

Engine - Overhaul

DISMANTLING

I

Removing the cylinder head

- Remove the cylinder head cover.
- Progressively slacken the cylinder head bolts working in a spiral from the outside.
- Release the cylinder head using levers.
- Remove the cylinder head and gasket.

II

Removing the oil pump

- Remove:
 - The sump and its joint
 - The bolts (1), (2) and (3)
 - The seal carrier plate (4)

CAUTION: The bolt (1) is special as it serves to centralise the pump (5).

III

- Lift the pump (5) to free it from its centralising dowel.
- Remove:
 - The spacer (6) (according to engine type).
 - The pump (5) /drive chain/crankshaft sprocket (7) assembly.
- Retrieve the key and the centralising dowel.

IV

Remove the crankshaft and piston

- Remove:
 - The big end caps (8) marking them.
 - The main bearing caps (9) (cast - in marks).
 - With No.2 cap, retrieve the end float washers.

V

- Remove:
 - The oil seal (10).
 - The end float washers (11).
 - The crankshaft.
 - The main bearing shells.
 - The piston/connecting rod assemblies.
 - Remove the gudgeon pin circlips and separate the pistons from the connecting rods.

VI

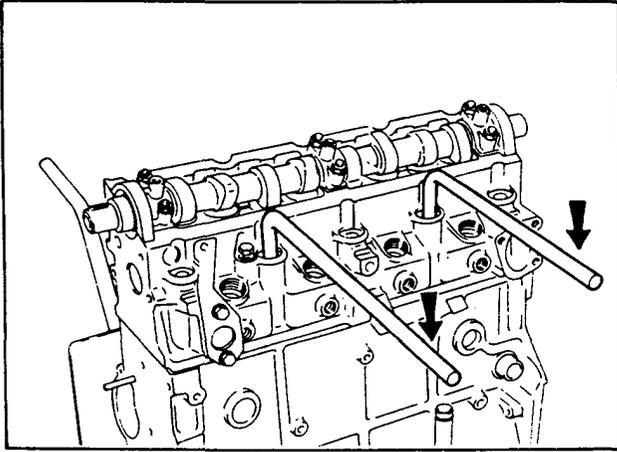
- Remove:
 - The plugs (12) from the oil galleries (illustrations V and VI).

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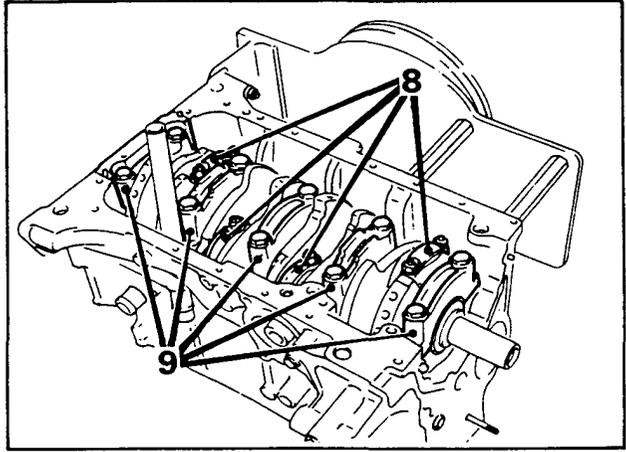
- The piston crown cooling jets.
- Thoroughly clean out the oilways.



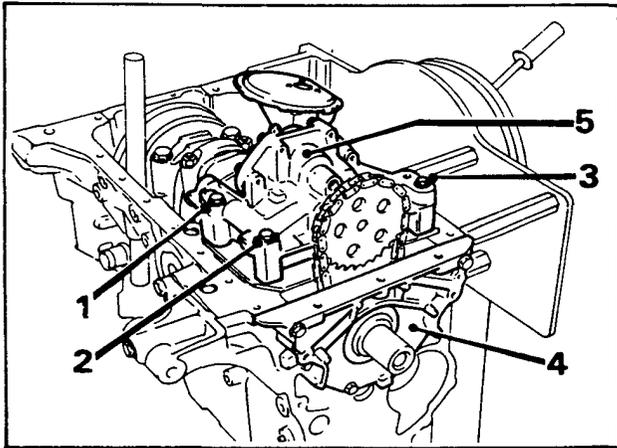
I



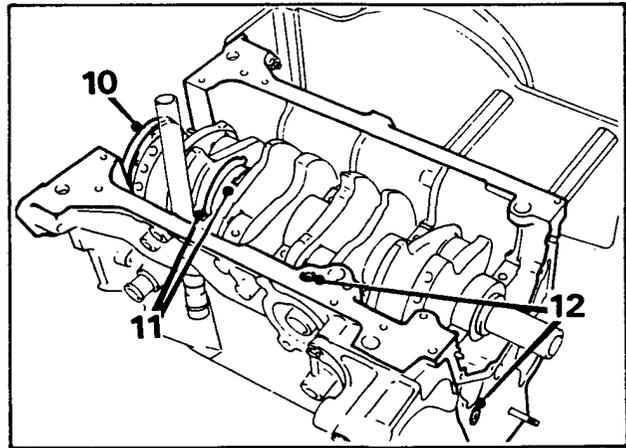
IV



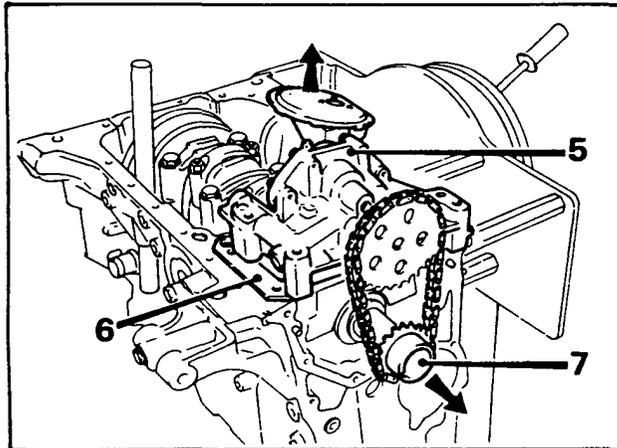
II



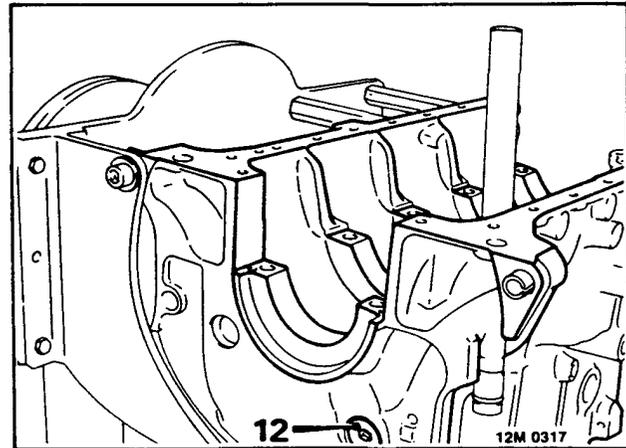
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III



VI



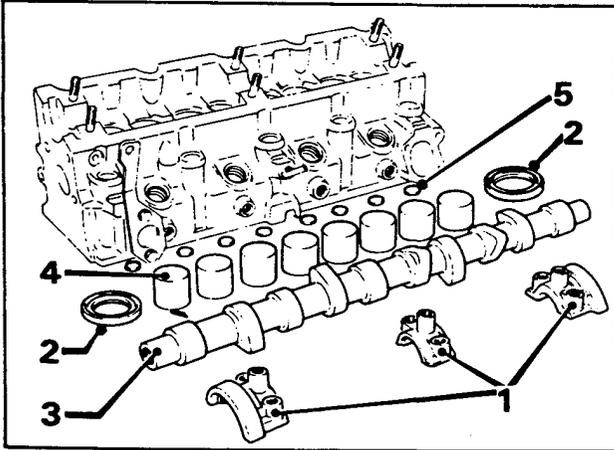
Engine - Overhaul

CYLINDER HEAD OVERHAUL

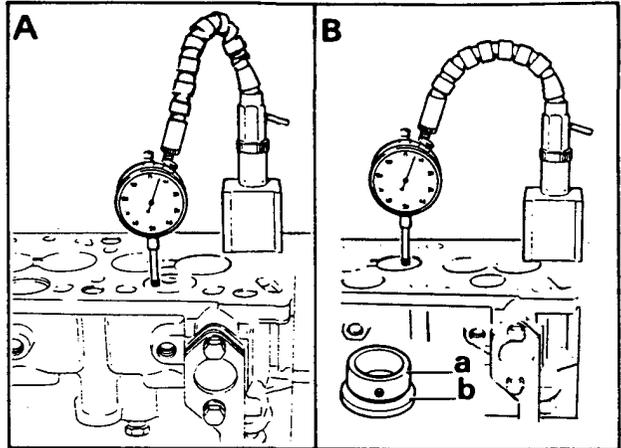
- I**
- Progressively slacken the camshaft bearing caps (1)
 - Remove:
 - The bearing caps (1) (cast - in markings).
 - The oil seals (2).
 - The camshaft (3).
 - The tappets (4).
 - The adjustment shims (5).
- II**
- Remove:
 - The eight valves using tool **18G 1519**.
 - The swirl chambers by drifting them out from the injector orifices.
 - Clean the cylinder head, use suitable gasket remover.
- III**
- Check the gasket face for bow. Maximum bow: **0.07 mm**.
 - Check the condition of:
 - The valve seats and guides.*
 - The valves.*
 - The valve springs.*
 - The swirl chambers.
 - The camshaft.
 - The camshaft bearings.
 - The various tapped holes.
- * **Important:** For checking, rectification or replacement of these parts, (see pages 2 to 6).
- IV**
- Check the protrusion of the swirl chambers (A):
 - Protrusion: **0 to 0.03**.
 - Achieve this dimension by machining faces (a) and (b).
 - Check the valve recess (B):
EX = 0.9 to 1.45
IN = 0.5 to 1.05
 - Achieve these dimensions by machining the valve seats.
- V**
- Lap in the valves.
 - Refit the valves using tool **18G 1519**.
- Important:** If the cylinder head has been machined, fit compensating washers under the valve springs. (See page 2)
- Fit a basic shim **2.425** thick to each valve stem and check they are proud of the cup (6).
 - If they are not, grind the top face of the cup (6).
- VI**
- Refit the tappets.
 - Oil the camshaft bearings.
 - Fit the camshaft with the **DIST** marking at the timing gear end.
 - Progressively tighten the bearing caps to **17.5 Nm** (cast - in markings).
 - Check and adjust tappet clearances (j) (illustration V).



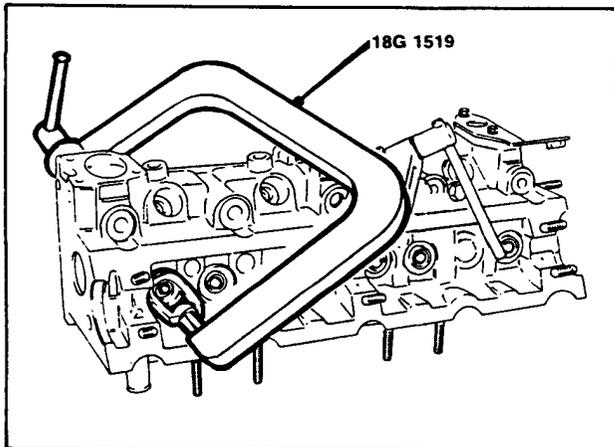
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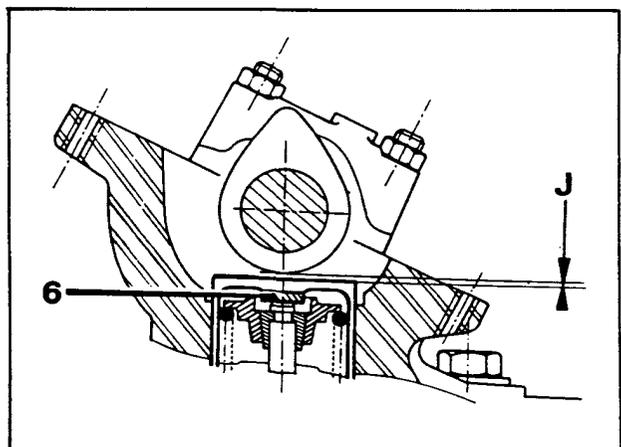
IV



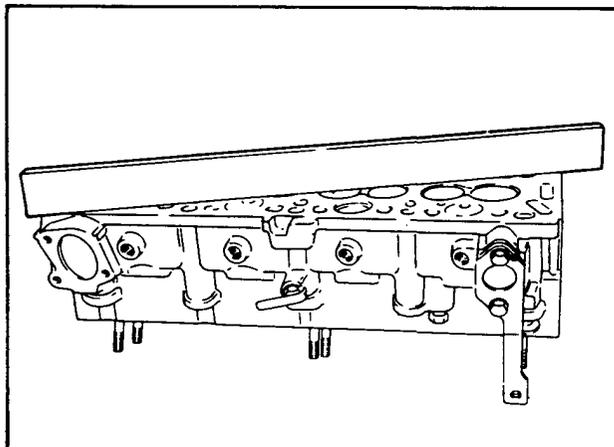
II



V



III



VI

