) and discard the sealing 'O' rings.

2 Remove the flexible oil pipes (A2) and (A3) using the crowfoot spanner.

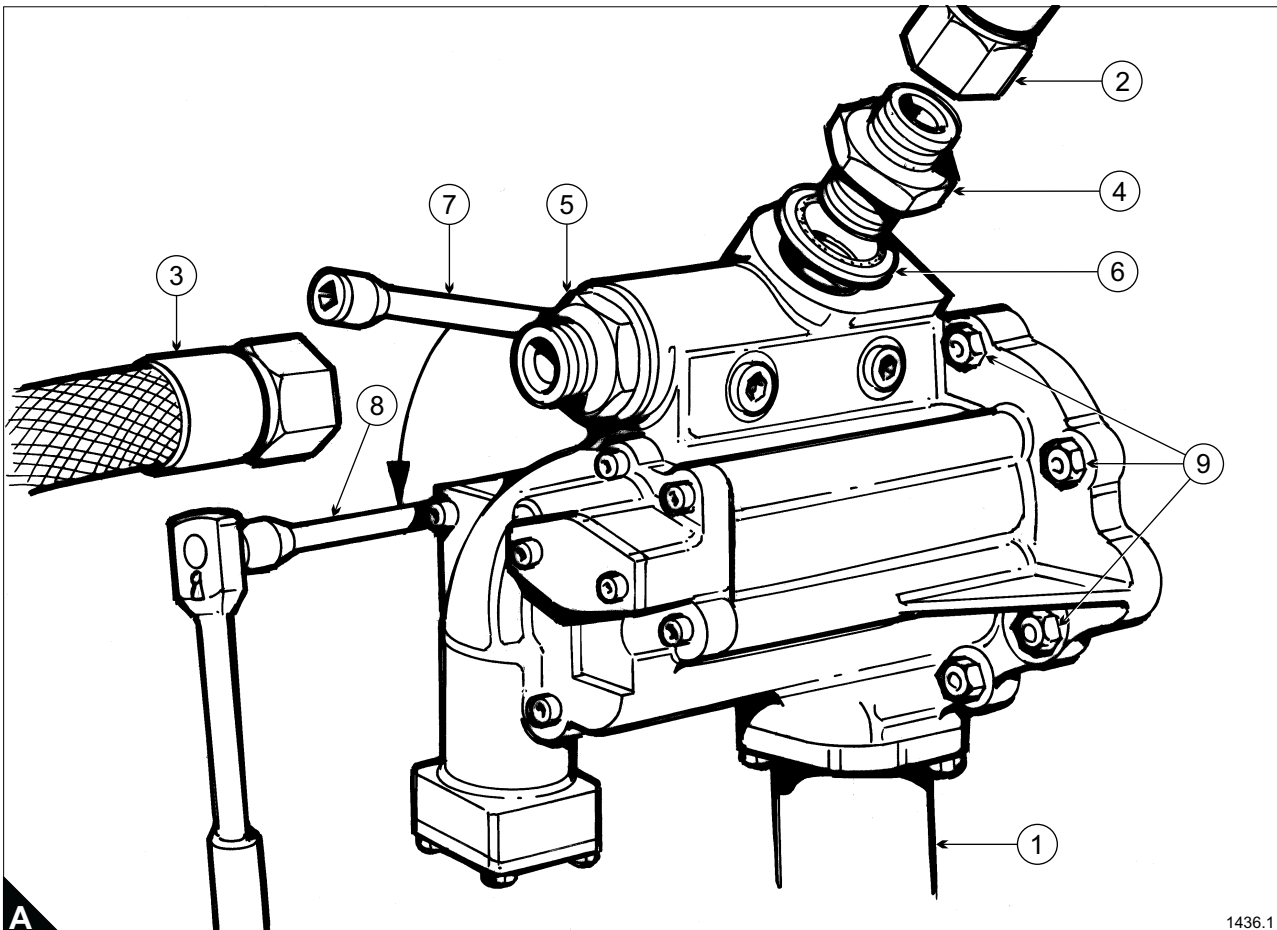
3 Remove the oil pipe unions (A4) and (A5), discard the sealing washers (A6).

**Note:** The oil pipe unions must be retained for fitting to the new oil pump.

4 Fit the 15 mm socket to the extension bar, locate the socket in turn on the retaining nuts in position (A7) and (A8) on the crankcase side of the oil pump and remove them.

5 Remove the retaining nuts (A9) then pull the oil pump out of its location in the suspension plate.

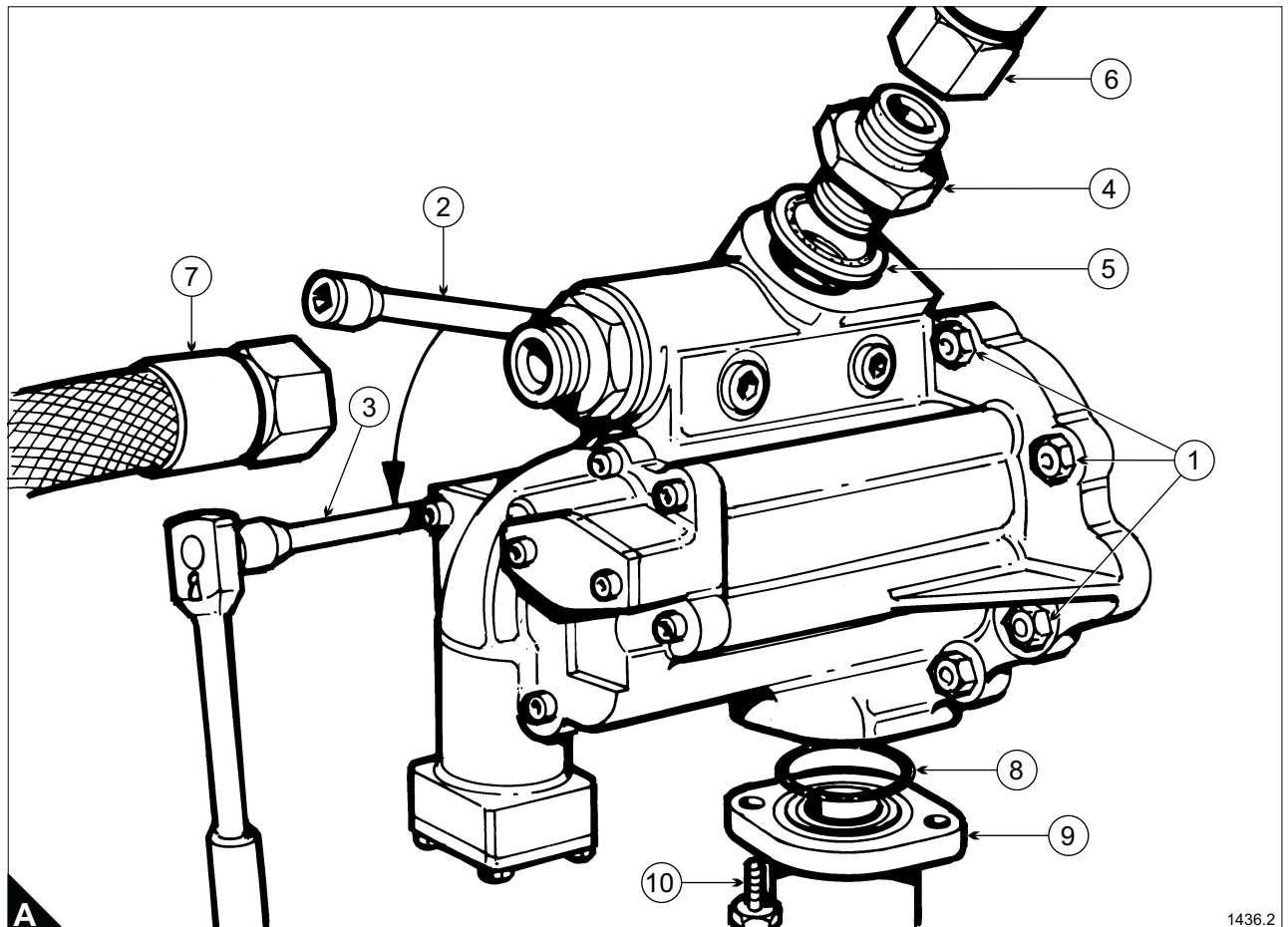
6 Remove the oil pump to suspension plate sealing joint.



1436.1

**To fit**

- 1 Fit a new oil pump to suspension plate joint.
- 2 Lubricate the oil pump drive gear the carefully slide the oil pump down its mounting studs into position.
- 3 Fit the four outer retaining nuts (A1) hand tight.
- 4 Using the 15 mm socket and extension bar fit the crankcase side retaining nuts in positions (A2) and (A3) hand tight.
- 5 Torque the retaining nuts to 35 lb.ft (50 Nm) in a diagonal pattern pulling the pump squarely to the suspension plate.
- 6 Fit flexible oil pipe unions (A4) using new sealing washers (A5) torque the unions to 80 lb.ft (108 Nm).
- 7 Fit the flexible oil pipes (A6) and (A7) torquing them to 80 lb.ft (108 Nm).
- 8 Fit the 'O' rings (A8) to the oil pick-up pipe flanges (A9) holding them in position with petroleum jelly.
- 9 Carefully tighten the retaining bolts (A10) by hand pulling the oil pick-up pipe squarely to the oil pump and oil sump. Torque to 35 lb.ft (50 Nm).





# 20

## Charge air cooler

### General description

The charge cooler heat exchanger matrix is a two stage system using coolant from the engine and an independent supply.

The compressed gas and air mixture passes through the matrix lowering its temperature before it enters the engine inlet manifolds.

The charge air cooler heat exchanger matrix is a non-serviceable unit, in the event of failure or at a major overhaul a new matrix can be obtained from your Perkins Agent.

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To remove and to fit

20-1

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### Special tools

Hoist and sling "Universally available"

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### To remove

1 Drain the charge cooler cooling system.

**Note:** Start the charge cooler removal procedure from 'A' bank flywheel end (A).

2 Remove the CMR sensors (A1) and (A2).

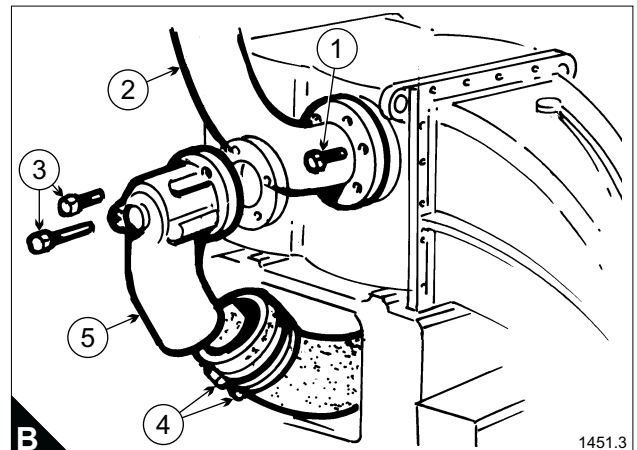
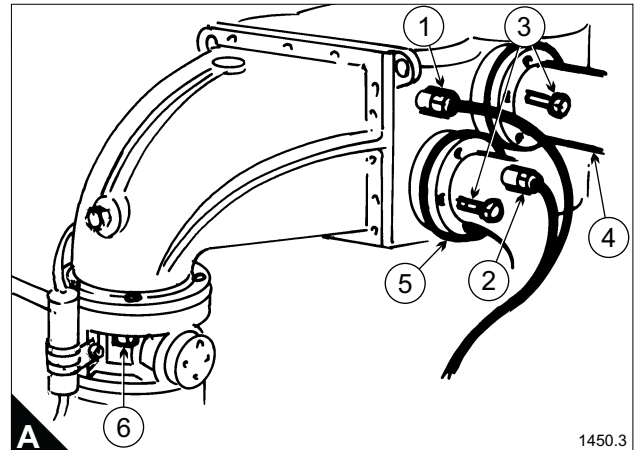
3 Remove the retaining bolts (B3).

4 Remove the coolant pipes (A4) and (A5) (OEM installed).

5 Remove the four retaining bolts (A6) from the butterfly valve flange.

6 Working on 'B' Bank flywheel end remove the retaining bolts (B1) and the OEM installed pipework (B2).

7 Remove the retaining bolts (B3) and release the hose clips (B4) to remove coolant pipe from the engine.



*Continued*